



Stereophonic

# THE FISHER X-202-B

# SERVICE

# MANUAL



MODEL X-202-B

CHASSIS SERIAL NUMBERS  
FROM 40001 TO 49999 INCLUSIVE

PRICE: \$1.00

FISHER RADIO CORPORATION • NEW YORK

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FROM 40001 TO 49999 INCLUSIVE

THE FISHER X-202-B



# PARTS DESCRIPTION LIST

## CAPACITORS

10% tolerance for all fixed capacitors, unless otherwise noted or marked GMV (guaranteed minimum value).

| Symbol          | Description   | Part No.  |
|-----------------|---|-----------|
| C1, 2           | Ceramic, 100uf, GMV, N1500, 1000V   | C50070-5  |
| C3, 4           | Ceramic, 100uf, N1500, 1000V  | C50070-6  |
| C5, 6           | Mylar, .022uf, 400V   | C50197-28 |
| C7, 8           | Mylar, .047uf, 400V   | C50197-30 |
| C9, 10          | Ceramic, 21uf, 5%, N750, 1000V  | C50070-32 |
| C11, 12         | Ceramic, .005uf, 20%, 500V  | C50089-1  |
| C13, 14         | Electrolytic, 50uf, 3V  | C50283-1  |
| C15, 16         | Mylar, .047uf, 400V   | C50197-30 |
| C17, 18         | Ceramic, .0027uf, 1000V   | C50072-17 |
| C19, 20         | Ceramic, 18uf, N470, 1000V  | C50070-13 |
| C21, 22         | Electrolytic, 50uf, 3V  | C50283-1  |
| C23, 24         | Ceramic, 820uf, 1000V   | C50072-7  |
| C25, 26         | Mylar, 1uf, 150V  | C50197-78 |
| C27, 28         | Ceramic, 200uf, 1000V   | C50072-22 |
| C29, 30         | Mylar, .022uf, 250V   | C50197-49 |
| C31, 32         | Mylar, .047uf, 400V   | C50197-30 |
| C33, 34         | Electrolytic, 50uf, 3V  | C50283-1  |
| C35, 36         | Mylar, .015uf, 250V   | C50197-49 |
| C37, 38         | Ceramic, 680uf, 1000V   | C50072-2  |
| C39, 40         | Ceramic, 56uf, N1500, 1000V   | C50070-22 |
| C41, 42, 43, 44 | Mylar, .047uf, 400V   | C50197-30 |
| C45, 46         | Ceramic, 10uf, NPO, 1000V   | C50070-11 |
| C47, 48         | Ceramic, 330uf, 1000V   | C50072-1  |
| C49             | Electrolytic, 200uf, 250V   | C50180-20 |
| C50             | Electrolytic, 2 section<br>A — 40uf, 500V<br>B — 20uf, 250V                                     | C50180-19 |
| C51             | Electrolytic, 4 section<br>A — 40uf, 450V<br>B — 40uf, 400V<br>C — 20uf, 300V<br>D — 20uf, 300V | C50180-12 |
| C52             | Electrolytic, 20uf, 250V  | C746-145  |
| C53             | Electrolytic, 2 section, com. Pos.<br>A — 1000uf, 35V<br>B — 1000uf, 35V                        | C50180-37 |
| C54             | Electrolytic, 50uf, 70V   | C50283-2  |

## RESISTORS AND POTENTIOMETERS

In ohms, 10% tolerance, 1/2 watt, unless otherwise noted. K=Kilohm, M=Megohm.

| Symbol            | Description                          | Part No.   |
|-------------------|--------------------------------------|------------|
| R1, 2, 3, 4, 5, 6 | Dep. Carbon, 100K, 5%, 1/3 W         | R33DC104J  |
| R7, 8             | Potentiometer, 250K, aux-1 level     | R50103-1   |
| R9, 10            | Dep. Carbon, 150K, 5%, 1/3 W         | R33DC154J  |
| R11, 12           | Dep. Carbon, 120K, 5%, 1/3 W         | R33DC124J  |
| R13, 14           | Dep. Carbon, 10K, 5%, 1/3 W          | R33DC103J  |
| R15, 16           | Glass, 2.2K, 5%, 1W                  | R30G222J   |
| R17, 18           | Glass, 330K, 5%, 1W                  | R30G334J   |
| R19, 20           | Dep. Carbon, 4.7M, 5%, 1/3 W         | R33DC475J  |
| R21, 22           | Dep. Carbon, 220K, 5%, 1/3 W         | R33DC224J  |
| R23, 24           | Potentiometer, 250K, dual, low level | R50160-99  |
| R25, 26           | Dep. Carbon, 100K, 5%, 1/3 W         | R33DC104J  |
| R27, 28           | Dep. Carbon, 330K, 5%, 1/3 W         | R33DC334J  |
| R29, 30, 31, 32   | Dep. Carbon, 1M, 5%, 1/3 W           | R33DC475J  |
| R33, 34, 35, 36   | Dep. Carbon, 120K, 5%, 1/3 W         | R33DC124J  |
| R37, 38           | Dep. Carbon, 1.5K, 5%, 1/3 W         | R33DC152J  |
| R39, 40           | Composition, 10M                     | RC20BF106K |
| R41, 42           | Dep. Carbon, 330K, 5%, 1/3 W         | R33DC334J  |
| R43, 44           | Dep. Carbon, 1M, 5%, 1/3 W           | R33DC105J  |
| R45, 46           | Dep. Carbon, 150K, 5%, 1/3 W         | R33DC154J  |
| R47, 48           | Dep. Carbon, 1.5K, 5%, 1/3 W         | R33DC152J  |
| R49, 50           | Dep. Carbon, 1M, 5%, 1/3 W           | R33DC105J  |
| R51, 52           | Dep. Carbon, 1.5K, 5%, 1/3 W         | R33DC152J  |
| R53, 54           | Composition, 22K, 1W                 | RC30BF223K |
| R55, 56           | Dep. Carbon, 22K, 5%, 1/3 W          | R33DC223J  |
| R57, 58           | Dep. Carbon, 10K, 5%, 1/3 W          | R33DC103J  |
| R59               | Potentiometer, dual, 100K, volume    | R50160-84  |

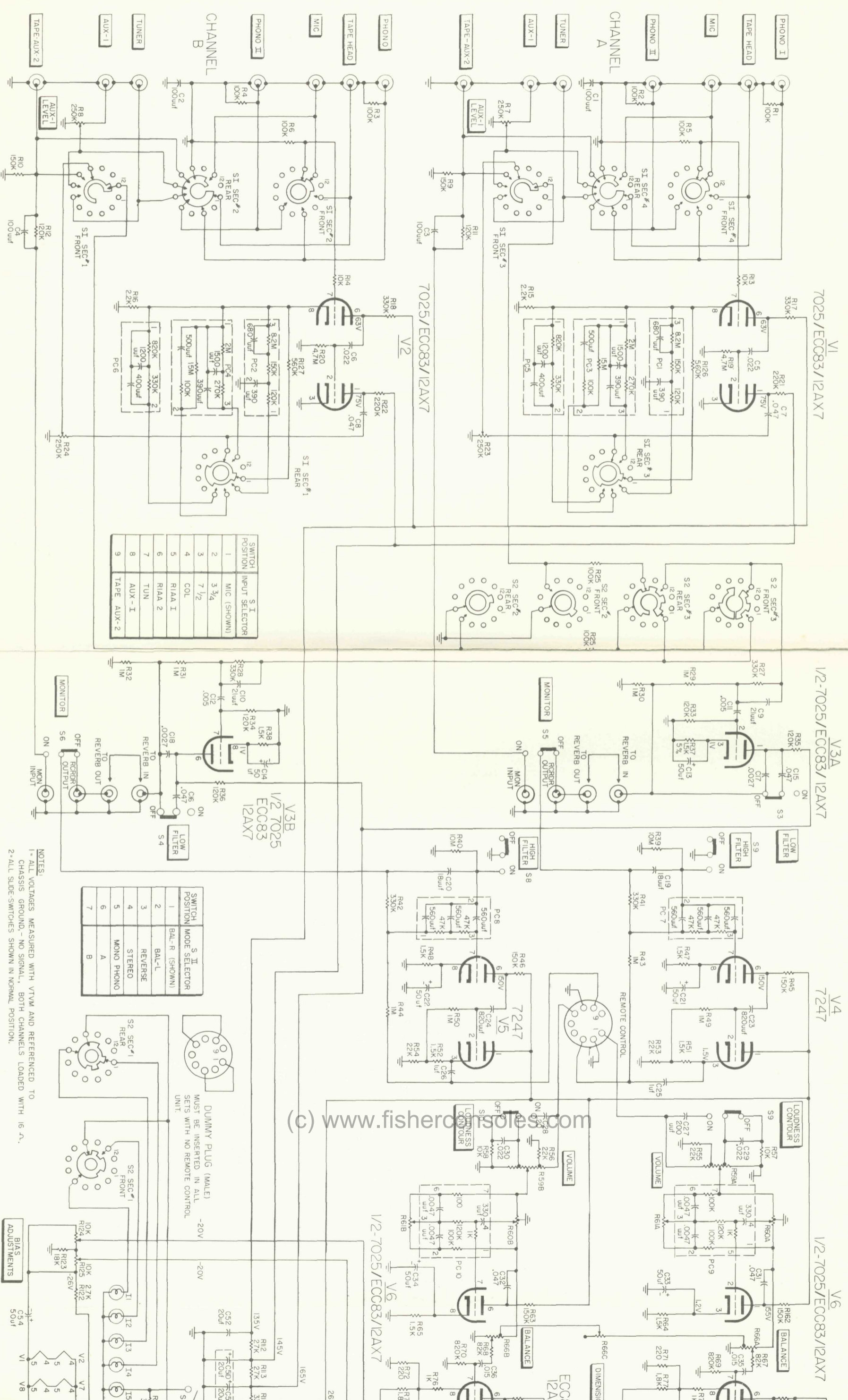
|                    |   |            |
|--------------------|---|------------|
| R60                | Potentiometer, dual, 500K, treble         | R50169-85  |
| R61                | Potentiometer, dual, 1M, bass             | R50160-87  |
| R62, 63            | Dep. Carbon, 150K, 5%, 1/3 W              | R33DC154J  |
| R64, 65            | Dep. Carbon, 1.5K, 5%, 1/3 W              | R33DC152J  |
| R66                | Potentiometer, dual, 300K, bal., 1M, dim. | R50160-100 |
| R67, 68            | Composition, 82K                          | RC20BF823K |
| R69, 70            | Composition, 820K                         | RC20BF824K |
| R71, 72            | Composition, 220                          | RC20BF221K |
| R73, 74            | Composition, 560K, 5%                     | RC20BF564J |
| R75, 76            | Dep. Carbon, 1K, 5%, 1/3 W                | R33DC102J  |
| R77, 78            | Composition, 1.8K, 5%                     | RC20BF182J |
| R79, 80            | Composition, 27K                          | RC20BF273K |
| R81, 82            | Dep. Carbon, 330K, 5%, 1/3 W              | R33DC334J  |
| R83, 84            | Dep. Carbon, 47K, 5%, 1/3 W               | R33DC473J  |
| R85, 86            | Composition, 27K                          | RC20BF273K |
| R87, 88            | Potentiometer, 50K, AC balance            | R50103-3   |
| R89, 90, 91, 92    | Dep. Carbon, 330K, 5%, 1/3 W              | R33DC334J  |
| R93, 94            | Potentiometer, 10K, DC balance            | R50103-5   |
| R95, 96, 97, 98    | Composition, 68K, 5%                      | RC20BF683J |
| R99, 100, 101, 102 | Dep. Carbon, 1K, 5%, 1/3 W                | R33DC102J  |
| R103, 104          | Wirewound, 10, 5W                         | R779-103   |
| R105, 106          | Composition, 4.7K                         | RC20BF472K |
| R107               | Potentiometer, 5K, center channel         | R50160-88  |
| R108, 109          | Composition, 2.2K                         | RC20BF222K |
| R110, 111          | Glass, 24, 7W                             | RPG7W240K  |
| R112, 113          | Composition, 27K                          | RC20BF273K |
| R114               | Composition, 33K, 1W                      | RC20BF333K |
| R115               | Composition, 8.2K, 1W                     | RC30BF822K |
| R116               | Glass, 1.5K, 4W                           | RPG4W152K  |
| R117               | Composition, 10K, 1W                      | RC30BF103K |
| R118               | Composition, 33                           | RC20BF330K |
| R119, 120          | Composition, 220                          | RC20BF221K |
| R121               | Wirewound, 15, 5W                         | R719-106   |
| R122               | Composition, 2.7K                         | RC20BF272K |
| R123               | Composition, 18K                          | RC20BF183K |
| R124, 125          | Potentiometer, 10K, bias                  | R50103-5   |
| R126, 127          | Composition, 560K, 5%                     | RC20BF564J |

## MISCELLANEOUS

| Symbol                           | Description                              | Part No.     |
|----------------------------------|--|--------------|
| F1                               | Fuse, 3.2 Amp., Slo-Blo                  | F3319        |
| I1, 2, 3, 4, 5                   | Bulb, #47                                | I50009-1     |
| PC1, 2                           | Printed Circuit, 3 3/4 Tape Equalization | PC50187-7    |
| PC3, 4                           | Printed Circuit, RIAA, Tape 7 1/2"       | PC50187-3    |
| PC5, 6                           | Printed Circuit, Col. Equalization       | PC50187-6    |
| PC7, 8                           | Printed Circuit, High Filter             | PC50187-5    |
| PC9, 10                          | Printed Circuit, Tone Control            | PC657-140    |
| S1                               | Switch, Input Selector                   | S841-125     |
| S2                               | Switch, Mode Selector                    | S827-119     |
| S3, 4, 5, 6, 7, 8, 9, 10, 11, 12 | Switch, Slide                            | S50200-5     |
| S13                              | Switch, Power                            | Part of R59  |
| S14, 15                          | Switch, Center Speaker                   | Part of R107 |
| SR1, 2                           | Silicon Diode, B+                        | SR806-126    |
| SR3, 4                           | Silicon Diode, Filament & Bias           | SR851-122    |
| T1                               | Transformer, Output CH A                 | T827-116     |
| T2                               | Transformer, Output CH B                 | T827-116     |
| T3                               | Transformer, Power                       | T827-115     |
| —                                | Dress Panel                              | AS827-123    |
| —                                | Tube Shield, 9 pin                       | E3287        |
| —                                | Knob                                     | E50325-1     |
| —                                | Knob, Dual, Bottom                       | E50221       |
| —                                | Knob, Dual, Top                          | E50323       |
| —                                | Knob, Dummy Dual                         | E50324       |
| —                                | Plastic Foot                             | H50277       |
| —                                | Jewel, Red                               | I50162-1     |
| —                                | Jewel, Yellow                            | I50162-2     |
| —                                | Jewel, Green                             | I50162-4     |
| —                                | Jack, Earphone                           | J846-120-1   |
| —                                | Fuse Holder                              | X50329       |



# SCHEMATIC DIAGRAM



| SWITCH POSITION | INPUT SELECTOR |
|-----------------|----------------|
| 1               | MIC (SHOWN)    |
| 2               | 3/4            |
| 3               | 7 1/2          |
| 4               | COL            |
| 5               | RIAA I         |
| 6               | RIAA 2         |
| 7               | TUN            |
| 8               | AUX - I        |
| 9               | TAPE AUX - 2   |

| SWITCH POSITION | MODE SELECTOR   |
|-----------------|-----------------|
| 1               | BAL - R (SHOWN) |
| 2               | BAL - L         |
| 3               | REVERSE         |
| 4               | STEREO          |
| 5               | MONO PHONO      |
| 6               | A               |
| 7               | B               |

NOTES:  
 1- ALL VOLTAGES MEASURED WITH VTVM AND REFERENCED TO CHASSIS GROUND. - NO SIGNAL. BOTH CHANNELS LOADED WITH 16-Ω.  
 2- ALL SLIDE-SWITCHES SHOWN IN NORMAL POSITION.

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# ADJUSTMENTS

## 1—OUTPUT BIAS ADJUSTMENT

- a. Set Volume control to minimum.
- b. Connect DC VTVM to Pin 5 of V9 or V10.
- c. Adjust Channel A Bias Control until VTVM reads 0.8 volt.
- d. Connect DC VTVM to Pin 5 of V11 or V12 and adjust Channel B Bias control until VTVM reads 0.8 volt.
- e. Repeat steps a through d until both readings are equal.

## 2—AC BALANCE AND OUTPUT TUBE DC BALANCE ADJUSTMENT

### Channel A

- a. Connect a 4-ohm load to the left speaker output.
- b. Connect Impedance Selector (lead protruding from rear of chassis) to 4-ohm tap on left speaker terminal strip.
- c. Connect IM Distortion Analyzer output to the AUX-1 input for Channel A.
- d. Connect the Analyzer input ground lead to the left speaker lug within the SPKR brackets and next to the 4-ohm lug.
- e. Connect the hot lead from the Analyzer input to the remaining lug within the SPKR brackets.
- f. Set the input Selector switch to AUX, the Mode Selector switch to STEREO and adjust the Analyzer output until 9.0 volts are indicated across the output load.
- g. Adjust Channel A AC Balance and DC Balance controls for minimum IM distortion. Repeat this adjustment several times.

### Channel B

- a. Connect a 4-ohm load between the COM and 4-ohm lugs of the right speaker terminal strip.
- b. Connect IM Distortion Analyzer output to the AUX input for Channel B.
- c. Connect the Analyzer input ground lead to the terminal lug marked 4 on the right speaker terminal strip.
- d. The hot lead from the Analyzer input should be connected to the terminal lug marked COM on the right speaker terminal strip.
- e. Set the Input Selector switch to AUX, the Mode Selector switch to STEREO and adjust the Analyzer output until 9.0 volts are indicated across the output load.
- f. Adjust Channel B AC Balance and DC Balance controls for minimum IM distortion. Repeat this adjustment several times.



SERVICE NOTES



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