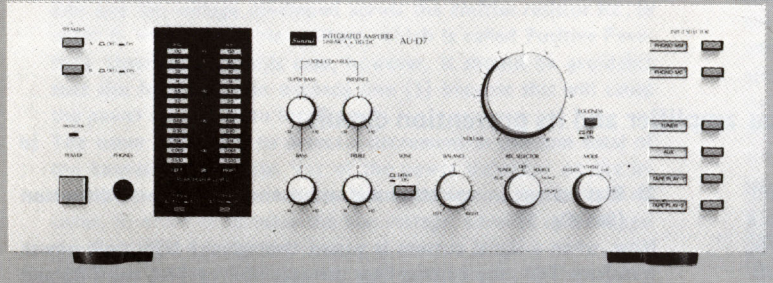
SERVICE MANUAL

INTEGRATED STEREO AMPLIFIER
LINEAR & DD/DC

SANSUI AU-D7/D5



Sansui

SANSUI ELECTRIC CO., LTD.

● SPECIFICATIONS

<AU-D7>

Power output
Min. RMS, both channels driven, from 20 to 20,000 Hz, with no more than 0.02 % total harmonic distortion.
80 watts per channel into 8 ohms

Load impedance	8 ohms
Total harmonic distortion	less than 0.02 % at or below rated min. RMS power output
Intermodulation distortion (60 Hz : 7 kHz = 4:1 SMPTE method)	less than 0.02 % at rated
Frequency response (at 1 watt)	
Overall (from AUX)	DC to 300,000 Hz, +0 dB, –3.0 dB
RIAA curve deviation (PHONO-MM, 20 Hz to 20 kHz)	+0.5 dB, –0.5 dB (REC OUT)
Rise time	0.8 μsec
Slew rate	±120 V/μsec
Damping factor (1 kHz, both channels driven)	200 into 8 ohms
Input sensitivity and impedance (at 1 kHz)	
PHONO-MC	250 μV/100 ohms (Max. input capability: 15 mV at 1 kHz, less than 0.1 % total harmonic distortion)
PHONO-MM	2.5 mV/47 kilohms (Max. input capability, 200 mV at 1 kHz, less than 0.1 % total harmonic distortion)
AUX, TUNER, TAPE PLAY-1, 2	200 mV/47 kilohms
Output level and impedance (1,000 Hz)	
TAPE REC-1, 2	200 mV into 47 kilohms/ 600 ohms
Channel separation (1 kHz, at rated power output)	
PHONO-MM	55 dB
AUX, TUNER, TAPE PLAY-1, 2	90 dB
Signal to noise ratio (short-circuit, A-network)	
PHONO-MC	67 dB
PHONO-MM	86 dB
AUX, TUNER, TAPE PLAY-1, 2	110 dB
Controls (VOLUME: –30 dB position)	
SUPER BASS	±6 dB at 10 Hz
BASS	±6 dB at 100 Hz
PRESENCE	±6 dB at 1.2 kHz
TREBLE	±6 dB at 15 kHz
LOUDNESS	+6 dB at 50 Hz +6 dB at 10 kHz
Power requirements	
Power voltage	120, 220, 240 V (50/60 Hz)
For U.S.A. & Canada	120 V (60 Hz)
Power consumption	
Rated consumption	270 watts 340 VA
Maximum consumption	380 watts
Dimensions	430 mm (16-15/16") W 148 mm (5-7/8") H 328 mm (12-15/16") D
Using rack mounting adaptors	480 mm (18-15/16") W 148 mm (5-7/8") H 339 mm (13-3/8") D
Weight	
Silver panel type	11.3 kg (24.9 lbs) net 12.6 kg (27.8 lbs) packed
Black panel type	11.5 kg (25.4 lbs) net 12.8 kg (28.2 lbs) packed

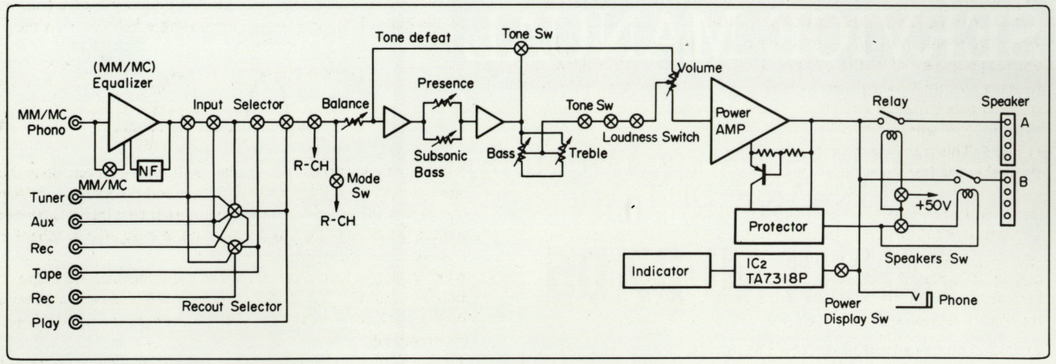
<AU-D5>

Power output
Min. RMS, both channels driven, from 20 to 20,000 Hz, with no more than 0.02 % total harmonic distortion.
65 watts per channel into 8 ohms

Load impedance	8 ohms
Total harmonic distortion	less than 0.02 % at or below rated min. RMS power output
Intermodulation distortion (60 Hz : 7 kHz = 4:1 SMPTE method)	less than 0.02 % at rated
Frequency response (at 1 watt)	
Overall (from AUX)	DC to 300,000 Hz, +0 dB, –3.0 dB
RIAA curve deviation (PHONO-MM, 20 Hz to 20 kHz)	+0.2 dB, –0.2 dB
Rise time	0.6 μsec
Slew rate	±120 V/μsec
Damping factor (1 kHz, both channels driven)	200 into 8 ohms
Input sensitivity and impedance (at 1 kHz)	
PHONO-MC	250 μV/100 ohms (Max. input capability: 15 mV at 1 kHz, less than 0.1 % total harmonic distortion)
PHONO-MM	2.5 mV/47 kilohms (Max. input capability, 200 mV at 1 kHz, less than 0.1 % total harmonic distortion)
AUX, TUNER, TAPE PLAY-1, 2	200 mV/47 kilohms
Output level and impedance (1,000 Hz)	
TAPE REC-1, 2	200 mV into 47 kilohms/ 600 ohms
Channel separation (1 kHz, at rated power output)	
PHONO-MM	55 dB
AUX, TUNER, TAPE PLAY-1, 2	90 dB
Signal to noise ratio (short-circuit, A-network)	
PHONO-MC	67 dB
PHONO-MM	86 dB
AUX, TUNER, TAPE PLAY-1, 2	110 dB
Controls (VOLUME: –30 dB position)	
SUPER BASS	±6 dB at 10 Hz
BASS	±6 dB at 100 Hz
PRESENCE	±6 dB at 1.2 kHz
TREBLE	±6 dB at 15 kHz
LOUDNESS	+6 dB at 50 Hz +6 dB at 10 kHz
Power requirements	
Power voltage	100, 120, 220, 240 V (50/60 Hz)
For U.S.A. & Canada	120 V (60 Hz)
Power consumption	
Rated consumption	250 watts 300 VA
Maximum consumption	350 watts
Dimensions	430 mm (16-15/16") W 148 mm (5-7/8") H 328 mm (12-15/16") D
using rack mounting adaptors	480 mm (18-15/16") W 148 mm (5-7/8") H 339 mm (13-3/8") D
Weight	
silver panel type	9.6 kg (21.2 lbs) net 10.9 kg (24.0 lbs) packed
black panel type	9.8 kg (21.6 lbs) net 11.1 kg (24.5 lbs) packed

* **Design and specifications subject to changes without notice for improvements.**

1. BLOCK DIAGRAM



2. OPERATIONS

2-1. Occurrence of switching distortion in a B-class amplifier and its prevention circuit (Operation of super linear A-class circuit)

In general, when bi-polar transistors are operated in a B-class amplifier, the switching distortion is inevitably produced. There exist a few circuits which can eliminate this switching distortion; however, a remarkable effect has been achieved on reducing the switching distortion by using two-transistor circuit designed by SANSUI.

A, Occurrence of switching distortion in a B-class amplifier

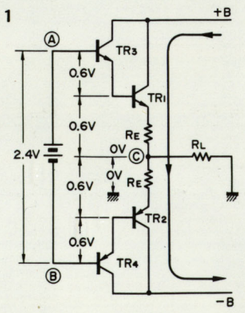
1) Bias voltage when no signal is applied

In order to operate a B-class amplifier, it is necessary to keep a small current flowing through the power transistors. Therefore, a bias voltage should be applied to the transistors.

Fig. 1 shows how the bias voltage is developed when no signal is applied.

* First, the bias voltage between points Ⓐ and Ⓑ at the power stage is a constant voltage of 2.4V.
* Next, looking through the bias voltage distribution over the power stage, since a very small current is flowing when no signal is applied, the voltage drop across the emitter resistor RE is as small as can be considered to be negligible. Accordingly, each voltage between points Ⓐ and Ⓒ or between points Ⓑ and Ⓒ is equal to the sum total 1.2V of two base-emitter voltages VBE of TR1 and TR3 or TR2 and TR4, respectively. In addition, the voltage between the middle point Ⓒ and the ground is zero.

Fig. 1



2) Bias voltage in operation and occurrence of switching distortion (See Fig. 2)

Now, when a signal current is passed through the NPN type power transistor TR1, the base-emitter voltages VBE of TR1 and TR3 and the voltage across the emitter resistor RE also increase. Accordingly, the voltage between points Ⓐ and Ⓒ changes to 1.9V. On the other hand, since the voltage between points Ⓐ and Ⓑ is maintained at 2.4V, only a voltage of 0.5V is applied to between two points Ⓑ and Ⓒ as the bias voltage of the PNP type power transistors TR2 and TR4. Therefore, the transistors TR2 and TR4 are kept in a cut-off state or a reverse bias state. Fig. 3 shows this condition, indicating that the switching of push-pull operation is in a critical state.

Fig. 2

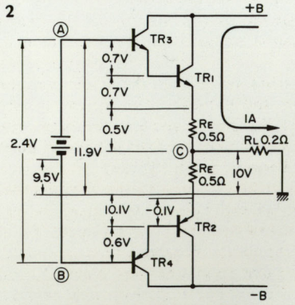


Fig. 3

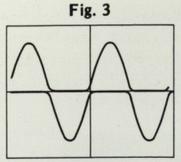
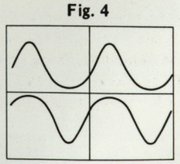


Fig. 4



3) Occurrence of switching distortion caused by power transistors themselves

In the case of a B-class amplifier, the transistors are repeatedly turned on or off while flowing a large current.

When the base carrier of a power transistor is charged or discharged under application of a high voltage, the base storage effect keeps a forward current flowing therethrough for a while even after the forward voltage has been cut off, or causes a backward current to flow therethrough when the reverse voltage is applied thereto, as shown in Fig. 5. This is the cause of occurrence of switching distortion, and the higher the frequency, the bigger the switching distortion.

B. Switching distortion prevention circuit

To eliminate the switching distortion, it is possible to consider some countermeasures, for instance, as improvement of the bias circuit or adoption of high speed switching power transistors <transistors with high cut-off frequency fT: LAPT (Linear amplifier power transistor) developed by SANSUI.>

1) Bias circuit to eliminate switching distortion

There are two methods or two bias circuits to eliminate the distortion as follows:

a) A method is to detect an increment in the sum total of the base-emitter voltage VBE of the power transistor on the operation side and the voltage developed across the emitter resistor RE, in order to increase the bias voltage, which is called Positive Feedback Operation. In this case, however, it should be avoidable that the feedback gain exceeds one (1) because this will cause the power transistors to break down.

b) The other method is to detect a decrement in the sum total of the base-emitter voltage VBE of the power transistor on the inoperation side and the voltage developed across the emitter resistor, in order to increase the bias voltage, which is called Negative Feedback Operation.
Although this operation is very stable, the circuit operates only during a half cycle while the power transistors are not in operation.

Sansui has developed very stable bias circuit, which can realize the above-mentioned two methods by using only two transistors.

2) Positive Feedback Operation (See Fig. 6)

In this circuit, a voltage increment in the sum total of the base-emitter voltage VBE of the power transistors on the operation side and the voltage across the emitter resistor appear almost directly between points Ⓐ and Ⓑ.

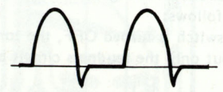
Therefore, even if the voltage between points Ⓐ and Ⓒ increases, since the voltage between points Ⓐ and Ⓑ increases by that increment, the power transistor on the inoperation side are not cut off.

To describe in more detail, when the power transistors operate and a current flows therethrough, the base-emitter voltages VBE of transistors kQ11, 12, and 13 and a voltage across the resistor kR37 increase. In this case, since the voltage between points Ⓒ and Ⓓ equals to that between points Ⓓ and Ⓗ, the voltage increment across the resistor kR37 equals to the voltage between points Ⓕ and Ⓓ. In addition, each base-emitter voltage VBE of the transistors kQ12 and 13 almost equal to the voltage across the diodes kD3 and 4. As a result, the voltage between points Ⓐ and Ⓕ increases by a voltage corresponding to that between points Ⓕ and Ⓓ. Further, since the transistor kQ8 acts approximately as a constant current circuit, a voltage increment between points Ⓕ and Ⓓ is added to that between points Ⓐ and Ⓑ, thereby keeping the constant bias current of the PNP type transistors flowing therethrough and preventing the transistors from being cut off. Further, since the transistor kQ8 operates as an emitter follower in this bias circuit, it is impossible for the operation gain to exceed one (1).

3) Negative Feedback Operation (See Fig. 6)

A negative feedback circuit is formed when each divided voltages between points Ⓕ and Ⓓ, and between points Ⓕ and Ⓗ are applied to the base of the transistor kQ8 during a half-cycle on the operating side.

Fig. 5



When the power transistors are in operation, however, since the voltage between points Ⓒ and Ⓓ is high and the internal resistance of the diodes kD3 and 4 is small, the current flowing through between points Ⓕ and Ⓗ increases, therefore, the negative feedback circuit does not almost function.

Next during a half-cycle on the inoperating side, since the voltage between points Ⓒ and Ⓔ is low and the internal resistance of the diodes kD5 and 6 is large, a sufficient negative feedback operation is performed.

To describe this operation in more detail, the PNP type power transistor becomes inoperative and the voltage between points Ⓒ and Ⓔ decreases. As a result, the current flowing between points Ⓖ and Ⓔ decreases and the voltage between points Ⓗ and Ⓖ also decreases.

On the other hand, since an almost constant current is flowing through the transistors kQ8 and 10, voltage between emitters of kQ8 and 10 is kept constant. As a result, the transistors kQ8 and 10 are cut off and therefore the voltage between points Ⓐ and Ⓑ increases. Therefore, since the current flowing through the power transistors on the inoperative side increases, thus preventing the power transistor from being cut off and the switching distortion from being produced (See Fig. 4).

Figs. 7 and 8 shows the waveforms of the base-emitter voltage VBE in comparison between the two bias circuits before and after improvement.

Fig. 6

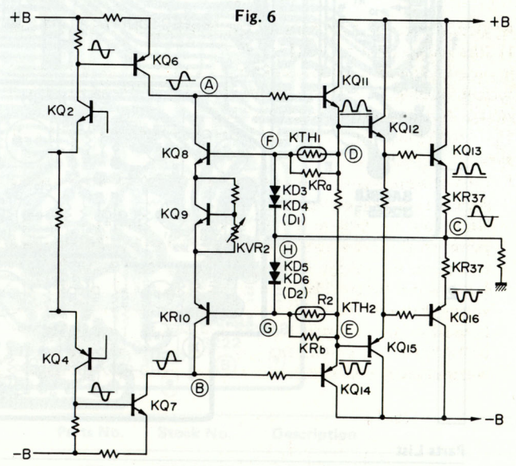


Fig. 7

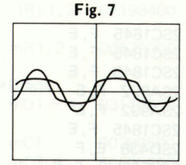
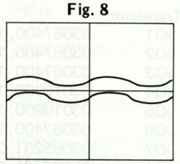


Fig. 8



2-2. Tone control operation

Care must be exercised when handling this tone control circuit, because this differs from the conventional one.
The tone and loudness control circuits are provided with this circuit configuration, as shown in Fig. 9.
The operation is as follows:

1) When the tone switch is turned OFF, the tone control circuit is disconnected, but only the loudness circuit operates in ON and OFF function.
2) When the tone switch and loudness switches are both turned ON, the loudness circuit operates but the tone control circuit does not operate.
3) When the tone switch is turned ON and loudness switch is turned OFF, the tone control circuit operates. In this case, however, the output of the tone control circuit is connected to the middle position of the main volume control, the same frequency characteristics as in loundness control can be obtained. Therefore, when rotating the main volume control clockwise from the middle position, the rate of change in tone enhancement decreases toward and does not vary near the maximum. On the other hand, when rotating the main volume control counterclockwise, the rate of change in tone increases varies as shown in Fig. 10.

Fig. 9

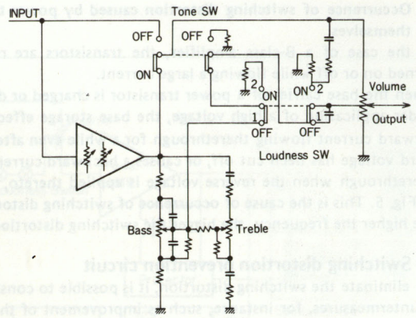
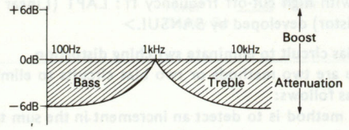


Fig. 10

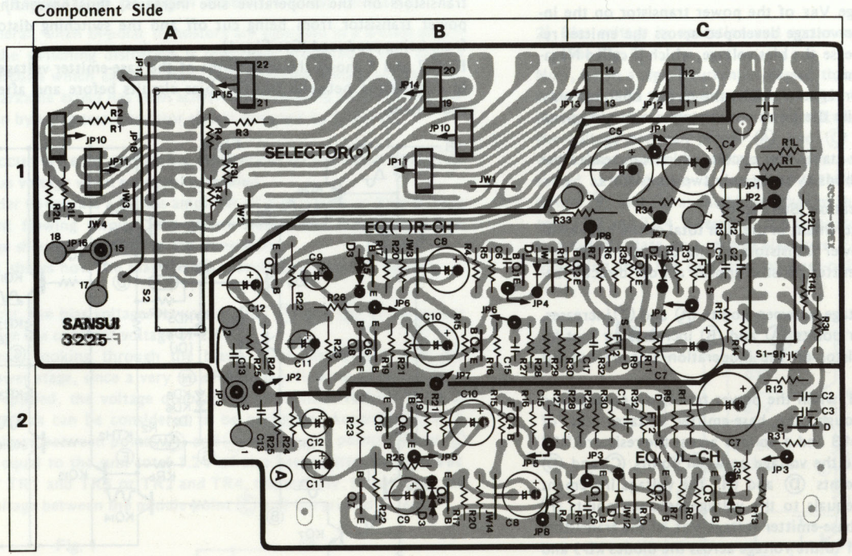


3. PARTS LOCATION & PARTS LIST

- Since some of capacitors and resistors are omitted from parts lists in this Service Manual, refer to the Common Parts List for capacitors & resistors which was appended previously to each Sansui Manual.

3-1. F-3225 Equalizer Amp. Circuit Board (Stock No. 00628601 = AU-D7/07078501 = AU-D5)

Component Side



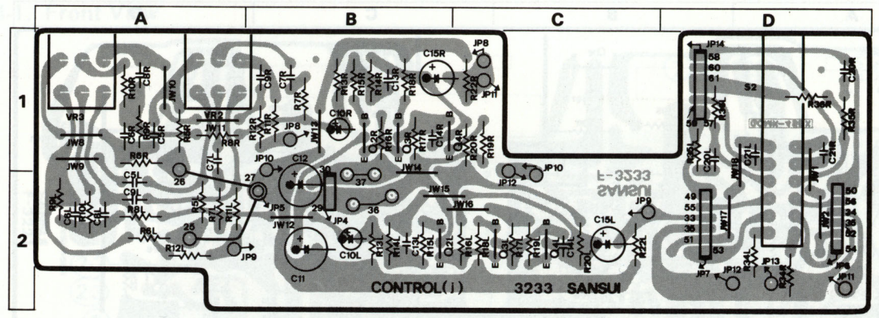
Parts List

Parts No.	Stock No.	Description
•Transistor		
iQ1	03067400, 1	2SC1845 F, E
iQ2	03067400, 1	2SC1845 F, E
iQ3	03067400, 1	2SC1845 F, E
iQ4	03010900, 1	2SA992 F, E
iQ5	03010900, 1	2SA992 F, E
iQ6	03067400, 1	2SC1845 F, E
iQ7	03085201, 2	2SD438 E, F
iQ8	03033601, 2	2SB560MP E, F
•FET		
iFT1, 2	03703402~5	2SK163 L1, L2, M1, M2

Parts No.	Stock No.	Description
•Diode		
iD1	03111600	1S2473D
•Varistor		
iD2	03401500	MV-12
ID3	03401700	MV-103
iR22, 23	00183100	47Ω 1W N.I.R.
iR33, 34	00181100	22Ω 1W N.I.R.
oS1	07200500	Slide Switch, selector
oS2	07200200	Slide Switch, rec out selector

3-2. F-3233 Control Circuit Board (Stock No. 00629501=AU-D7/07079301=AU-D5)

Component Side

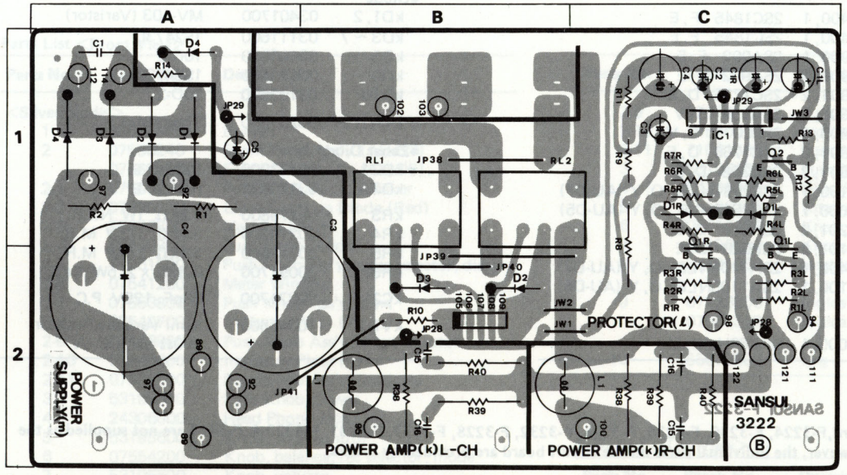


Parts List

Parts No.	Stock No.	Description
•Transistor		
jQ2	03067400, 1	2SC1845 F, E
jQ3	03067400, 1	2SC1845 F, E
jQ4	03010900, 1	2SA992 F, E
jVR2	07199800, 1	Variable Resistor 50kΩ (B) x 2, presence
jVR3	07199800, 1	Variable Resistor 50kΩ (B) x 2, subsonic bass
jS2	07199100	Push Switch, loudness

3-3. F-3222 Protector Circuit Board (Stock No. 00628301=AU-D7/07078201=AU-D5)

Component Side

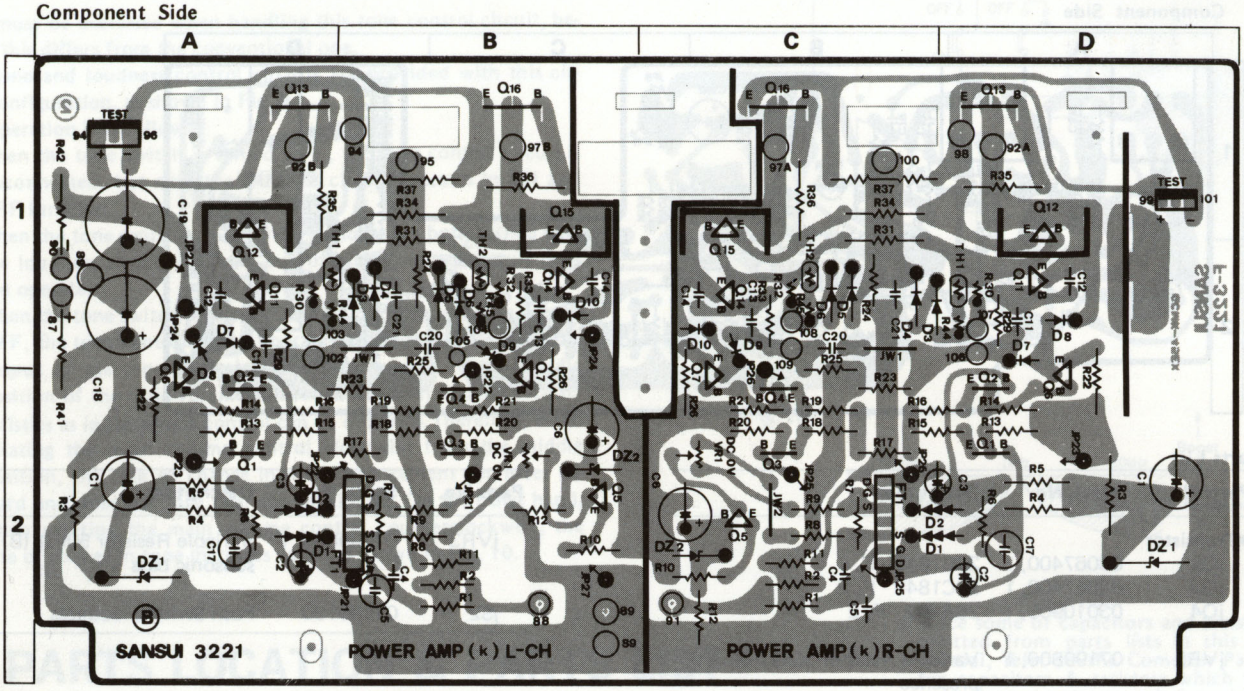


Parts List

Parts No.	Stock No.	Description
kR38	00190600	4.7Ω 2W N.I.R.
kR39	00185500	10Ω 2W N.I.R.
kR40	00185500	10Ω 2W N.I.R.
kL1	42903700	Peaking Coil 1μH
•Transistor		
IQ1	03010900, 1	2SA992 F, E
IQ2	03067400, 1	2SC1845 F, E
•IC		
IIC1	03609000	HA12002
•Diode		
ID1 ~ 4	03117700	10E-2
IR8	00187900	2.2kΩ 2W N.I.R.
IRL1, 2	07198400	Relay
mR1, 2	00179300	10kΩ 1W N.I.R.
•Diode		
mD1 ~ 4	03115700	ERD03-02 (AU-D5)
mC1	00380500	10000pF 500V C.C.
mC3, 4	04605270	15000μF 63V E.C. (AU-D7)
	07253700	9000μF 63V E.C. (AU-D5)

3-4. F-3221 Power Amp. Circuit Board (Stock No. 00628201=AU-D7/07078101=AU-D5)

Component Side



Parts List

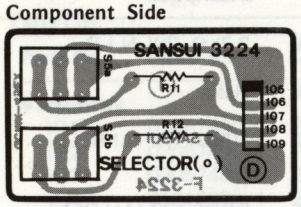
Parts No.	Stock No.	Description
•Transistor		
kQ1	03067400, 1	2SC1845 F, E
kQ2	03067400, 1	2SC1845 F, E
kQ3	03010900, 1	2SA992 F, E
kQ4	03010900, 1	2SA992 F, E
kQ5	03062801, 2	2SC1735 D, E
kQ6	03010300, 1	2SA939 B, V
kQ7	03066800, 1	2SC2071 B, V
kQ11	03062801, 2	2SC1735 D, E
kQ12	03084801, 2	2SD358 D, E
kQ13	03068100, 1	2SC2581NLB O, Y (AU-D7)
	03067600, 1	2SC2580NLB O, Y (AU-D5)
kQ14	03007201, 2	2SA850 D, E
kQ15	03033101, 2	2SB528 D, E
kQ16	03011400, 1	2SA1106NLB O, Y (AU-D7)
	03011100, 1	2SA1105NLB O, Y (AU-D5)
•FET		
kFT1	07110000, 1	μPA68H L, M

Parts No.	Stock No.	Description
•Diode		
kD1, 2	03401700	MV-103 (Varistor)
kD3 ~ 7	03111600	1S2473D
kD8	03103500	10D-2
kD9	03111600	1S2473D
kD10	03103500	10D-2
kTH1, 2	03201500	Thermistor
•Zener Diode		
kDZ1	03171900	RD27F-B
kDZ2	03179000	RD13E-B
kR3	00179800	1.2kΩ 1W N.I.R.
kR4	00219900	3.9kΩ 1/2W M.R.
kR5	00219900	3.9kΩ 1/2W M.R.
kR37	00091700	0.33Ω x 2 5W Ce.R.
kC21	00371700	33pF 125V P.C.
kVR1	10341500	Semi Variable Resistor 100Ω (B), DC 0V

Note: The circuit board,F-3224, F-3230, F-3236, F-3226, F-3232, F-3228, F-3237, F-3231, F-3223 & F-3417 are not supplied as the assembled. However, the individual parts on the circuit board are provided by orders.

3-6. F-3224 Speaker Selector Circuit Board

Component Side

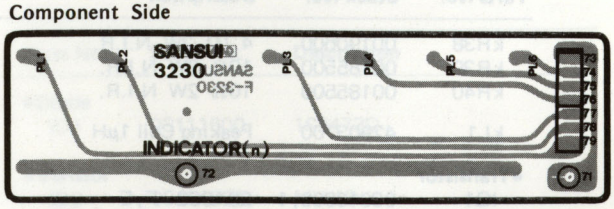


Parts Lis

Parts No.	Stock No.	Description
oR11, 12	00179200	1kΩ 1W N.I.R.
oS5	07194000	Push Switch

3-7. F-3230 Indicator Circuit Board

Component Side

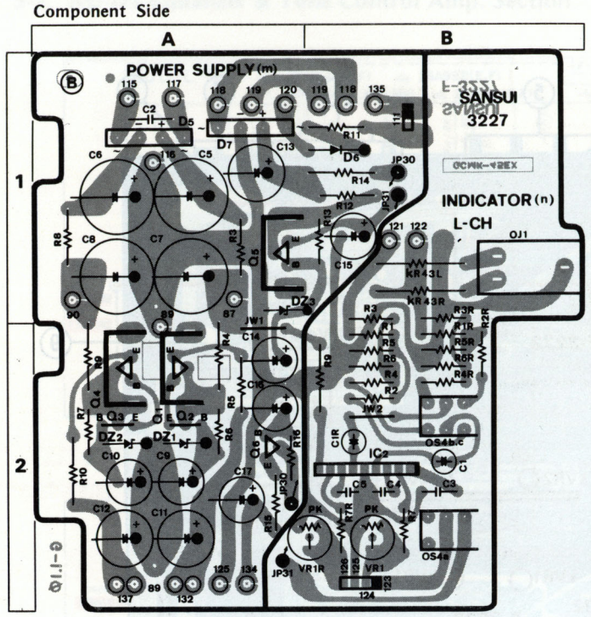


Parts List

Parts No.	Stock No.	Description
nPL1 ~ 6	07193600	Pilot Lamp 80V 70mA

3-5. F-3227 Power Supply Circuit Board (Stock No. 00628801=AU-D7/07078701=AU-D5)

Component Side

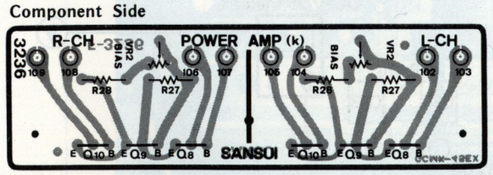


Parts List

Parts No.	Stock No.	Description
kR43L	00187800	220Ω 2W N.I.R.
kR43R	00187800	220Ω 2W N.I.R.
•Transistor		
mQ1	03084801, 2	2SD358 D, E
	03086101, 2	2SD357 D, E
mQ2	03067400, 1	2SC1845 F, E
mQ3	03010900, 1	2SA992 F, E
mQ4	03033101, 2	2SB528 D, E
	03034401, 2	2SB527 D, E
mQ5	03084801, 2	2SD358 D, E
	03086101, 2	2SD357 D, E
mQ6	03062801, 2	2SC1735 D, E
•Diode		
mD5	03117000	RB-152
mD6	03117700	10E-2
mD7	07117000	RB-152
•Zener Diode		
mDZ1, 2	03172300	RD33F-B
mDZ3	03163100	RD13E-B
mR4	00180200	150Ω 1W N.I.R. (AU-D7)
	00179700	120Ω 1W N.I.R. (AU-D5)
mR9	00180200	150Ω 1W N.I.R. (AU-D7)
	00179700	120Ω 1W N.I.R. (AU-D5)
mR14	00179100	100Ω 1W N.I.R.
mC2	00380500	10000pF 500V C.C.
•IC		
nIC2	03610000	TA7318P
nR9	00181300	2.2kΩ 1W N.I.R.
nC1	00306800	1μF 50V E.B.
nVR1	10351000	Semi Variable Resistor 3.3kΩ (B)
oS4	07193900	Push Switch, output power display
oJ1	24306000	Head Phone Jack

3-8. F-3236 Bias Compensation Circuit Board

Component Side

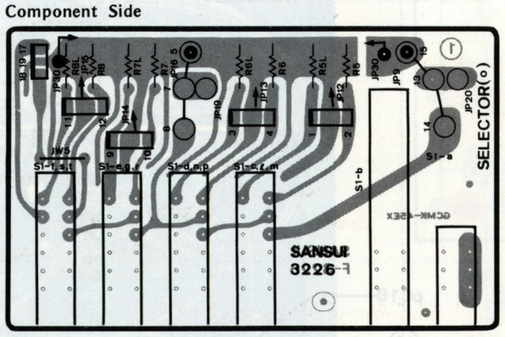


Parts List

Parts No.	Stock No.	Description
•Transistor		
kQ8	03067400, 1	2SC1845 F, E
kQ9	03067400, 1	2SC1845 F, E
kQ10	03010900, 1	2SA992 F, E
kVR2	10353100	Semi Variable Resistor 1kΩ (B), bias

3-9. F-3226 Input Selector SW. Circuit Board

Component Side

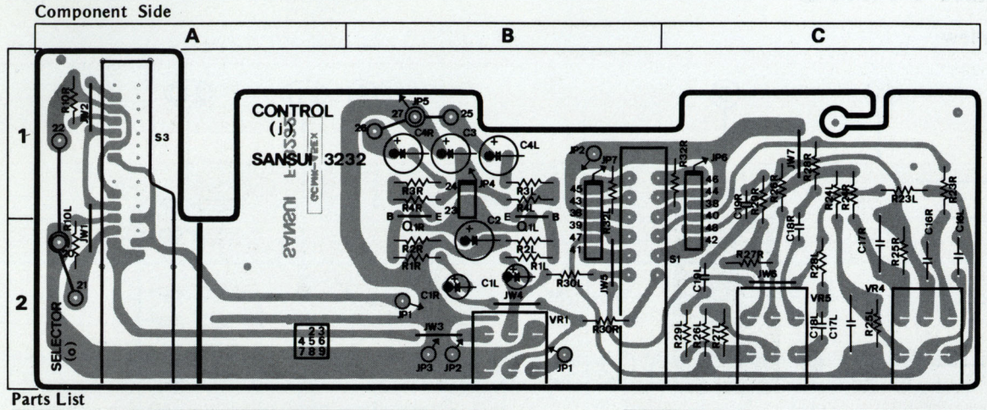


Parts List

Parts No.	Stock No.	Description
oS1	07200100	Push Switch

3-10. F-3232 Tone Control Circuit Board

Component Side

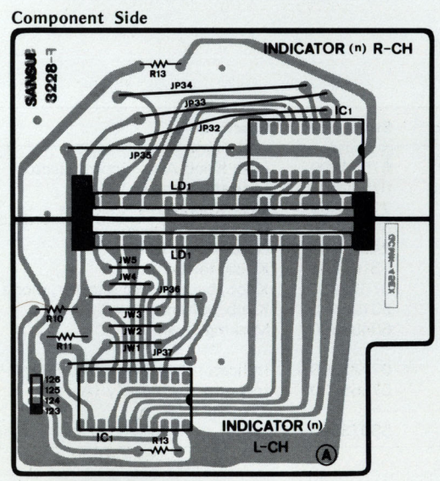


Parts List

Parts No.	Stock No.	Description
•Transistor		
jQ1	03067400, 1	2SC1845 F, E
jVR1	07199700, 1	Variable Resistor 250kΩ (MN), balance
jVR4	07199900	Variable Resistor 5kΩ x 2, bass
jVR5	07199900	Variable Resistor 5kΩ x 2, treble
jS1	07199300	Push Switch, tone
oS3	07199200	Rotary Slide Switch, mode

3-11. F-3228 Power Indicator Circuit Board

Component Side



Parts List

Parts No.	Stock No.	Description
•IC		
nIC1	03613200	IR2406
nLD1	07187500	Light Emitting Diode GL-112R13
nPL7	07201600	Pilot Lamp 8V 150 mA
nPL8	07201600	Pilot Lamp 8V 150 mA

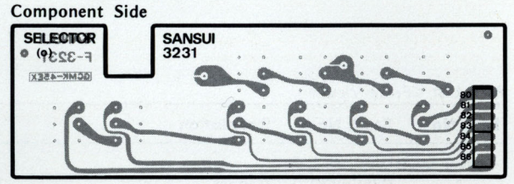
3-12. F-3237 Master Volume Circuit Board

Parts List

Parts No.	Stock No.	Description
jVR6	07199600, 1	Variable Resistor 100kΩ (B) x 2

3-13. F-3231 Input Selector Circuit Board

Component Side



3-14. F-3223 Power Fuse Circuit Board

Parts List

Parts No.	Stock No.	Description
•AU-D7		
pF1	07188800	Fuse 250V 3A (220V ~ 240V)
	07189200	Fuse 250V 6A (100V ~ 120V)
•AU-D5		
pF1	07188700	Fuse 250V 2.5A (220V ~ 240V)
	07189100	Fuse 250V 5A (100V ~ 120V)

3-15. F-3417 Rectifier Circuit Board (AU-D7 Only)

Parts List

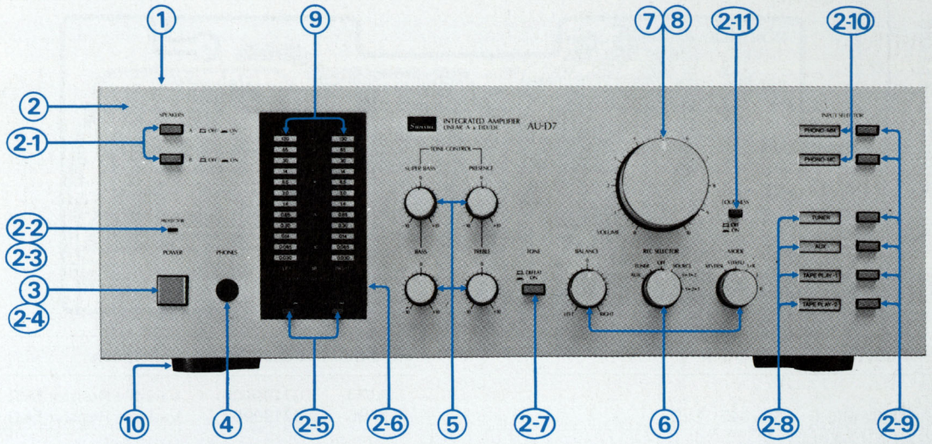
Parts No.	Stock No.	Description
•Diode		
mD1	03112900	SS-3
mD2	03113000	SS-3R

• Abbreviations

C.R.	Carbon Resistor	E.L.	Low Leak Electrolytic Capacitor
S.R.	Solid Resistor	E.B.	Bi-Polar Electrolytic Capacitor
Ce.R.	Cement Resistor	E.BL.	Low Leak Bi-Polar Electrolytic Capacitor
M.R.	Metal Film Resistor	Ta.C.	Tantalum Capacitor
F.R.	Fusing Resistor	F.C.	Film Capacitor
N.I.R.	Non-Inflammable Resistor	M.P.	Metalized Paper Capacitor
C.C.	Ceramic Capacitor	P.C.	Polystyrene Capacitor
C.T.	Ceramic Capacitor, Temperature Compensation	G.C.	Gimmic Capacitor
E.C.	Electrolytic Capacitor		

4. OTHER PARTS

4-1. Front View



Parts List <Front View>

Parts No.	Stock No.	Description
<Silver Model>		
1	07555500	Bonnet
2	07556240	Front Panel Ass'y (AU-D7)
	07665900	Front Panel Ass'y (AU-D5)
2-1	07553900	Push Knob Ass'y, speaker
2-2	07220700	Light Emitting Diode (Red)
2-3	55072800	Masking Sheet
2-4	59560800	Push Knob Guide
2-5	71061500	Push Knob Ass'y, range selector, display
2-6	07541200	Meter Window
2-7	07553800	Push Knob Ass'y, tone
2-8	07540700	Indicator Plate (B)
2-9	07553900	Push Knob Ass'y, input selector
2-10	07540600	Indicator Plate (A)
2-11	07522500	Push Knob Ass'y, loudness
3	53195000	Push Knob, power
4	24306000	Head Phone Jack
5	53195600	Knob, tone control
6	07554200	Knob, balance, rec selector, mode
7	53195500	Knob, volume
8	50485300	Masking Sheet
<Black Model>		
1	07665700	Bonnet
2	07723710	Front Panel Ass'y (AU-D7)
	07666000	Front Panel Ass'y (AU-D5)
2-1	07554100	Push Knob Ass'y, speaker
2-2	07220700	Light Emitting Diode (Red)
2-3	55072800	Masking Sheet
2-4	59560900	Push Knob Guide
2-5	71061500	Push Knob Ass'y, range selector, display
2-6	07541200	Meter Window
2-7	07554000	Push Knob Ass'y, tone
2-8	07540700	Indicator Plate (B)

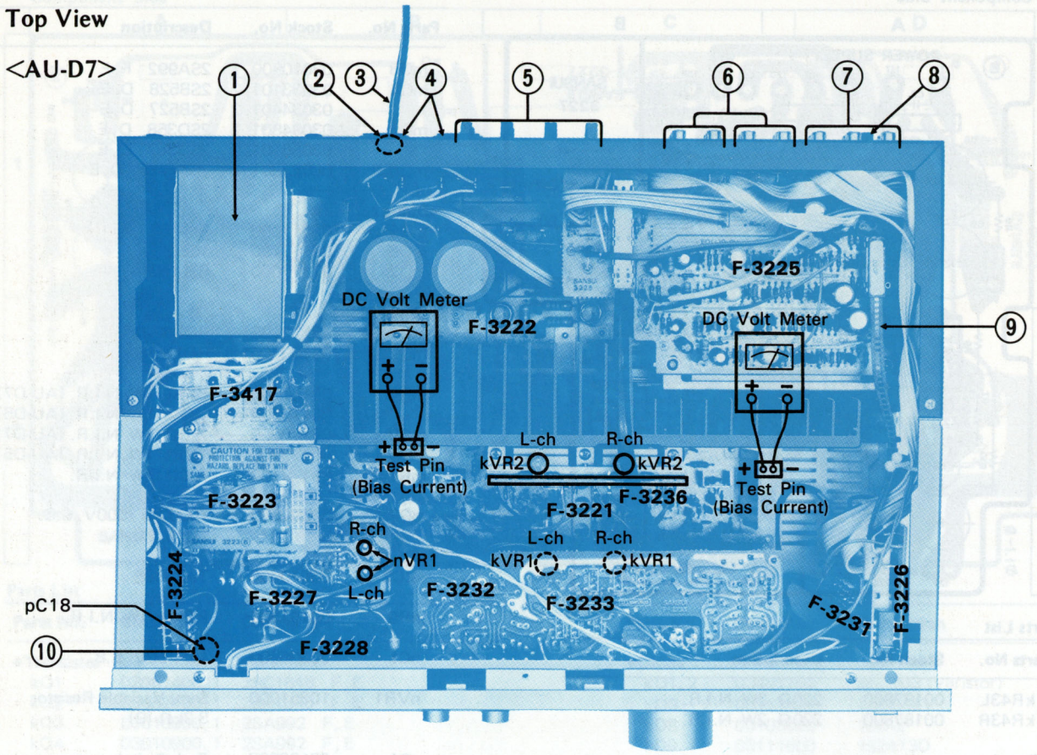
Parts No.	Stock No.	Description
2-9	07554100	Push Knob Ass'y, input selector
2-10	07540600	Indicator Plate (A)
2-11	71061500	Push Knob Ass'y, loudness
3	53196500	Push Knob, power
4	24306000	Head Phone Jack
5	53196200	Knob, tone control
6	07614400	Knob, balance, rec selector, mode
7	53196400	Knob, volume
8	50485300	Masking Sheet
9	07723500	Indicator Plate Ass'y (AU-D7)
	07556330	Indicator Plate Ass'y (AU-D5)
10	55073500	Leg

Parts List <Top View>

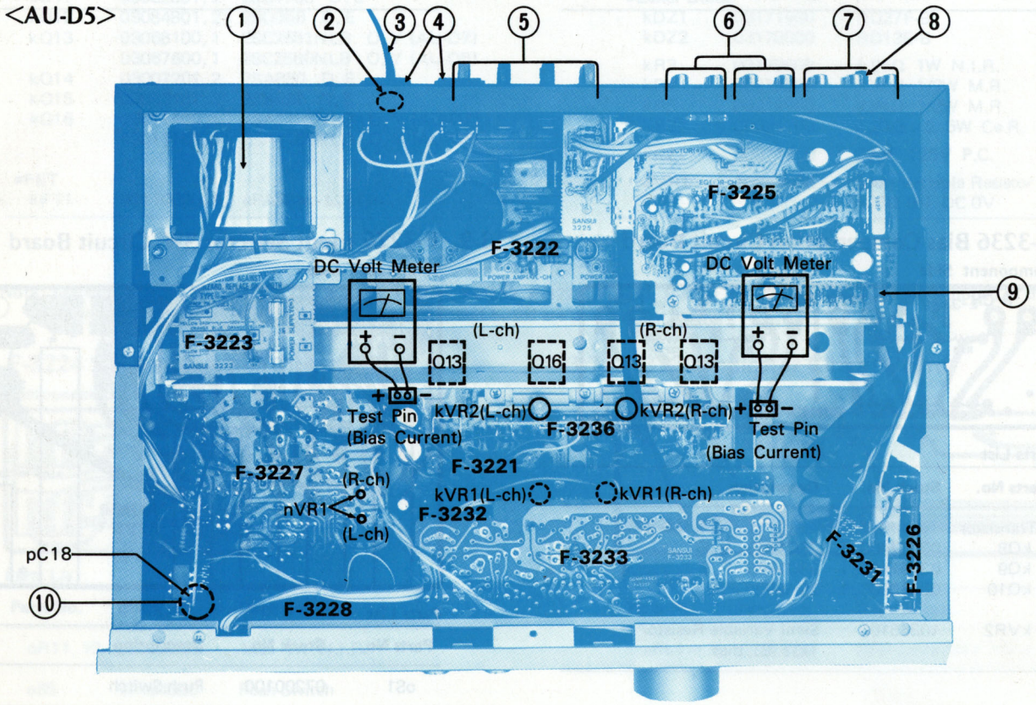
Parts No.	Stock No.	Description
1	15003201	Power Transformer (AU-D7)
	07201201	Power Transformer (AU-D5)
2	39106000	Strain Relief
3	38004700	Power Supply Cord
4	07189600	AC Outlet
5	07183300	8P Output Terminal
6	22007100	4P Input Terminal, tape 1, 2
7	22007200	6P Input Terminal, phono, tuner, aux
8	22301500	Ground Terminal
9	07200600	Wire
10	11318900	Push Switch, power
pC18	00386000	10000pF 150V C.C.

4-2. Top View

<AU-D7>

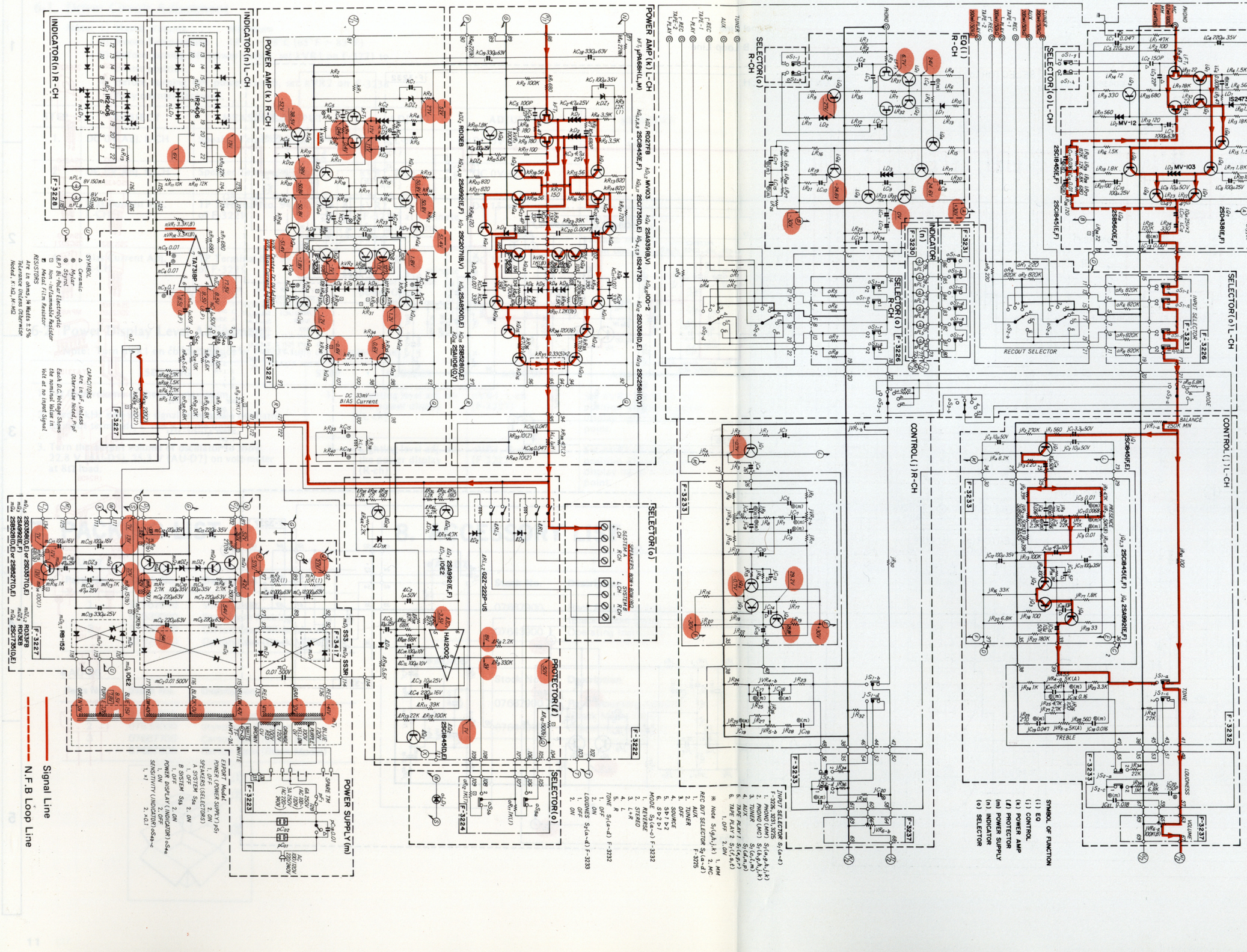


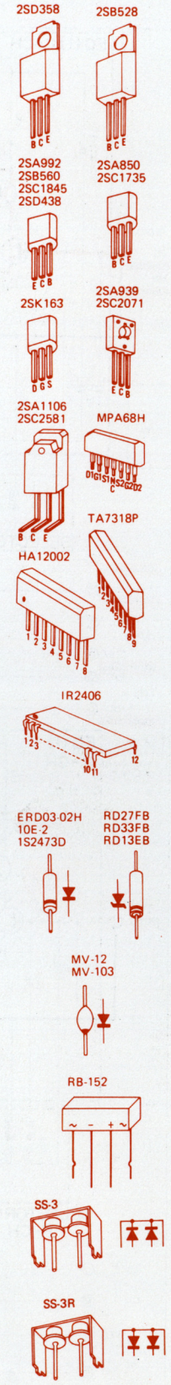
<AU-D5>



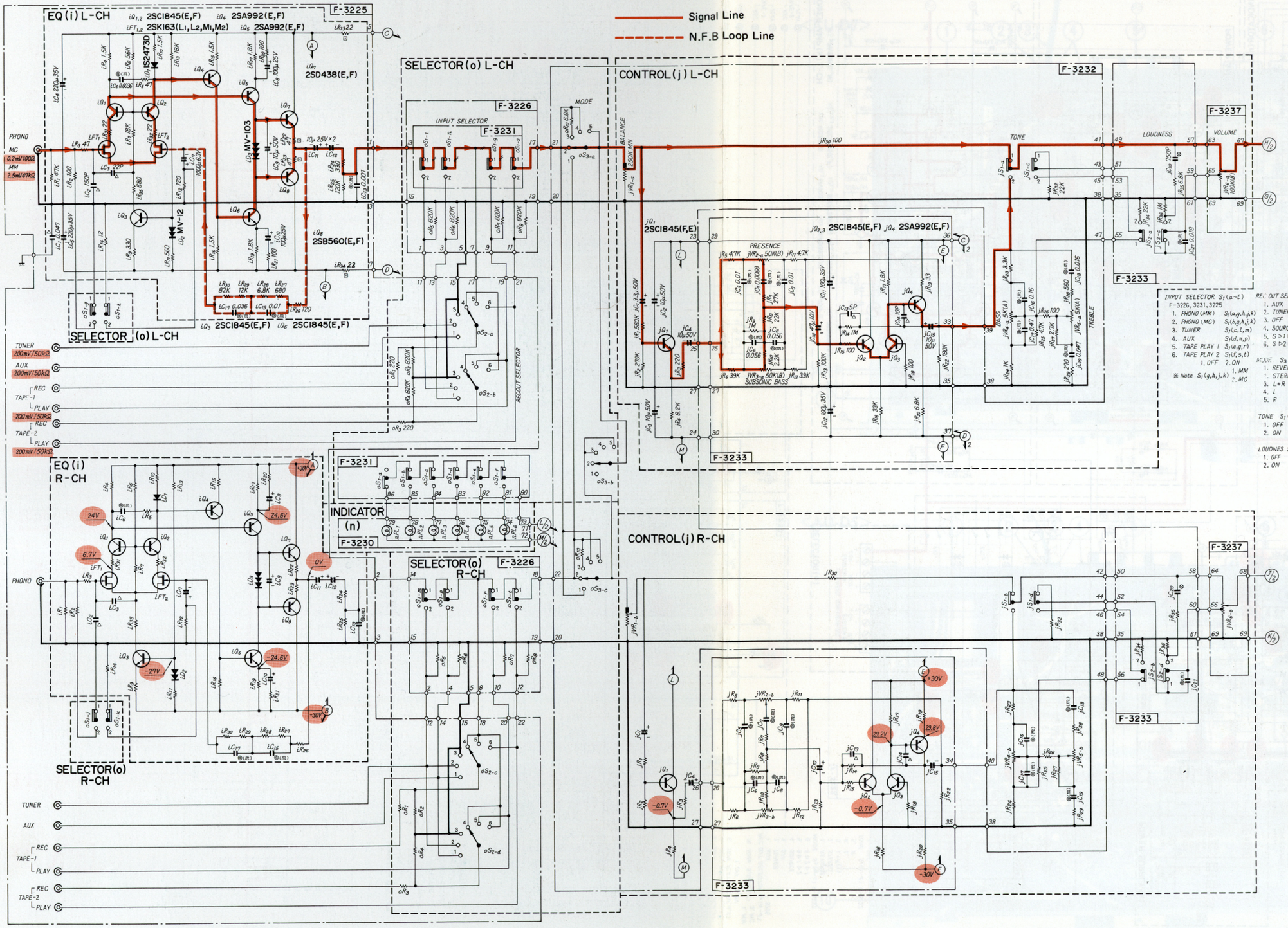
* La présention et les spécifications sont susceptibles d'être modifiées sans préavis par suites d'améliorations éventuelles.
* Anderungen, die dem technischen Fortschritt dienen, bleiben vorbehalten.
* Design and specifications subject to change without notice for improvement.

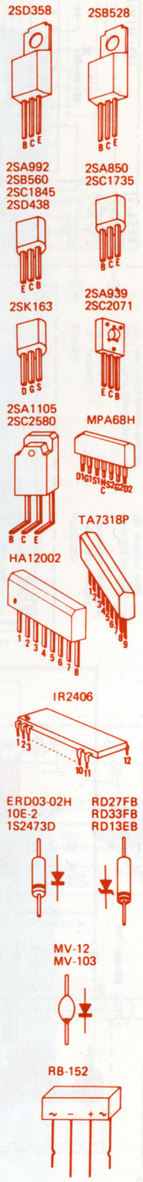
5. SCHEMATIC DIAGRAM 5-1. AU-D7





5-2. AU-D5 Equalizer & Tone Control Amp. Section



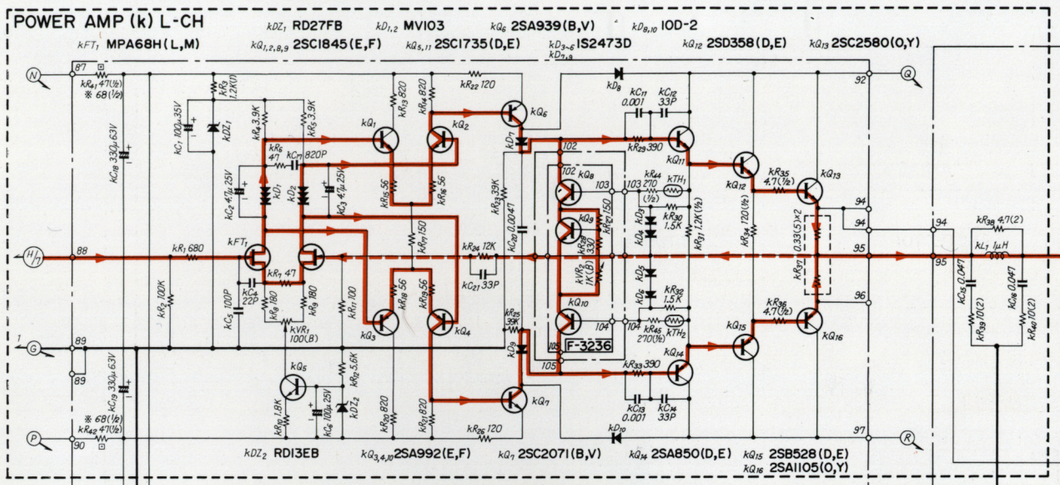


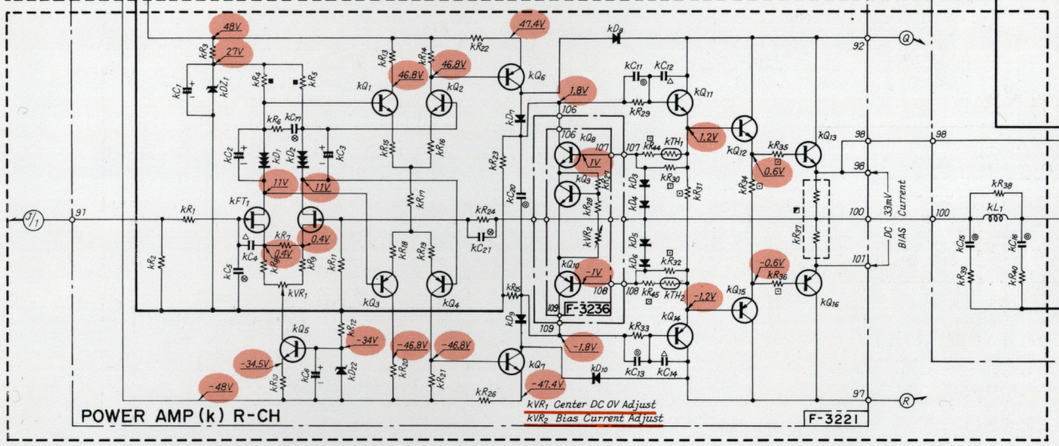
A	B	C	D	E	F	G	H

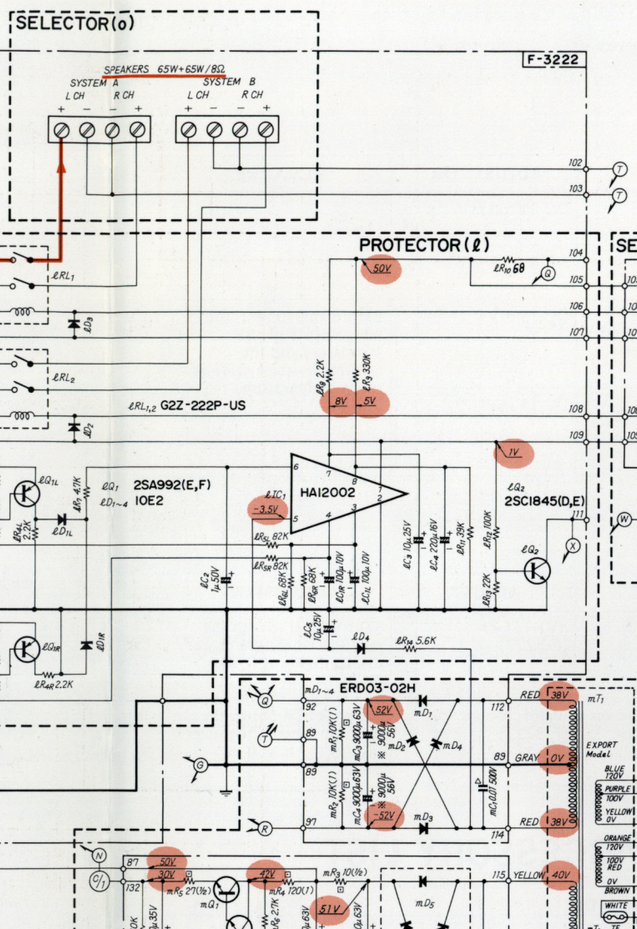
5-3. AU-D5 Power Amp. & Power Supply Section

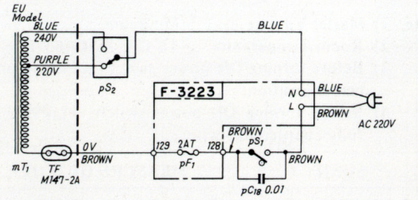
Signal Line

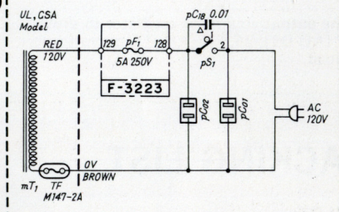
N.F.B Loop Line











SYMBOL OF FUNCTION

(k) POWER AMP
(ℓ) PROTECTOR
(m) POWER SUPPLY
(n) INDICATOR
(o) SELECTOR
(i) EQ
(j) CONTROL

POWER (POWER SUPPLY) pS1
1. OFF
2. ON
SPEAKERS (SELECTORS)
A SYSTEM oSa
1. OFF
2. ON
B SYSTEM oSb
1. OFF
2. ON
POWER DISPLAY (INDICATOR) oSac
1. ON
2. OFF
SENSITIVITY (INDICATOR) oSab~c
1. ×1
2. ×0.1

NOTE
※ JAPAN MODEL ONLY

SYMBOL
△ Ceramic
Ⓜ Mylar
Ⓢ Styrol
(B,P) Bi-Polar Electrolytic
⊡ Non-Inflamable Resistor
▩ Metal Film Resistor
RESISTORS
Are in ohms, ¼ Watts ±5%
Tolerance Unless Otherwise Noted, K: kΩ, M: MΩ

CAPACITORS
Are in μF, Unless Otherwise Noted, P: pF

Each DV Voltage Shows the nominal Value in Volt at no Input Signal

6. ADJUSTMENTS

6-1. Driver Circuit Adjustment

Note: 1) Master Volume . . . . Minimum
2) Room Temperature . 18°C ~ 28°C (65°F ~ 83°F)
3) Before turning ON power switch, set kVR1 on F-3221 to center position.
4) Before turning ON power switch, set kVR2 on F-3236 fully counterclockwise.

STEP	SUBJECT	MEASURE OUTPUT	ADJUST	ADJUST FOR	REMARKS
1.	DC 0V Adj. L-CH	Speaker Terminal (L-ch)	kVR1, L-ch (F-3221)	DC 0V ±5 mV	
2.	DC 0V Adj. R-CH	Speaker Terminal (R-ch)	kVR1, R-ch (F-3221)	DC 0V ±5 mV	
3.	Bias Current Adj. L-CH	TP Terminal No. 94 and 96 of F-3221	kVR2, L-ch (F-3236) at 1 minute after turning the power ON.	DC 15 mV	Before adjustment, the temperature of the transistors and the radiator must be same as room temperature.
4.	Bias Current Adj. R-CH	TP Terminal No. 99 and 101 of F-3221	kVR2, R-ch (F-3236) at 1 minute after turning the power ON.	DC 15 mV	

6-2. Power Display Level Adjustment

Note: Turn nVR1 on conductor side of F-3227 fully counterclockwise.

SETTING	STEP	SUBJECT	ADJUST	ADJUSTMENT
1. Set level volume of the unit maximum. 2. Feed 1 kHz sine-wave signal from audio oscillator to input terminals, L and R of the unit.	1	Lighting level adj. on the power display (L-ch)	nVR1, L-ch (F-3227)	Set nVR1 (L-ch) to the position where the power display lights at 0 dB point.
3. Turn the output volume of oscillator to show 22.8 V (AU-D5), 25.3 V (AU-D7) on volt-meter at 8Ω load.	2	Lighting level adj. on the power display (R-ch)	nVR1, R-ch (F-3227)	Set nVR1 (R-ch) to the position where the power display lights at 0 dB point.

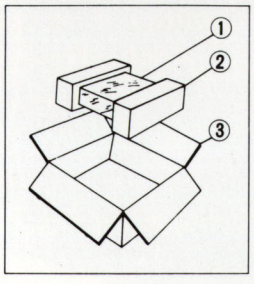
7. PACKING LIST

● AU-D7

Parts No.	Stock No.	Description
1	91167810	Vinyl Cover
2	07533000	Styrofoam Packing
3	07725900	Carton Case (Silver Model)
	07726000	Carton Case (Black Model)

● AU-D5

Parts No.	Stock No.	Description
1	91167810	Vinyl Cover
2	07533000	Styrofoam Packing
3	07667700	Carton Case (Silver Model)
	07667600	Carton Case (Black Model)



8. ACCESSORY LIST

● AU-D7

Stock No.	Description
07667900	Rack Mounting Adaptor (Black Model Only)
07643900	Operating Instruction

● AU-D5

Stock No.	Description
07667900	Rack Mounting Adaptor (Black Model Only)
07644000	Operating Instruction

Sansui

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