

Fisher Chassis R1, R2, R3 Service Manual

GENERAL INFORMATION

THE FISHER Coronet Model has been designed for those desiring an FM-AM receiver of professional quality. It comprises a two-band superheterodyne circuit and employs completely independent RF and IF channels for AM and FM. There are three stages of IF and a ratio detector on FM, one stage of IF on AM and a tuned RF stage ahead of the first detector on both AM and FM. Automatic Frequency Control (AFC) is incorporated on FM to assure accurate tuning and complete freedom from drift. The Fisher Coronet is supplied with built-in FM and AM antennas. Terminals are also provided for connection of external antennas, where the latter are desirable. The external FM antenna input is designed to operate either with 300-ohm balanced lead-in or 72-ohm coaxial shielded lead-in.

The wide range audio amplifier employs push-pull parallel power output to assure extremely low distortion even at high power. Separate tone controls are provided for treble and bass. These are independent of each other, and are continuously variable, offering an infinite number of combinations of tone balance. The phonograph pre-amplifier permits the use of the high quality magnetic pickups featured in THE FISHER.

The carefully designed flywheel tuning mechanism is unexcelled in simplicity and ease of station selection. The slide rule dial glass has large, easy-to-read numerals, edge lighted. There are individual channel indicator lights. Receptacles are available for instant connection of the FISHER Dynamic Range Expander or the FISHER Dynamic Noise Suppressor. An auxiliary input receptacle is furnished for connection to the sound channel of a television receiver, microphone pre-amplifier, etc. The receiver is connected to this jack when the Channel Selector Switch is turned to the "TV" position. An AC receptacle mounted on the rear apron of the chassis supplies current for the operation of a Television Receiver when the Channel Selector Switch is turned to the "TV" position.

OPERATING INSTRUCTIONS

ANTENNAS

The built-in FM antenna is of the folded dipole type and is satisfactory in most urban locations. Where reception is desired either from weak or remote FM stations, we recommend the use of the specially matched, FISHER FM Antenna System.

The AM antenna consists of a loop mounted inside the speaker compartment. It is the only antenna required for reception of local broadcast stations, except where the receiver is used in unusually noisy locations or at a distance from broadcasting centers. In the event that an outside antenna is required, we recommend the use of THE FISHER Noise-Reducing Antenna System. This system offers optimum efficiency in bringing, from the roof to the receiver, the signal available in the location in which the receiver is to be used. CAUTION: NEVER disconnect the AM loop antenna plug, *whether or not the receiver is used with an external antenna.*

ON-OFF SWITCH

The On-Off Switch and the Bass Tone Control are regulated by the same knob. When turning the set on continue the rotation of the knob to that point which gives the desired degree of bass intensity. (For further details on the Bass Tone Control see below.)

tone CONTROLS

TREBLE TONE CONTROL. This control can be used to regulate brilliance. For a more intimate tone, turn to left; for

brighter tone, turn to right. Set it at the point *you find most pleasing*, for the particular program being played.

BASS TONE CONTROL. Should be set to minimum (extreme left) on male speaking voice. For music, according to personal taste. When playing music at low volumes, the usual loss is bass intensity (due to one's inherently reduced hearing efficiency at low volumes) can be compensated for by turning the control clockwise to the desired degree.

AUTOMATIC RECORD CHANGER

See separate instruction sheet supplied with receiver.

THE FISHER DYNAMIC NOISE SUPPRESSOR (Optional Equipment)

THE FISHER Dynamic Noise Suppressor is designed to reduce the amount of scratch from recordings without fixed impairment of the high frequencies. When the control is turned to the extreme left, the Suppressor is OFF. The degree of suppression can be determined by the amount the control is turned to the right. It is suggested that the control be set at that point which gives the maximum brilliance, combined with the minimum of surface noise, on the particular selection being played. NOTE: If the Suppressor is purchased after the delivery of the original set, it can be instantly connected. Simply remove the jumper that will be found on the two receptacles marked "Expander" on the rear apron of the chassis. Connect the input of the Suppressor to the receptacle on the chassis marked "Expander Input"; connect the output of the Suppressor to the receptacle on the chassis marked "Expander Output."

THE FISHER DYNAMIC RANGE EXPANDER (Optional Equipment)

THE FISHER Dynamic Range Expander is designed to restore to records the full accents and crescendos of the original performance, usually monitored out of the recording at the time it was made, because of the limited dimensions of the groove. Turn the control to the right, to the desired degree. It will then operate automatically. The main volume control should be set at that point where, with the amount of expansion produced, the maximum volume will be within the desired limit. NOTE: If the Expander is purchased after the delivery of the original set, it can be instantly connected. Simply remove the jumper that will be found on the two receptacles marked "Expander" on the rear apron of the chassis. Connect the input of the Expander to the receptacle on the chassis marked "Expander Input"; connect the output of the Expander to the receptacle on the chassis marked "Expander Output."

CHANNEL SELECTOR SWITCH

Turn Channel Selector knob to the desired channel whether Broadcast, FM, Phonograph, or Television Sound input. Lights on the dial scale indicate the channel to which the knob is set.

AUTOMATIC FREQUENCY CONTROL ON FM

THE FISHER FM Receiver is equipped with an Automatic Frequency Control, designed to simplify tuning. You will find that when the dial pointer is brought within the vicinity of the desired channel, the station will automatically lock in and remain correctly tuned. It cannot drift out. The control regulating the range of lock-in is located on the rear apron of the chassis and pre-set at our laboratories. In some locations, however, where a weak station is separated from a strong station by only two channels, the latter will tend to operate the control circuit and

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make it difficult to bring in the weak station. Should this occur, turn the Automatic Frequency Control (knurled brass shaft on the rear apron of the chassis) counter clockwise to the degree necessary to eliminate the above condition.

ALIGNMENT PROCEDURE AM IF ALIGNMENT

NOTE: For the following IF and RF adjustments the signal generator should be readjusted as necessary to maintain the output below 2 volts across the voice coil.

1. With the Selector Switch in the Broadcast position, set the tuning capacitor for maximum capacity.
2. Feed a 455 Kc amplitude modulated signal to the signal grid of the 6BE6 converter tube. (pin 7 of V-9) through a 0.1 mfd capacitor.
3. Set the Volume Control at maximum.
4. Connect an output meter across the speaker voice coil.
5. Adjust the top and bottom cores of the 1st and 2nd IF transformers (Z-5 and Z-6) for maximum. If noise causes excessive meter deflection, the Volume Control should be turned down slightly.

BROADCAST ALIGNMENT

1. With the tuning capacitor completely closed, set the pointer to the index mark on the dial. (The first graduation mark appearing at the extreme left of the dial scale markings.)
2. Connect an amplitude modulated signal generator to the AM antenna terminals. A 200 mmfd capacitor should be inserted between the "high" side of the generator lead and the antenna terminal.
3. Set the dial and signal generator to 1400 Kc.
4. Adjust the Broadcast oscillator, RF and antenna coil trimmers (C-43, C-41 and C-36 respectively) for maximum.
5. Set the dial and signal generator to 600 Kc.
6. Adjust the Oscillator, RF and antenna coil cores (L-9, L-8 and L-7 respectively) for maximum.
7. Reset the dial and signal generator to 1400 Kc and repeat step 4 if necessary.

FM DETECTOR ALIGNMENT

NOTE: For all of the following IF and RF adjustments the output of the signal generator should be readjusted as necessary to maintain the voltage at test point A (shown on schematic) between 8 and 9 volts dc.

1. Rotate the Selector Switch to the FM position.
2. Connect an electronic voltmeter between the chassis and the positive side of the 4 mfd electrolytic capacitor, C34. (Test point A on the schematic diagram.)
3. Feed an unmodulated 10.7 Mc signal through a .1 mfd capacitor to the 6BA6 FM detector-drive grid (pin 1 on V-6.)
4. Tune the FM detector primary (bottom of Z-4) for maximum.
5. Disconnect the electronic voltmeter from the 4 mfd capacitor and connect to the FM detector audio output (test point B on schematic diagram.)
6. Tune the FM detector secondary (top of Z-4) for zero.

FM IF ALIGNMENT

1. Feed an unmodulated 10.7 Mc signal through a 500 to 1000 mmfd capacitor to the grid of the RF amplifier tube (pin 1 of V-1.)
2. Connect the electronic voltmeter to test point A as in step 2 above.
3. Align the top and bottom cores of the 1st, 2nd and 3rd IF coils (Z-1, Z-2 and Z-3 respectively) for maximum.

FM RF ALIGNMENT

NOTE: For the following adjustments the AFC circuit should be disabled by turning the AFC control (R-13) fully counter-clockwise.

1. Set the dial to 106 Mc.
2. Feed a 106 Mc unmodulated signal to the 300-ohm FM antenna terminals with a 120 ohm composition resistor connected in series with each lead of the signal generator.
3. Connect the electronic voltmeter to test point A.
4. Adjust the oscillator, RF and antenna trimmers (C-12, C-7 and C-3 respectively) for maximum. For optimum adjustment rock the tuning capacitor back and forth while adjusting the RF trimmer.

NOTE

THE FOLLOWING ADJUSTMENTS HAVE BEEN MADE AT THE FACTORY AND SELDOM REQUIRE REALIGNMENT EXCEPT WHEN COILS AND COMPONENTS IN THE FM RADIO-FREQUENCY SECTION HAVE BEEN REPLACED.

5. Set the signal generator to 90 Mc and tune the receiver for maximum as indicated on the electronic voltmeter.
6. If the dial calibration is off more than .2 Mc at 90 Mc, set the dial to 90 Mc and adjust the core in the FM oscillator coil (L-4) for maximum. (On model R-1, compress or spread the oscillator coil winding.)
7. Adjust the cores in the RF and antenna coils (L-3 and L-1 respectively) for maximum.
8. Reset the dial and signal generator to 106 Mc and repeat step 4.
9. Set the signal generator to 90 Mc and tune the receiver for maximum. If calibration has shifted as a result of step 8, repeat steps 6, 7 and 8.
10. If the receiver was badly out of alignment, step 9 may have to be repeated more than once.

AT YOUR SERVICE

It is our continuing desire that you enjoy THE FISHER to its utmost capabilities. Should you have any questions with regard to its operation after you have had an opportunity to familiarize yourself with the instrument, won't you please write us? In any event, let us know how it is meeting your requirements. Replacement parts that may be needed should be ordered by giving model number; serial number, part number and customer's name. Shipment can be made promptly if these details are complete.

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Changes For R-3

1. Under instructions for FM RF alignment, step #7 is revised to read:
Adjust the core in the antenna coil (L1) for maximum and spread or compress the RF coil for optimum sensitivity.
2. C5 (ceramic capacitor) at pin #5 of V1 is changed to same value as C73.
[5 mmfd, NPO]
3. .005 mfd ceramic condenser (equivalent to C4) is added on terminal strip under Z2 (2nd FM IF transformer) at junction of R10 and R16 (both 2.7K) to ground.
4. R30 near V7 is changed to 1K, equivalent to R2. [1K, 10%, 1/2W]
5. R28 near V7 is changed to 27K (resistor composition 10%, 1/2W; Fisher part #R-2171)
6. A [220?] ohm resistor (composition 10%, 1/2W; Fisher part #R-2330) is installed between pin #7 of V8 and ground. Remove all direct ground connections from pin #7 of V8. Verified as 120 ohm
7. R46 at V11 is changed to 18 megohms, equivalent to R22.
8. C56 at pin 1 of V12 is changed to a 470 mmfd mica condenser (5% 300 volts Fisher part [#C-3334?]).
9. C65 and R69 at pin #8 of V18 is omitted.
10. R70 at pin #8 of V18 is changed to a 2200 ohm resistor (composition 10%, 1/2W; Fisher part #R-1737).
11. On most models having serial numbers below 8011 only, R75 at V18 is changed to 22K (equivalent to R5), connection between pin #1 on R75 is broken and a 47K resistor (equivalent to R43) installed in its place. Then C69 is connected to junction of R75 and the 47K resistor. The conditions described in this step exist only in those units having serial numbers below 8011.

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PARTS DESCRIPTION LIST

Symbol	DESCRIPTION	Part No.	Symbol	DESCRIPTION	Part No.
C1 a, b, c	Capacitor, FM Variable	C-2965	R37	Resistor, Composition; 22K, 10%, 1/2 Watt	R-1736
C2, 9	Capacitor, Ceramic; 500 mmfd	C-1315	R40, 42	Resistor, Composition; 2.2 meg, 10%, 1/2 W	R-1734
C3, 7, 12	Capacitor, Trimmer; 1.0 - 8.0 mmfd	C-2970	R41	Resistor, Composition; 1K, 10%, 1/2 Watt	R-1577
C4, 5	Capacitor, Ceramic; .005 mfd	C-2146	R43, 47, 48	Resistor, Composition; 47K, 10%, 1/2 Watt	R-1580
C6, 11	Capacitor, Ceramic; 47 mmfd, NPO	C-2147	R44, 45	Resistor, Composition; 220K, 10%, 1/2 Watt	R-1624
C8	Capacitor, Ceramic; .0015 mfd	C-1314	R46	Resistor, Composition; 10 meg, 10%, 1/2 W	R-1882
C10	Capacitor, Ceramic; 2.2 mmfd	C-3039	R49	Potentiometer, Carbon; 1 megohm	R-2815-2
C13, 14, 15	Capacitor, Ceramic; .005 mfd	C-2146	R50, 55	Resistor, Composition; 470K, 10%, 1/2 W	R-1836
C16	Capacitor, Ceramic; 24 mmfd, NPO	C-1781	R51	Resistor, Composition; 2.2K, 10%, 1/2 Watt	R-1737
C17	Capacitor, Ceramic; 10 mmfd, NPO	C-1317	R52	Resistor, Composition; 100 ohm, 10%, 1/2 W	R-2408
C18, 20, 22	Capacitor, Ceramic; .005 mfd	C-2146	R53	Resistor, Composition; 100K, 10%, 1/2 W	R-1583
C19	Capacitor, Mica; 100 mmfd	C-1318	R54	Resistor, Composition; 10K, 10%, 1/2 Watt	R-1531
C21	Capacitor, Paper Tubular; .047 mfd, 400 V	C-2944	R56, 57	Resistor, Composition; 47K, 10%, 1/2 Watt	R-1580
C23, 26, 29	Capacitor, Ceramic; 1 mmfd	C-1786	R58	Resistor, Composition; 680 ohm, 10%, 1/2 W	R-1573
C24, 25, 27, 28	Capacitor, Ceramic; .005 mfd	C-2146	R59, 60	Resistor, Composition; 220K, 10%, 1/2 Watt	R-1624
C30, 31, 33	Capacitor, Mica; 300 mmfd	C-1789	R61, 64	Resistor, Composition; 10 ohm, 10%, 1/2 W	R-1807
C32	Capacitor, Mica; .002 mfd	C-1265	R62, 63	Resistor, Composition; 2.7K, 10%, 1/2 Watt	R-1738
C34	Capacitor, Electrolytic; 4 mfd, 250 V	C-1886	R65	Resistor, Composition; 4.7K, 10%, 2 Watt	R-1923
C35 a, b, c	Capacitor, AM Variable	C-2965	R66	Resistor, Composition; 10K, 10%, 2 Watt	R-1977
C36, 41, 43	Capacitor, Trimmer	Part of C-2965	R67 a, b	Resistor, Wirewound; 50 ohm, 10 Watt and 3500 ohm, 15 Watt	R-2967
C37, 40, 42	Capacitor, Mica; 300 mmfd	C-1789	R68	Resistor, Composition; 1 meg, 10%, 1/2 W	R-1732
C38	Capacitor, Paper Tubular; .01 mfd, 400 V	C-1109	R69	Resistor, Composition; 680 ohm, 10%, 1/2 W	R-1573
C39	Capacitor, Ceramic; 1 mmfd	C-1786	R70	Resistor, Composition; 1500 ohm, 10%, 1/2 W	R-1741
C44, 45, 51	Capacitor, Paper Tubular; .022 mfd, 400 V	C-2944	R71	Resistor, Composition; 100K, 10%, 1/2 W	R-1583
C46, 53	Capacitor, Paper Tubular; .047 mfd, 400 V	C-2944	R72	Resistor, Composition; 120K, 10%, 1/2 W	R-2212
C47	Capacitor, Ceramic; .005 mfd	C-2146	R73	Resistor, Composition; 2.2 meg, 10%, 1/2 W	R-1734
C48, 49	Capacitor, Mica; 100 mmfd	C-1318	R74	Resistor, Composition; 1K, 10%, 1/2 Watt	R-1577
C50	Capacitor, Ceramic; 500 mmfd	C-1315	R75, 77	Resistor, Composition; 68K, 10%, 1/2 Watt	R-1810
C52	Capacitor, Paper Tubular; .01 mfd, 400 V	C-1109	R76	Resistor, Wirewound; 7K, 10%, 5 Watt	R-2241
C54 a, b	Capacitor, Electrolytic; Dual 40 mfd, 450 V	C-1798	R78	Resistor, Composition; 1 meg, 10%, 1/2 W	R-1732
C55	Capacitor, Electrolytic; 100 mfd., 6V	C-1022	R79	Resistor, Composition; 10K, 10%, 1/2 W	R-1531
C56	Capacitor, Mica; 300 mmfd	C-1789	R80	Potentiometer, Carbon; 500K, tap at 125K	R-2815-4
C57 a, b	Capacitor, Electrolytic; Dual 40 mfd, 450 V	C-1798	R81	Potentiometer, Carbon; 250K	R-2815-3
C58, 59	Capacitor, Paper Tubular; .1 mfd, 400 V	C-1102	I-1, 2, 3, 4, 5, 6	Lamp; Dial	I-2148
C60	Capacitor, Electrolytic; 50 mfd, 50 V	C-1021	J1	Jack; 2 Female Contact	J-2070
C61	Capacitor, Mica; .003 mfd, 800 V	C-2043	J2	Jack; 3 Female Contact	J-1589
C62, 63	Capacitor, Paper Tubular; .01 mfd, 400 V	C-1109	J3, 4, 9	Jack; 2 Female Contact	J-1152
C64 a, b	Capacitor, Electrolytic; Dual 40 mfd, 450 V	C-1798	J5, 6, 7, 8	Jack; 1 Female Contact	J-1080
C65	Capacitor, Paper Tubular; .047 mfd, 400 V	C-2944	L1	Coil; FM Antenna	L-3041
C66	Capacitor, Mica; .003 mfd	C-1219	L2, 6	Choke; RF	L-1600
C67	Capacitor, Paper Tubular; .002 mfd, 600 V	C-1990	L3	Coil; FM RF	L-3042
C68, 70	Capacitor, Paper Tubular; .022 mfd, 400 V	C-2946	L4	Coil; FM Oscillator	L-3043
C69, 71	Capacitor, Paper Tubular; .1 mfd, 400 V	C-1102	L5	Coil; Peaking	L-3011
C72	Capacitor, Ceramic; 1.5 mmfd, NPO	C-3010	L7	Coil; Loop Loading	L-2966
C73	Capacitor, Ceramic; 5 mmfd, NPO	C-2002	L8	Coil; BC RF	L-2960
C74	Capacitor, Paper Tubular; .01 mfd, 600 V	C-2747	L9	Coil; BC Oscillator	L-2961
R1	Resistor, Composition; 470K, 10%, 1/2 Watt	R-1836	L10	Choke; Filter	L-2963
R2	Resistor, Composition; 1K, 10%, 1/2 Watt	R-1577	L11	Coil; FM Oscillator	L-3044
R3	Resistor, Composition; 1 meg, 10%, 1/2 W	R-1732	L12	Loop, AM Antenna	
R4	Resistor, Composition; 10 ohm, 10%, 1/2 W	R-1807	P1	Plug; 2 Male Contact	P-2072
R5	Resistor, Composition; 22K, 10%, 1/2 Watt	R-1736	P2, 4, 5	Plug; 1 Male Contact	P-1081
R6	Resistor, Composition; 330 ohm, 10%, 1/2 W	R-1790	P3	Plug; 3 Male Contact	P-1590
R7	Resistor, Composition; 3.3K, 10%, 1 Watt	R-2415	S1	Switch; AC Line	Part of R-2815-3
R8, 10, 16	Resistor, Composition; 2.7K, 10%, 1/2 Watt	R-1738	S2	Switch; Band Selector	S-2958
R9	Resistor, Composition; 220 ohm, 10%, 1/2 W	R-1733	T1	Transformer; Output	T-1823
R11	Resistor, Composition; 100K, 10%, 1/2 Watt	R-1583	T2	Transformer; Power	T-2962
R12, 17, 21	Resistor, Composition; 100 ohm, 10%, 1/2 Watt	R-2408	Z1	Transformer; FM IF	ZZ-2988
R13	Potentiometer, Carbon; 2.5 megohms	R-2408	Z2, 3	Transformer; FM IF	ZZ-2987
R14	Resistor, Composition; 470, 10%, 1/2 Watt	R-1836	Z4	Transformer; FM Detector	ZZ-2986
R15, 18, 23	Resistor, Composition; 1K, 10%, 1/2 Watt	R-1577	Z5	Transformer; AM IF	ZZ-2985
R19	Resistor, Composition; 2.7K, 10%, 1/2 W	R-1738	Z6	Transformer; AM IF	ZZ-2984
R20	Resistor, Composition; 6.8 meg, 10%, 1/2 W	R-2431			
R22	Resistor, Composition; 18 meg, 10%, 1/2 W	R-3009			
R24, 25	Resistor, Composition; 4.7K, 10%, 1 Watt	R-2418			
R26	Resistor, Composition; 2.2 meg, 10%, 1/2 W	R-1734			
R27	Resistor, Composition; 180 ohm, 10%, 1/2 W	R-1782			
R28	Resistor, Composition; 33K, 10%, 1/2 W	R-2216			
R29	Resistor, Composition; 1.5K, 10%, 1/2 Watt	R-1741			
R30	Resistor, Composition; 390 ohm, 10%, 1/2 W	R-1808			
R31, 32	Resistor, Composition; 6.8K, 10%, 1/2 W	R-1973			
R33, 35, 39	Resistor, Composition; 1K, 10%, 1/2 W	R-1577			
R34, 38	Resistor, Composition; 1 meg, 10%, 1/2 W	R-1732			
R36	Resistor, Composition; 470K, 10%, 1/2 Watt	R-1836			

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