

SERVICE MANUAL

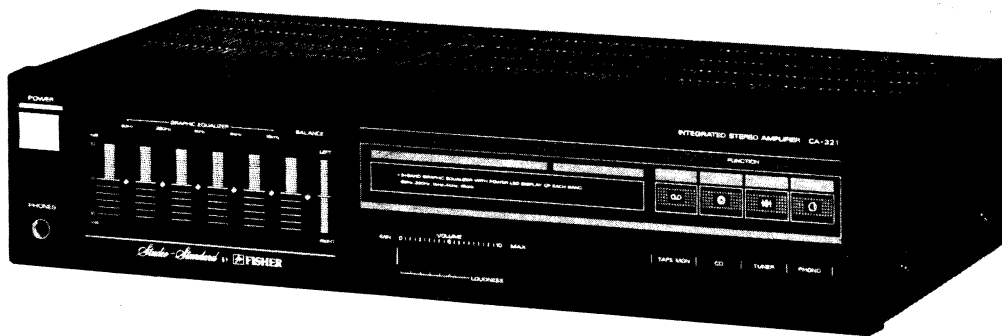


FISHER

INTEGRATED STEREO AMPLIFIER

CA-321

(EUROPE)



132 306 49

SPECIFICATIONS

POWER AMPLIFIER SECTION

Minimum RMS sine wave power per channel
within stated bandwidth at no more than stated
distortion and with 8-ohm load 20 Watts
Power Bandwidth 40 Hz – 20 kHz
Total Harmonic Distortion 0.5 %
I.M. Distortion 0.5 %
Speaker Damping >20

PREAMPLIFIER SECTION

Frequency Response
Phono (RIAA) ± 1 dB
CD (20 Hz – 20 kHz) ± 1 dB
Input Sensitivity and Impedance
Phono 2.5 mV/50 k Ω
Tape Monitor 150 mV/50 k Ω
Tuner/CD 150 mV/50 k Ω
Phono Max. Input Capability 150 mV

Graphic Equalizer

63 Hz	± 10 dB
250 Hz	± 10 dB
1 kHz	± 10 dB
4 kHz	± 10 dB
16 kHz	± 10 dB

Hum and Noise (IHF Short Circuit, A Network)

Phono	68 dB
Tape Monitor	85 dB
Tuner/CD	85 dB

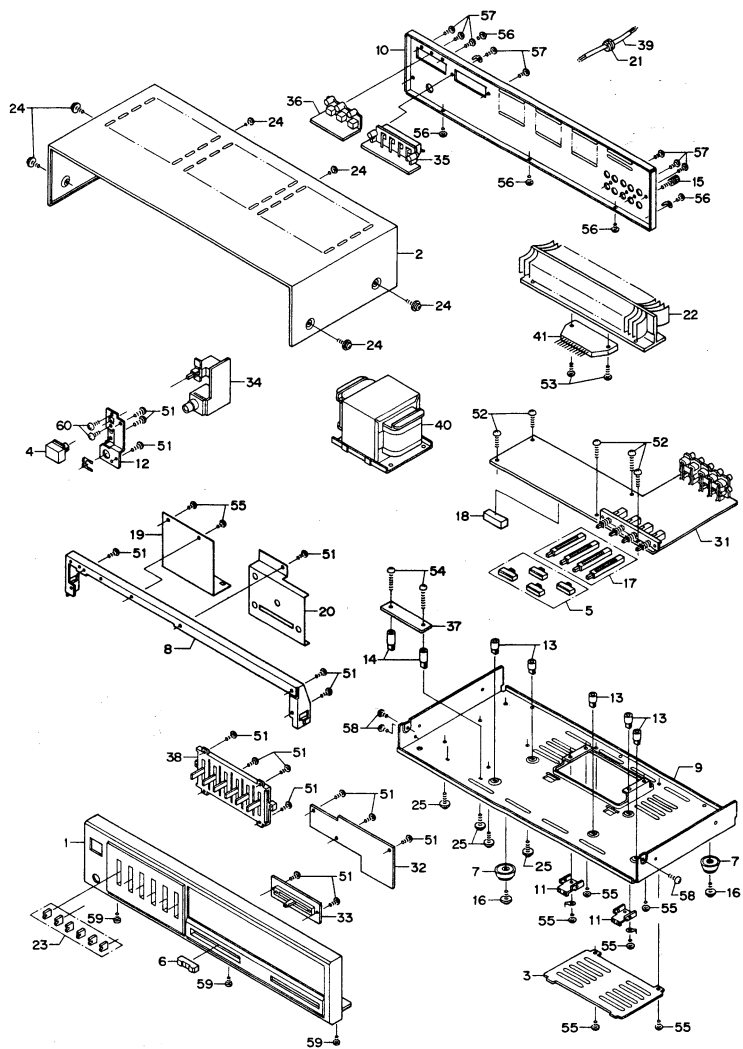
GENERAL

Power Requirements (50 Hz)	AC 220 V 120 Watts
Dimensions (W x H x D)	400 x 91 x 202 mm
Weight (approx.)	3.8 kg

– Specifications and design are subject to change without notice. –

CABINET & CHASSIS PARTS LIST/EXPLODED VIEW

Ref. No.	Part No.	Description	Q'ty
PACKAGE			
	131-6-1169-19907	Box Corrugate-Exp.	1
	131-6-3009-36250	Pad (Left)	1
	131-6-3009-36260	Pad (Right)	1
	131-6-3069-16350	Patching Sheet	1
	131-6-4559-11200	Serial No. Sheet	2
	141-6-2519-22390	Sheet Polyethylene	1
ACCESSORIES			
	131-6-2719-10401	Bag Fan	1
	131-6-4559-11200	Serial No. Sheet	1
	141-6-4519-27939	Certificate Card	1
	142-6-4119-33791	Explanatory Booklet	1
CABINET			
	4-2379-21520	Terminal Lug	1
	4-2379-21524	Terminal Lug	1
	131-6-4559-11200	Serial No. Sheet	1
	141-2-4729-07100	Wire Band	16
1	131-0-1016-46501	Cabinet Front Assy	1
	131-2-1110-39501	Plate Decorate (EQ.)	1
	131-2-1110-39610	Plate Decorate	1
	131-2-1203-69001	Cabinet Front	1
	131-2-1801-16200	Leg	2
	131-2-3608-16600	Filter	1
2	131-2-1410-34400	Cover	1
3	131-2-1410-34900	Cover Bottom	1
4	131-2-1601-86200	Knob (Power)	1
5	131-2-1601-96701	Knob (Function)	4
6	131-2-1601-99600	Knob (Volume)	1
7	131-2-1801-12900	Leg	2
8	131-2-3202-15900	Metal Reinforce	1
9	131-2-3301-32300	Chassis	1
10	131-2-3306-41501	Panel Rear	2
11	131-2-3310-18400	Metal Support	1
12	131-2-3604-16700	Metal Mount Switch	1
13	131-2-3614-20300	Mount P.C.B.	5
14	131-2-3614-21800	Mount P.C.B.	2
15	131-2-4201-17800	Screw Ground	1
16	131-2-4201-25200	Screw, Brazier Hd. Tapping-B, + M3.0X6	2
17	131-2-4219-20200	Shaft	4
18	131-2-5205-34900	Cushion	1
19	131-2-6101-31800	Plate Shield	1
20	131-2-6103-27200	Cover Shield	1
21	131-2-6111-14200	Bushing (4N-4)	1
22	131-2-6201-37700	Plate Heat Sink	1
23	141-2-1659-68800	Knob Cap	6
24	141-2-4219-33101	Screw, Bind Hd. Tapping-B, + M3.0X8	6
25	141-2-4219-43300	Screw, Bind Hd. Tapping-C, + M4.0X10	4
31	141-0-1939-26630	Main Amplifier P.C.B. Assy	1
32	141-0-1939-26640	Graphic EQ. P.C.B. Assy	1
33	141-0-1939-26650	Volume P.C.B. Assy	1
34	141-0-1939-26660	Power Switch P.C.B. Assy	1
35	141-0-1939-26670	Speaker Out P.C.B. Assy	1
36	141-0-1939-26680	Power Supply P.C.B. Assy	1
37	141-0-1939-26690	AC Select P.C.B. Assy	1
38	4-2229-77640	Slide Volume Unit	1
39	△ 4-2432-00500	Power Cord	1
40	△ 4-2512-33221	Power Trans	1
41	409 047 0309	IC STK4132MK2-S [IC301]	1
51	411 020 5706	SCR S-TPG BRZ 2.6X8	16
52	411 020 6208	SCR S-TPG BRZ 3X12	5
53	411 020 6703	SCR S-TPG BRZ 3X16	2
54	411 020 7007	SCR S-TPG BRZ 3X20	2
55	411 020 7700	SCR S-TPG BRZ 3X6	8
56	411 099 9704	SCR S-TPG BRZ 3X6	5
57	411 099 9803	SCR S-TPG BRZ 3X8	8
58	411 021 5705	SCR S-TPG BIN 3X6	3
59	411 021 6603	SCR S-TPG BIN 3X8	3
60	411 002 8503	SCR PAN 3X6	2



Ref. No.	Part No.	Description	Q'ty
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NOTES:

1. Parts order must contain Model Number, Part Number and Description.
2. Ordering quantity of screws and resistors must be multiple of 10 pcs.

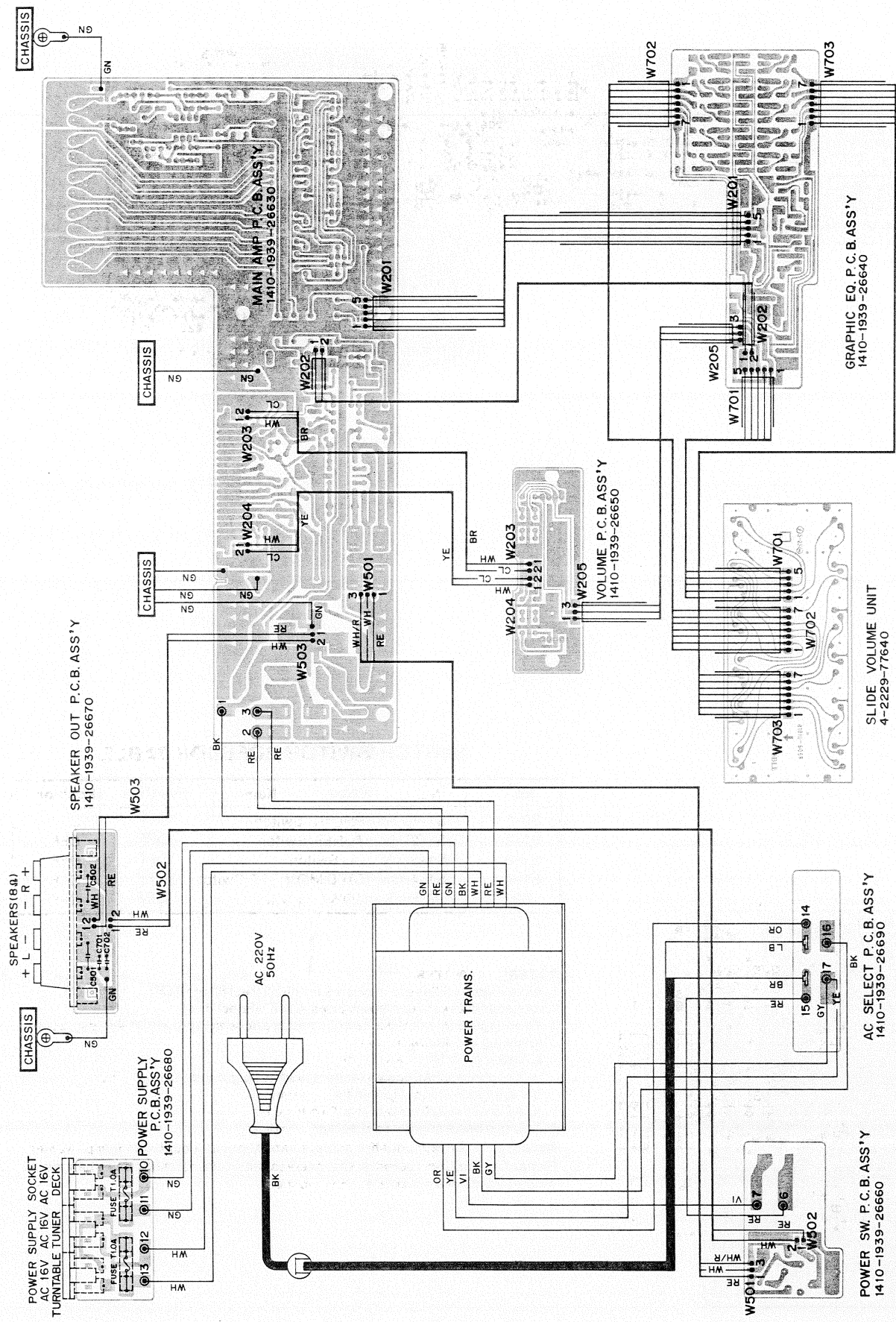
PRODUCT SAFETY NOTICE

Each precaution in this manual should be followed during servicing. Components identified with the IEC symbol Δ in the parts list and the schematic diagram designate components in which safety can be of special significance. When replacing a component identified with Δ , use only the replacement parts designated, or parts with the same ratings of resistance, wattage or voltage that are designated in the parts list in this manual. Leakage-current or resistance measurements must be made to determine that exposed parts are acceptably insulated from the supply circuit before returning the product to the customer.

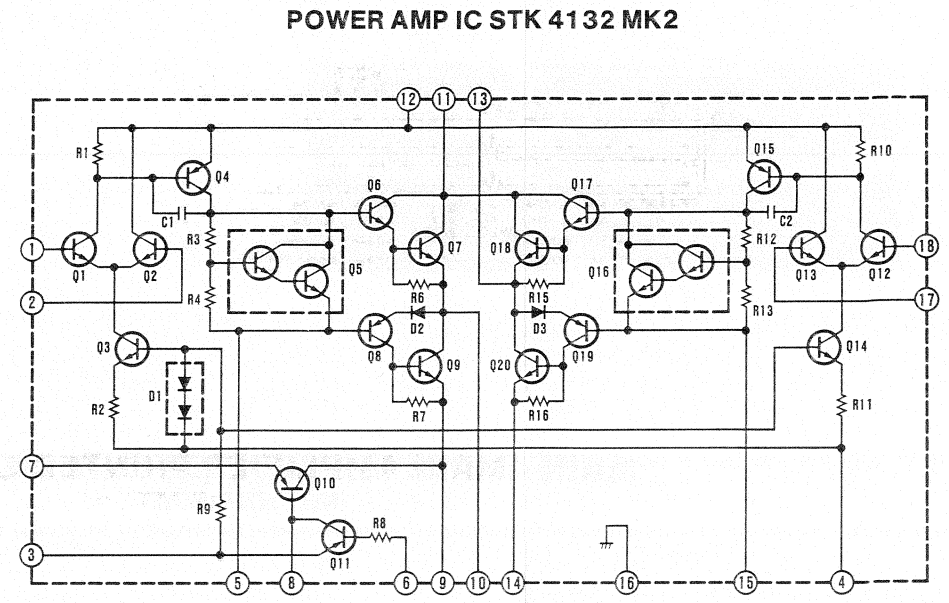
P.C.BOARD PARTS LIST

Ref. No.	Part No.	Description	Q'ty	Ref. No.	Part No.	Description	Q'ty
MAIN AMPLIFIER P.C.B. ASSY							
31	141-0-1939-26630	Main Amplifier P.C.B. Assy	1	C317	403 052 6905	ELECT	10U M 35V
S1	4-2319-79560	Push Switch (Function, TAPE MONITOR)	1	C318	403 086 8104	NP-ELECT	4.7U M 50V
	△ 4-2349-20250	Fuse T 2.0A	2	C319	403 045 9104	ELECT	220U M 25V
	△ 4-2349-20570	Fuse T2.5A	2	C320	403 052 8107	ELECT	100U M 35V
	4-2352-01700	Pin Jack 4P (TAPE)	1	C401	404 012 6904	CERAMIC	0.047U Z 150V
	4-2352-01780	Pin Jack 6P (PHONO, TUNER, CD)	1	C402	404 012 6904	CERAMIC	0.047U Z 150V
	4-2352-01940	Fuse Clip	8	C403	404 012 6904	CERAMIC	0.047U Z 150V
	111-2-6220-11100	Wire Wrap Terminal	3	C404	404 012 6904	CERAMIC	0.047U Z 150V
L301	4-2532-00420	RF Filter (5µH)	1	C405	404 012 5105	ELECT	2200U M 35V
or	4-2532-00422	RF-Coil (5µH)	1	C406	404 012 5105	ELECT	2200U M 35V
L302	4-2532-00420	RF Filter (5µH)	1	C407	403 047 1502	ELECT	4.7U M 25V
or	4-2532-00422	RF-Coil (5µH)	1	C408	403 047 1502	ELECT	4.7U M 25V
IC101	409 018 4503	IC LA6458DS	1	C703	403 074 2701	CERAMIC	0.047U Z 50V
Q301	405 019 3804	TR 2SC536-G-NP	1	C704	403 074 2701	CERAMIC	0.047U Z 50V
or	405 019 2708	TR 2SC536-F-NP	1	C707	403 069 8404	CERAMIC	0.01U Z 50V
Q401	405 013 7006	TR 2SC2274-F	1	C708	403 069 8404	CERAMIC	0.01U Z 50V
or	405 013 6801	TR 2SC2274-E	1	R101	401 026 4308	CARBON	3.3K JA 1/6W
Q402	405 006 6702	TR 2SA984-F	1	R102	401 026 4308	CARBON	3.3K JA 1/6W
or	405 006 6504	TR 2SA984-E	1	R103	401 024 7707	CARBON	100K JA 1/6W
D101	407 008 0405	DIODE GMB01-BT	1	R104	401 024 7707	CARBON	100K JA 1/6W
D102	407 008 0405	DIODE GMB01-BT	1	R105	401 024 7707	CARBON	100K JA 1/6W
D201	407 005 4703	DIODE DS446-BT	1	R106	401 024 7707	CARBON	100K JA 1/6W
D301	407 005 4703	DIODE DS446-BT	1	R107	401 026 3905	CARBON	330 JA 1/6W
D302	407 005 3805	DIODE DS442-BT	1	R108	401 026 3905	CARBON	330 JA 1/6W
D401	407 004 9303	DIODE DSF10C-KC8	1	R109	401 025 8703	CARBON	220K JA 1/6W
D402	407 004 9303	DIODE DSF10C-KC8	1	R110	401 025 8703	CARBON	220K JA 1/6W
D403	407 004 9303	DIODE DSF10C-KC8	1	R111	401 025 1902	CARBON	15K JA 1/6W
D404	407 004 9303	DIODE DSF10C-KC8	1	R112	401 025 1902	CARBON	15K JA 1/6W
D405	407 049 7609	ZENER DIODE GZA16Z-BT	1	R113	401 024 7707	CARBON	100K JA 1/6W
D406	407 049 7609	ZENER DIODE GZA16Z-BT	1	R114	401 024 7707	CARBON	100K JA 1/6W
D601	407 049 7500	ZENER DIODE GZA16Y	1	R115	401 012 5708	CARBON	1K JA 1/4W
C101	403 023 5807	CERAMIC 330P K 50V	1	R116	401 012 5708	CARBON	1K JA 1/4W
C102	403 023 5807	CERAMIC 330P K 50V	1	R117	401 012 5708	CARBON	1K JA 1/4W
C103	403 023 5807	CERAMIC 330P K 50V	1	R118	401 012 5708	CARBON	1K JA 1/4W
C104	403 023 5807	CERAMIC 330P K 50V	1	R119	401 012 5708	CARBON	1K JA 1/4W
C105	403 047 1502	ELECT 4.7U M 25V	1	R120	401 012 5708	CARBON	1K JA 1/4W
C106	403 047 1502	ELECT 4.7U M 25V	1	R121	401 012 5708	CARBON	1K JA 1/4W
C107	403 023 5807	CERAMIC 330P K 50V	1	R122	401 012 5708	CARBON	1K JA 1/4W
C108	403 023 5807	CERAMIC 330P K 50V	1	R123	401 012 5708	CARBON	1K JA 1/4W
C109	403 041 3304	ELECT 47U M 10V	1	R124	401 012 5708	CARBON	1K JA 1/4W
C110	403 041 3304	ELECT 47U M 10V	1	R125	401 016 2208	CARBON	220 JA 1/4W
C111	403 059 0401	POLYESTER 0.018U K 50V	1	R126	401 016 2208	CARBON	220 JA 1/4W
C112	403 059 0401	POLYESTER 0.018U K 50V	1	R255	401 016 2208	CARBON	220 JA 1/4W
C113	403 061 7801	POLYESTER 4700P J 50V	1	R301	401 024 7004	CARBON	1K JA 1/6W
C114	403 061 7801	POLYESTER 4700P J 50V	1	R302	401 024 7004	CARBON	1K JA 1/6W
C115	403 049 1609	ELECT 1U M 50V	1	R303	401 027 3003	CARBON	56K JA 1/6W
C116	403 049 1609	ELECT 1U M 50V	1	R304	401 027 3003	CARBON	56K JA 1/6W
C117	403 023 5807	CERAMIC 330P K 50V	1	R305	401 026 8504	CARBON	430 JA 1/6W
C118	403 023 5807	CERAMIC 330P K 50V	1	R306	401 026 8504	CARBON	430 JA 1/6W
C119	403 018 8509	CERAMIC 220P K 50V	1	R307	401 021 4105	CARBON	56K JA 1/4W
C120	403 018 8509	CERAMIC 220P K 50V	1	R308	401 021 4105	CARBON	56K JA 1/4W
C121	403 018 8509	CERAMIC 220P K 50V	1	R309	401 016 3403	CARBON	2.2K JA 1/4W
C122	403 018 8509	CERAMIC 220P K 50V	1	R310	401 016 3403	CARBON	2.2K JA 1/4W
C123	403 018 8509	CERAMIC 220P K 50V	1	R311	401 055 5703	OXIDE-MT	2.2K JB 1/2W
C124	403 018 8509	CERAMIC 220P K 50V	1	R312	401 055 5703	OXIDE-MT	2.2K JB 1/2W
C125	403 018 8509	CERAMIC 220P K 50V	1	R313	401 012 2905	CARBON	10 JA 1/4W
C126	403 018 8509	CERAMIC 220P K 50V	1	R314	401 012 2905	CARBON	10 JA 1/4W
C127	403 047 4206	ELECT 47U M 25V	1	R315	401 012 4503	CARBON	100 JA 1/4W
C128	403 047 4206	ELECT 47U M 25V	1	R316	401 012 4503	CARBON	100 JA 1/4W
C129	403 074 2701	CERAMIC 0.047U Z 50V	1	R317	402 015 3104	FUSIBLE RES	100 J- 1/4W
C130	403 074 2701	CERAMIC 0.047U Z 50V	1	R318	402 015 3104	FUSIBLE RES	100 J- 1/4W
C131	403 023 5807	CERAMIC 330P K 50V	1	R319	401 058 3805	OXIDE-MT	1K JB 1W
C132	403 023 5807	CERAMIC 330P K 50V	1	R320	401 058 3805	OXIDE-MT	1K JB 1W
C140	403 074 2701	CERAMIC 0.047U Z 50V	1	R321	401 016 4806	CARBON	22K JA 1/4W
C301	403 071 6207	CERAMIC 220P K 50V	1	R322	401 027 9005	CARBON	82K JA 1/6W
C302	403 071 6207	CERAMIC 220P K 50V	1	R323	401 027 0309	CARBON	47K JA 1/6W
C303	403 071 6207	CERAMIC 220P K 50V	1	R324	401 012 7009	CARBON	10K JA 1/4W
C304	403 071 6207	CERAMIC 220P K 50V	1	R401	401 023 0204	CARBON	82 JA 1/4W
C305	403 071 6207	CERAMIC 220P K 50V	1	R402	402 015 9700	FUSIBLE RES	82 J- 1/4W
C306	403 071 6207	CERAMIC 220P K 50V	1	or	402 016 0805	FUSIBLE RES	82 J- 1/4W
C307	403 038 9302	ELECT 33U M 6.3V	1	R403	401 016 3809	CARBON	2.2K JA 1/4W
C308	403 038 9302	ELECT 33U M 6.3V	1	R404	401 016 3809	CARBON	2.2K JA 1/4W
C309	403 054 1205	ELECT 47U M 35V	1	R601	401 058 3805	OXIDE-MT	1K JB 1W
C310	403 054 1205	ELECT 47U M 35V	1	GRAPHIC EQ. P.C.B. ASSY			
C311	403 074 2701	CERAMIC 0.047U Z 50V	1	32	141-0-1939-26640	Graphic EQ. P.C.B. Assy	1
C312	403 074 2701	CERAMIC 0.047U Z 50V	1	IC201	409 018 4909	IC LA6458S	1
C315	403 052 8008	ELECT 100U M 35V	1	Q201	405 017 9501	TR 2SC3330-S	1
C316	403 052 8008	ELECT 100U M 35V	1	or	405 017 9600	TR 2SC3330-T	1

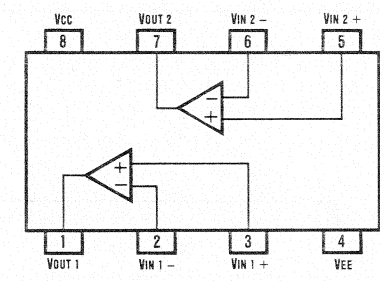
POINT TO POINT WIRING DIAGRAM



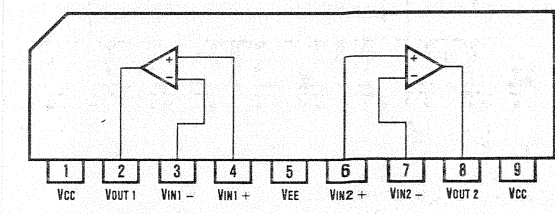
INTEGRATED CIRCUIT BLOCK DIAGRAM



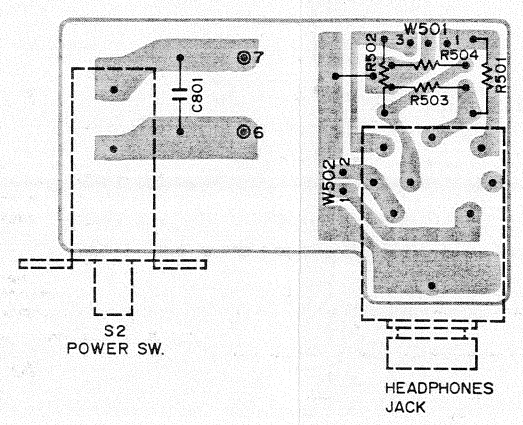
PHONO EQ. AMP IC LA 6458 DS



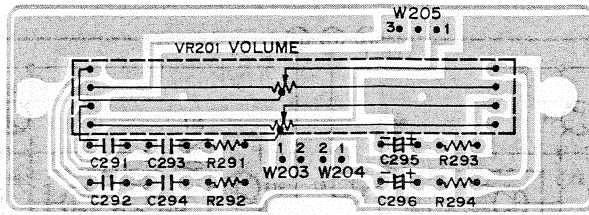
GRAPHIC EQ. AMP IC LA 6458 S



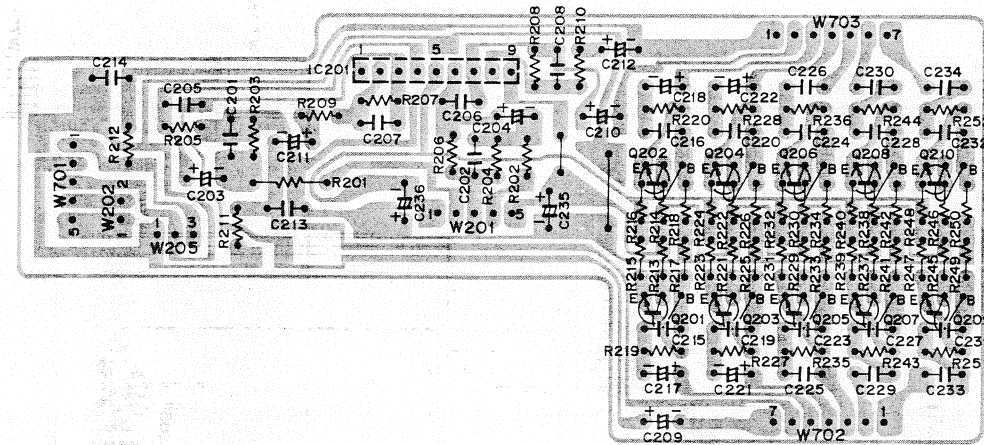
POWER SWITCH P.C. BOARD (BOTTOM VIEW)



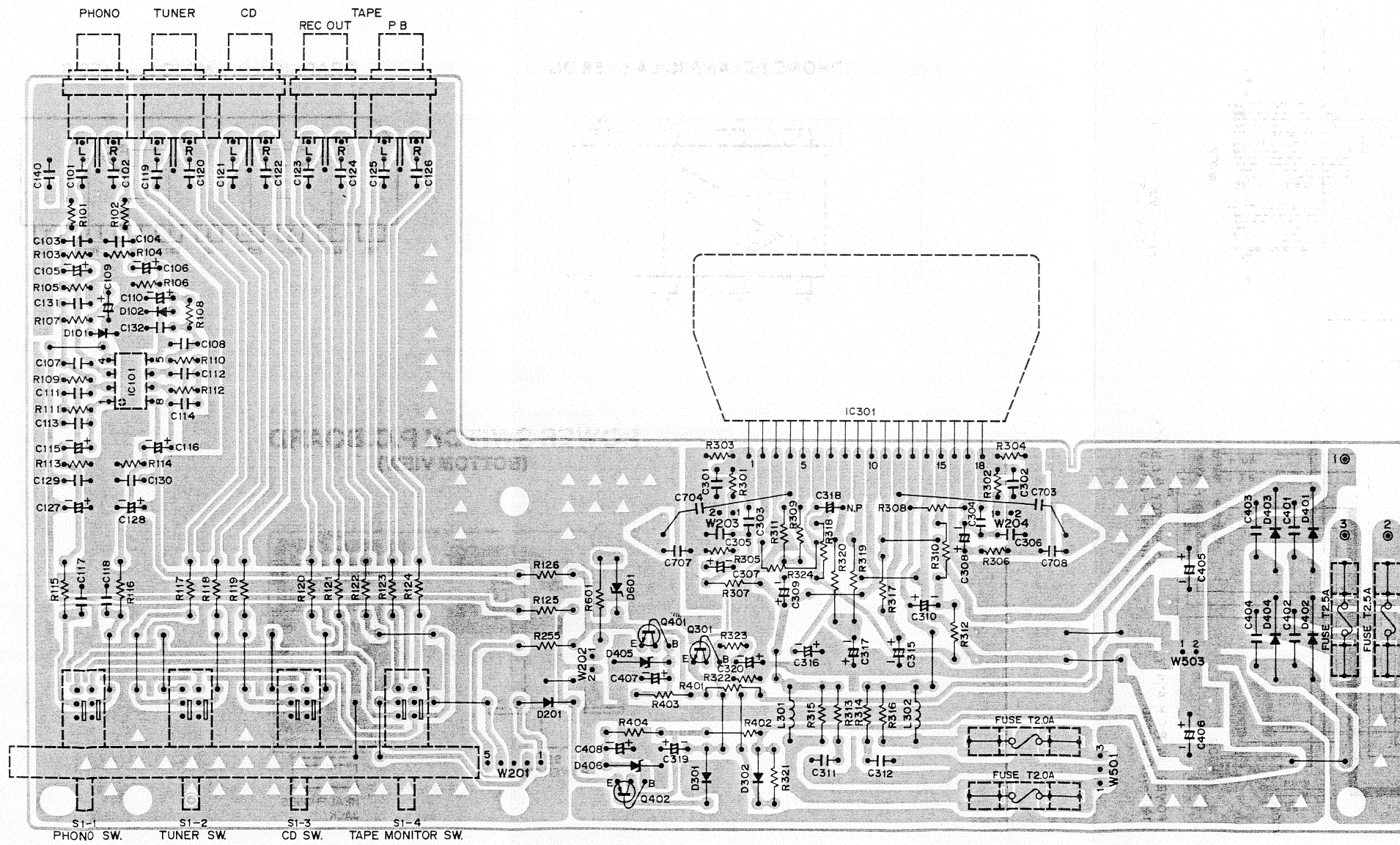
**VOLUME P.C.BOARD
(BOTTOM VIEW)**



**GRAPHIC EQ. P.C.BOARD
(BOTTOM VIEW)**



**MAIN AMPLIFIER PRINTED CIRCUIT BOARD
(BOTTOM VIEW)**



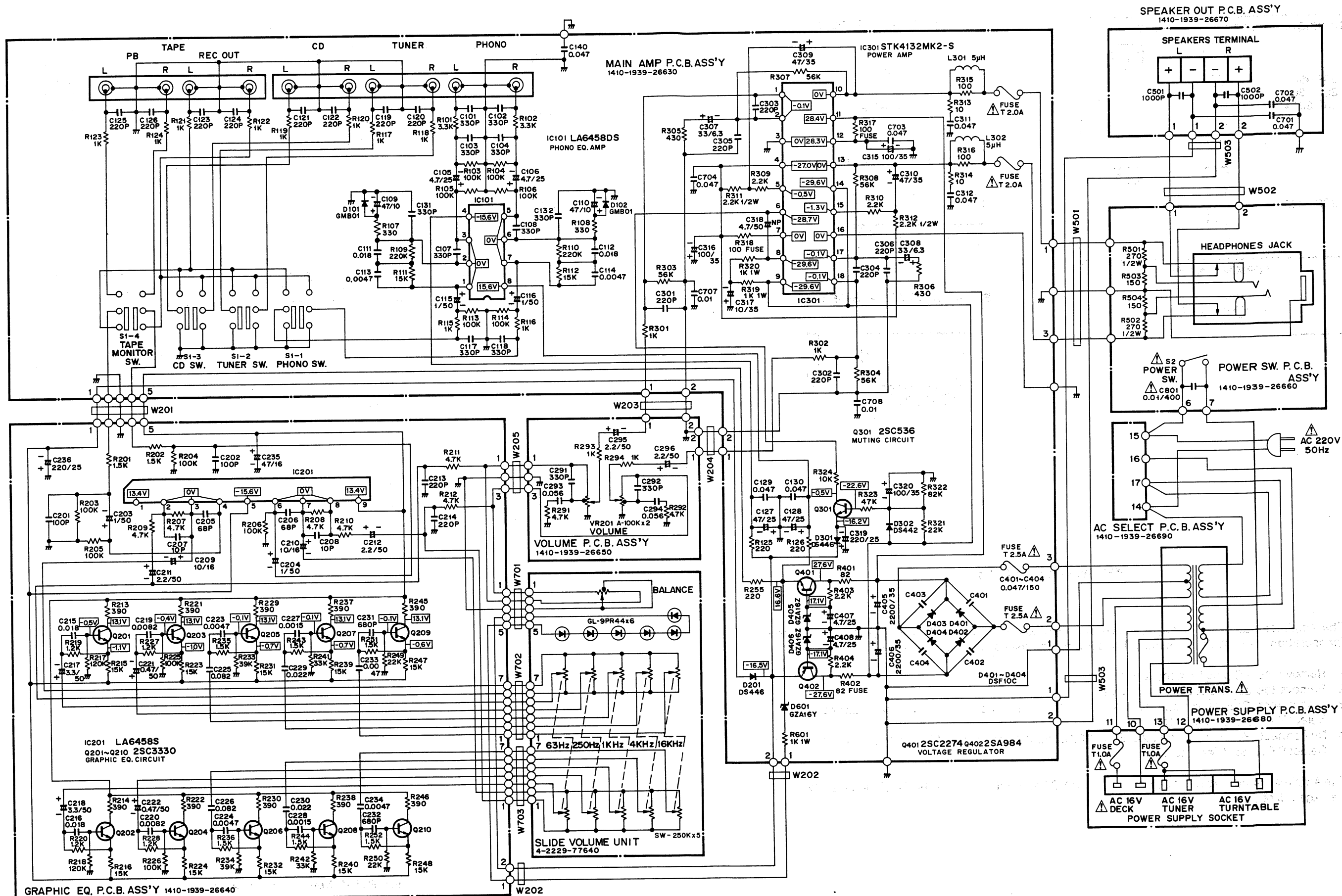
SWITCH POSITION TABLE

No.	Name	Position
S1-1	PHONO Switch	OFF
S1-2	TUNER Switch	OFF
S1-3	CD Switch	OFF
S1-4	TAPE MONITOR Switch	OFF
S2	POWER Switch	OFF

NOTES:

- All resistors values are indicated in "ohm" (K=10³, M=10⁶).
- All capacitors values are indicated in "μF" (P=10⁻¹²).
- All voltages indicated on the schematics are measured under the following conditions.
 - Use a V.T.V.M.
 - All voltages ±10% with respect to chassis ground
 - No signals at input terminals
 - AC input at 220 volts 50 Hz
- This is a basic schematic diagram. Because Fisher products are subject to continuous improvement, Fisher Corporation reserves the right to make any changes or modifications without notice.

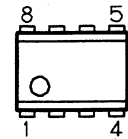
SCHEMATIC DIAGRAM



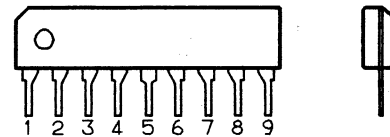
SEMICONDUCTOR LEAD IDENTIFICATION

TRANSISTOR	FRONT VIEW	BOTTOM VIEW
2SA 984 2SC 536 2SC 2274	 E C B	 E C B
2SC 3330	 E C B	 E C B
TERMINAL NAME		
B → BASE C → COLLECTOR E → EMITTER		

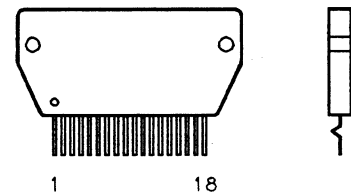
LA 6458 DS TOP VIEW



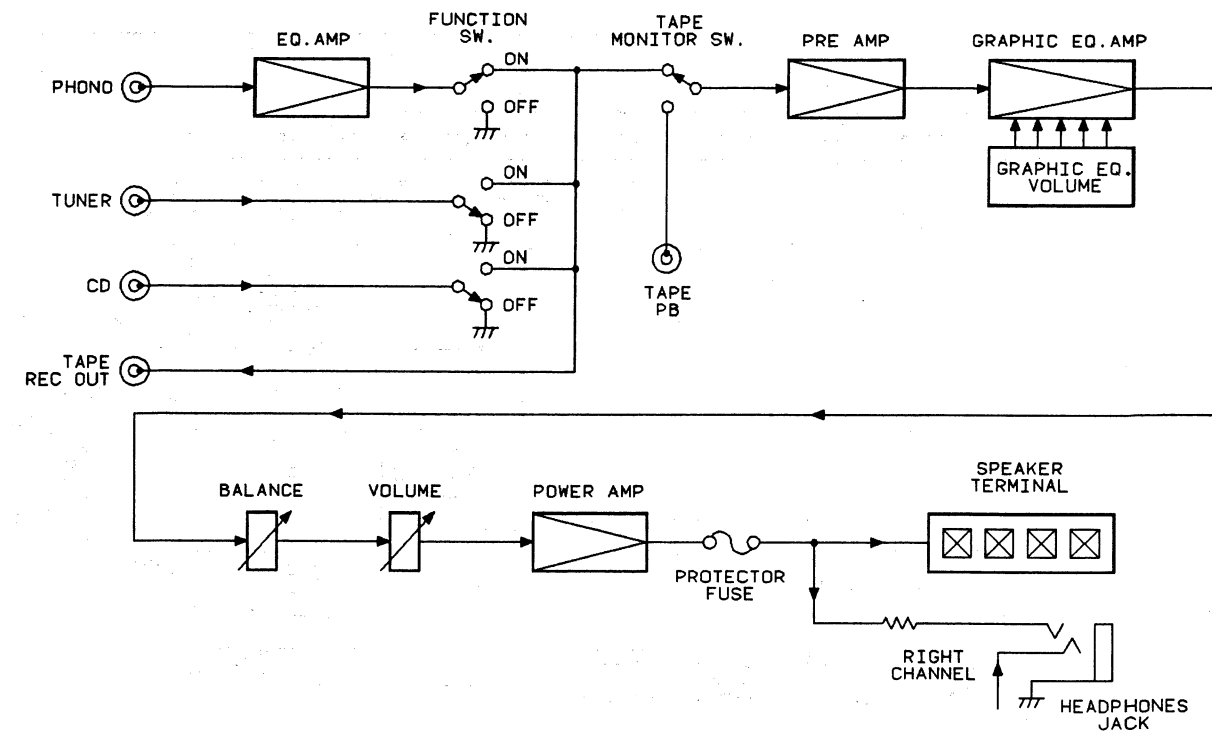
LA 6458 S TOP/SIDE VIEWS



STK 4132 MK2 TOP/SIDE VIEWS



FUNCTIONAL BLOCK DIAGRAM



IMPORTANT NOTE

The Amplifier has been Factory-adjusted for operation on 220V AC. The voltage can be changed for operation on 110V AC by making the following changes on the Amplifier inside.

1. Remove the AC plug from the wall outlet.
2. Remove the screws securing the cover.
3. Disconnect Gray lead from AC Select P.C.Board Terminal No. 17, and then connect it to AC Select P.C.Board Terminal No. 14.
4. Disconnect Yellow lead from AC Select P.C.Board Terminal No. 17, and then connect it to AC Select P.C.Board Terminal No. 16.

The Amplifier is now ready 110V operation. DO NOT attempt to operate the Amplifier on 220V. Damage will result!

FISHER Hi-Fi Europa Vertriebs GmbH

Stahlgruberring 4 Tel: 089/420 45-0
8000 München 82 Tlx: 524033

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