Ibanez

AD202

ANALOG DELAY

SERVICE MANUAL

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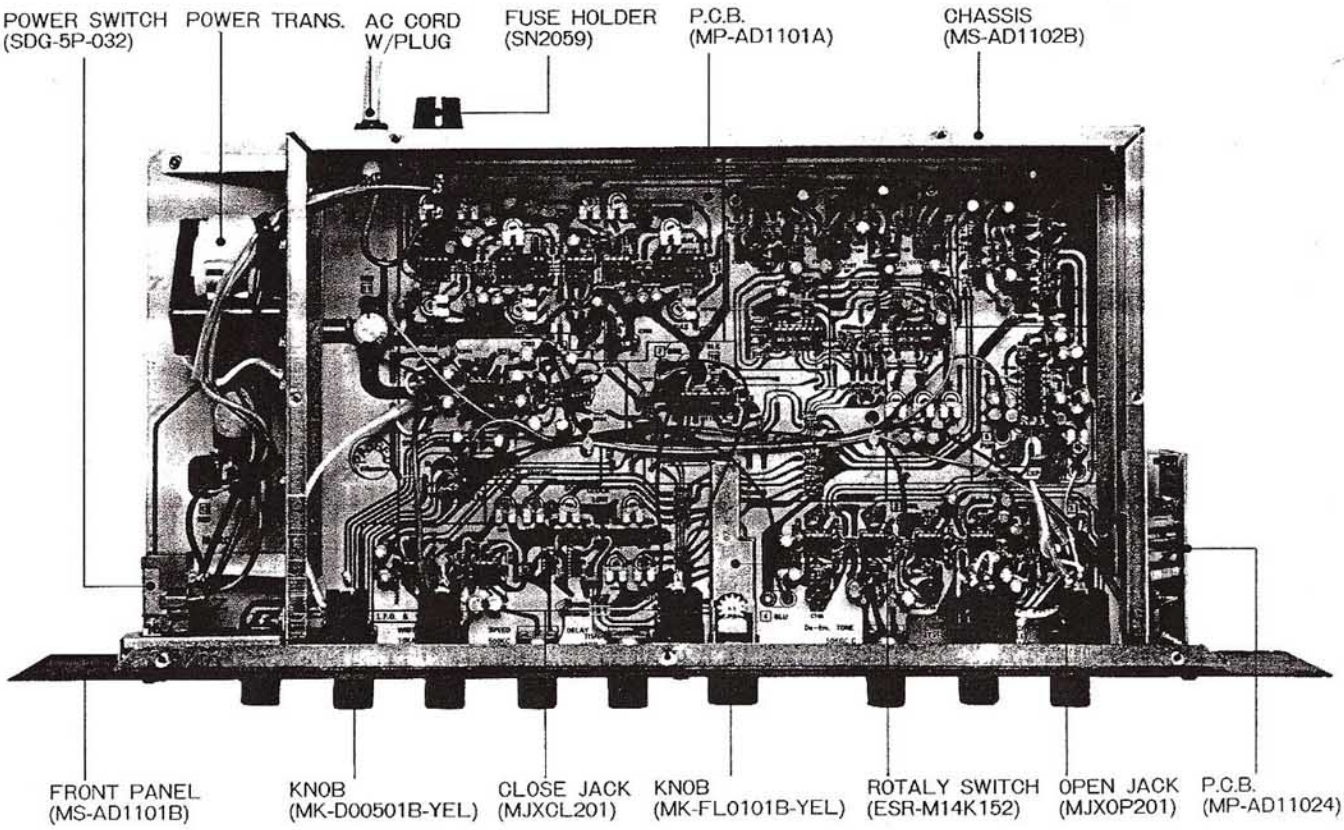
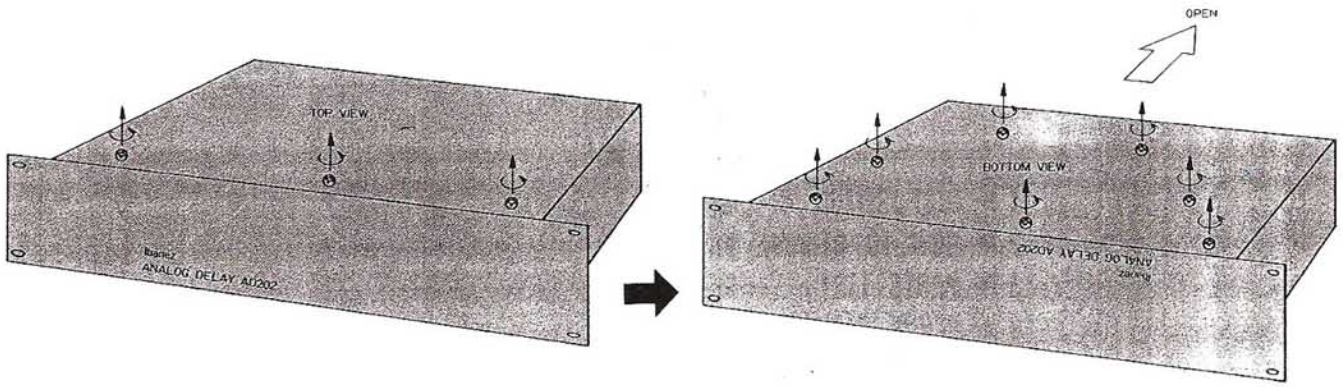
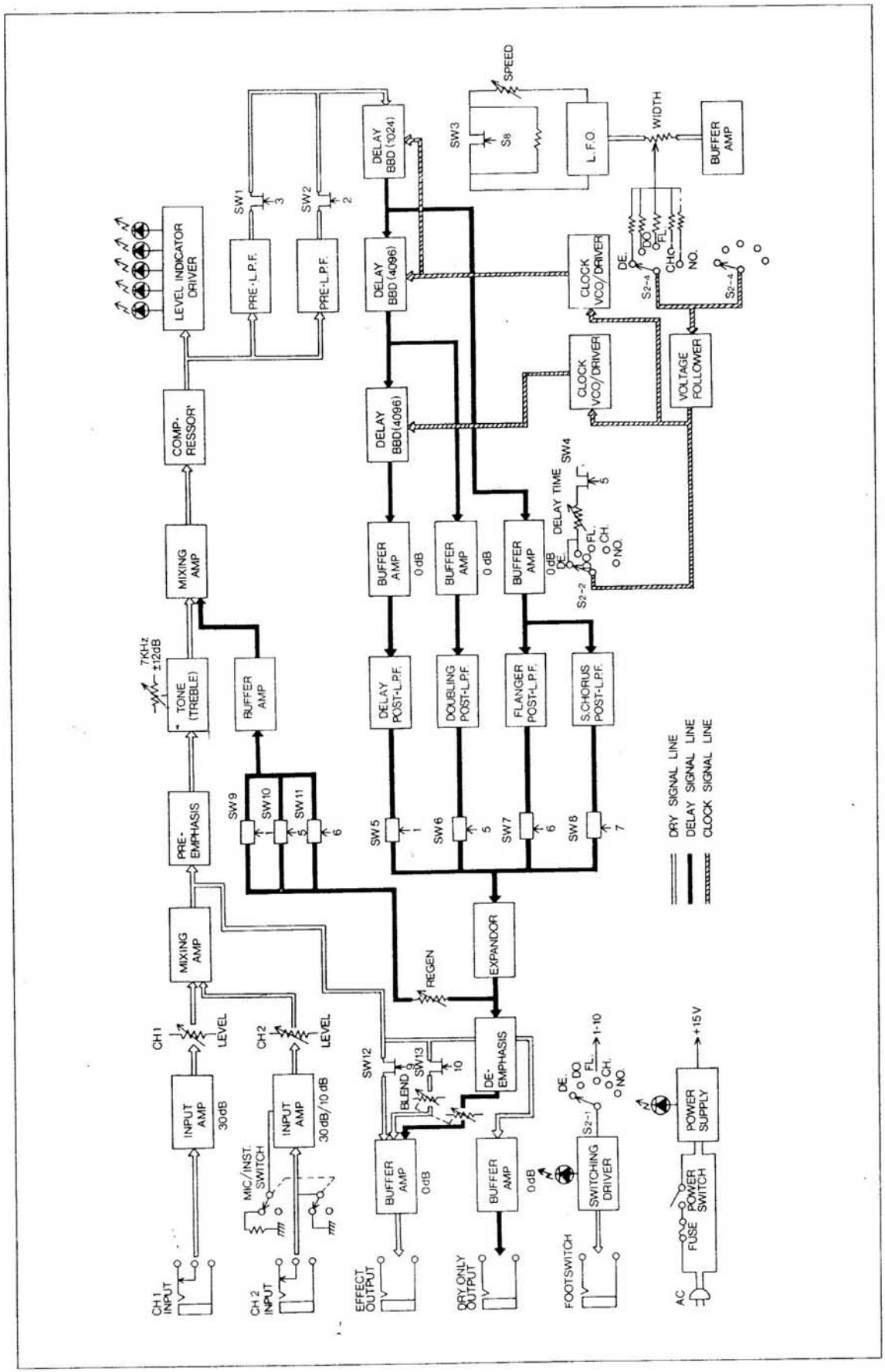
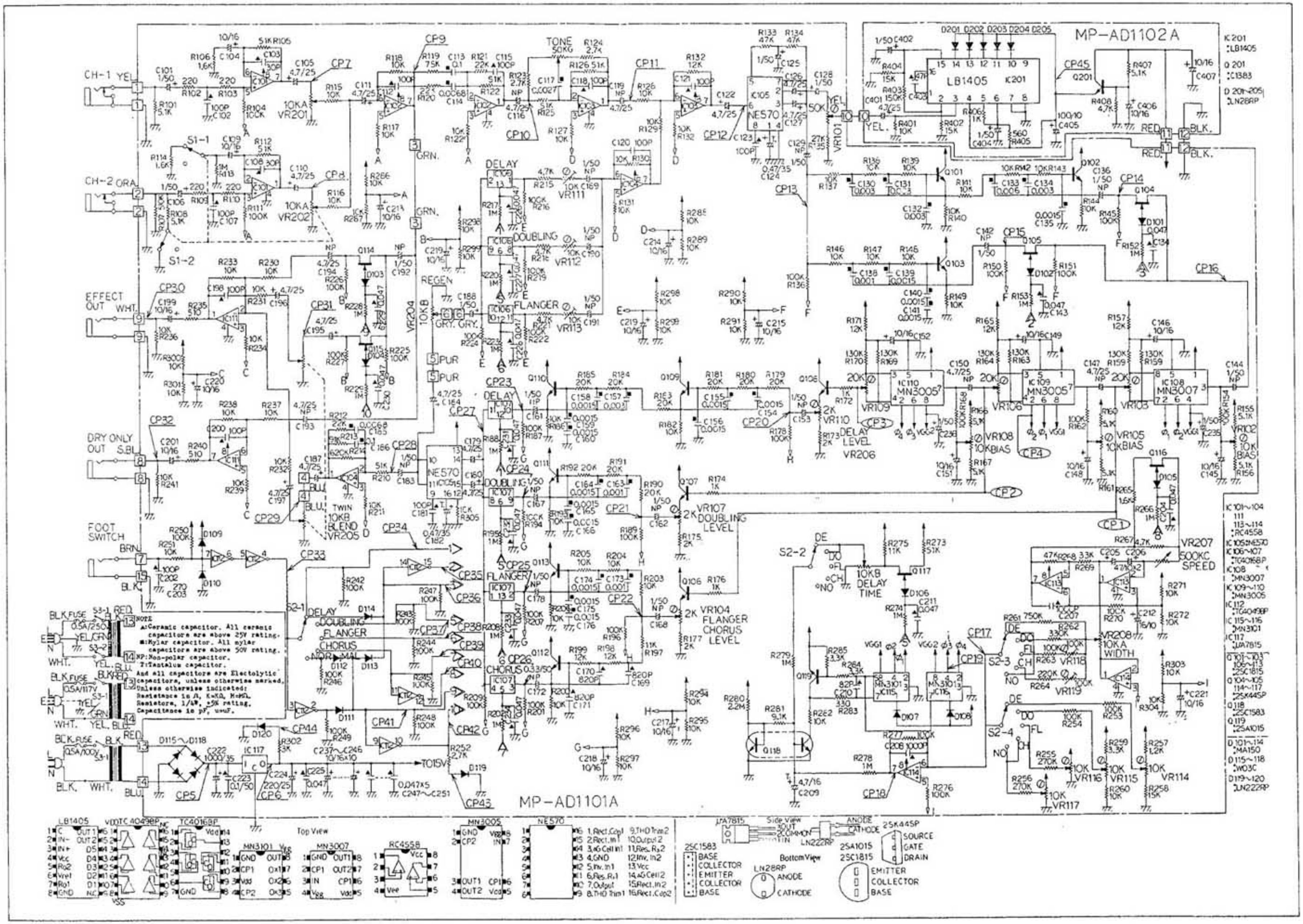


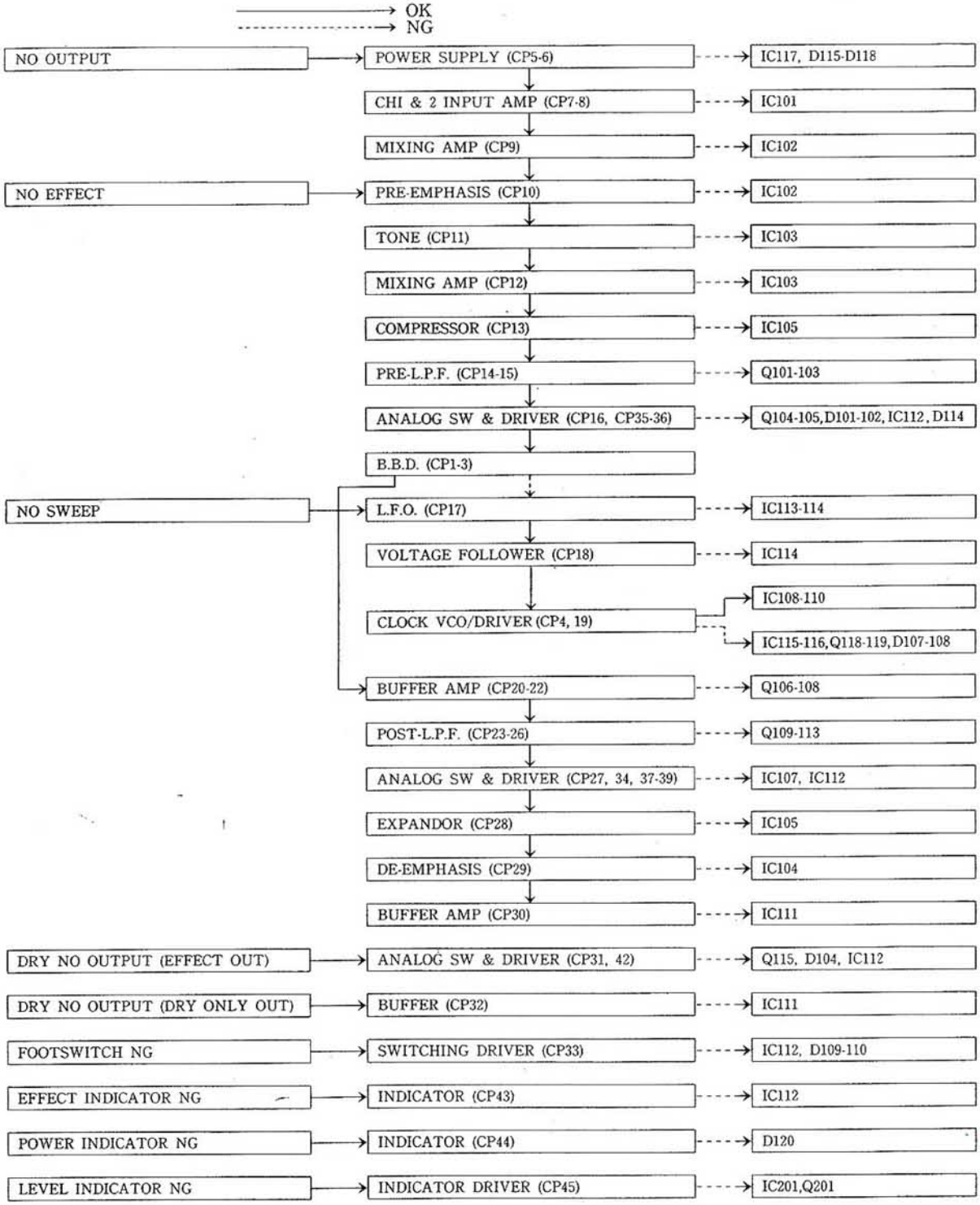
2 ▶ HOW TO REMOVE THE CASE



PARTS NAME	TYPE	PARTS NO.	REFERENECE NO.
FRONT PANEL		MS-AD1101B	
CASE		MS-UE303	
CHASSIS		MS-AD1102B	
POWER SWITCH		SDG-5P-032	S3
POWER TRANS.	AC 117 V	MT-AD1102	
POWER TRANS.	AC 220 V – 240 V	MT-AD1103	
AC CORD	WITH PLUG		
AC CORD BUSH		SR-5N-4	
FUSE HOLDER		SN2059	
KNOB	SMALL	MK-D00501B-YEL	
KNOB	LARGE	MK-FL0101B-YEL	
P.C.B.		MP-AD1101A	
P.C.B.	LED INDICATOR	MP-AD1102A	
JACK	CLOSE (INPUT)	MJXCL201	
JACK	OPEN (OUTPUT)	MJXOP201	
ROTARY SWITCH	MODE	ESR-M14K152	S2
RUBER FOOT		K-20	
IC	RC4558	RC4558	IC101-104, 111, 113-114
IC	NE570	NE570	IC105
IC	TC4016BP	TC4016BP	IC106-107
IC	MN3007	MN3007	IC108
IC	MN3005	MN3005	IC109-110
IC	MN3101	MN3101	IC115-116
IC	μA7815	μA7815	IC117
IC	LB1405	LB1405	IC201
IC SOCKET	FOR MN3005 IC	DIL-B14-1	
TRANSISTOR	2SC1815	2SC1815	Q101-103, 106-113
TRANSISTOR	2SK44SP	2SK44SP	Q104-105, 114-117
TRANSISTOR	2SC1583	2SC1583	Q118
TRANSISTOR	2SA1015	2SA1015	Q119
DIODE	MA150	MA150	D101-114
DIODE	WO3C	W03C	D115-118
LED	LN222PP	LN222PP	D119-120
SEMI FIXED R.	2K	EVN-K4AA00B23	VR104, 107, 110
SEMI FIXED R.	10K	EVN-K4AA00B14	VR102, 105, 108, 111-117
SEMI FIXED R.	20K	EVN-K4AA00B24	VR103, 106, 109
SEMI FIXED R.	50K	EVN-K4AA00B54	VR101
SEMI FIXED R.	100K	EVN-K4AA00B15	VR118-119
VARIABLE R.	10KA (CH-1 LEVEL)	EVH-GHAS15A14	VR201
VARIABLE R.	10KA W/SW (CH-2 LEVEL)	EVH-Y13K15A14	VR202
VARIABLE R.	50KG W/C.C. (TONE)	EVH-GXA515G54	VR203
VARIABLE R.	10KB (REGEN)	EVH-GHAS15A14	VR204
VARIABLE R.	10KB TWIN (BLEND)	EWK-ENAK15B14	VR205
VARIABLE R.	10KB (DELAY TIME)	EVH-GHAS15A14	VR206
VARIABLE R.	500KC (SPEED)	EVH-GHAS15C55	VR207
VARIABLE R.	10KA (WIDTH)	EVH-GHAS15A14	VR208


CH1 INPUT
CH2 INPUT
INPUT AMP
30dB
MIC/INST. SWITCH
INPUT AMP
30dB/10dB
CH1 LEVEL
CH2 LEVEL
MIXING AMP
PRE-EMPHASIS
TONE (TREBLE)
7KHz ±12dB
MIXING AMP
COMP-RESSOR
LEVEL INDICATOR DRIVER
BUFFER AMP
SW9
SW10
SW11
PRE-L.P.F.
PRE-L.P.F.
SW1
SW2
DELAY BBD(1024)
DELAY BBD(4096)
DELAY BBD(4096)
DELAY BBD(4096)
SW3
S8
SPEED
L.F.O.
WIDTH
BUFFER AMP
CLOCK VCO/DRIVER
CLOCK VCO/DRIVER
VOLTAGE FOLLOWER
DE.
FL.
CH.
NO.
S2-4
S2-4
BUFFER AMP
0 dB
BUFFER AMP
0 dB
BUFFER AMP
0dB
DELAY TIME
SW4
S2-2
DELAY POST-L.P.F.
DOUBLING POST-L.P.F.
FLANGER POST-L.P.F.
S.CHORUS POST-L.P.F.
SW5
SW6
SW7
SW8
REGEN
EXPANDOR
DE-EMPHASIS
SW12
SW13
BLEND
10
BUFFER AMP
0dB
BUFFER AMP
0dB
SWITCHING DRIVER
S2-1
1-10
DE.
DO.
FL.
CH.
NO.
POWER SUPPLY
+15V
POWER SWITCH
FUSE
AC
EFFECT OUTPUT
DRY ONLY OUTPUT
FOOTSWITCH
DRY SIGNAL LINE
DELAY SIGNAL LINE
CLOCK SIGNAL LINE


MP-AD1101A
MP-AD1102A
CH-1 YEL.
CH-2 ORA.
EFFECT OUT WHT.
DRY ONLY OUT S.BL.
FOOT SWITCH
TONE 50KG
DELAY
DOUBLING
FLANGER
CHORUS
REGEN
VR204 10KB
VR201
VR202
VR205 TWIN 10KB BLEND
VR104 FLANGER CHORUS LEVEL
VR107 DOUBLING LEVEL
VR110 DELAY LEVEL VR206
DELAY TIME
VR207 500KC SPEED
VR208 10KA WIDTH
NOTE
▲:Ceramic capacitor. All ceramic capacitors are above 25V rating.
■:Mylar capacitor. All mylar capacitors are above 50V rating.
NP:Non-polar capacitor.
T:Tantalum capacitor.
And all capacitors are Electolytic capacitors, unless otherwise marked.
Unless otherwise indicated:
Resistance in Ω, K=KΩ, M=MΩ.
Resistors, 1/4W, ±5% rating.
Capacitance in pF, uuF.
Top View
Bottom View
IC101~104 :RC4558
IC105,106 :NE570
IC112 :TC4049BP
IC117 :μA7815
IC201 :LB1405
Q201 :2SC1383
D201~205 :LN28RP



★ : Signal in putting a sinwave (440mV, 400Hz) to input.

CP1-3	CP4	CP5	CP6	CP7-16	CP17	CP18	CP19	CP20-22	CP33		CP43-41	CP45
★		25V	15V	★				★	ON	O	2V	6V
									OFF	15V		

MODE	CP34	CP35	CP36	CP37	CP38	CP39	CP40	CP41	CP42
DELAY	15V	0	14V	0	0	0	15V	0	14V
DOUBLING	0	0	0	15V	0	0	15V	0	14V
FLANGER	0	0	0	0	15V	0	15V	0	14V
CHORUS	0	0	0	0	0	15V	0	0	14V
NORMAL	0	14V	14V	0	0	0	15V	15V	0

CLOCK

DELAY

1) Select DELAY mode.
2) Set DELAY TIME control fully CW, WIDTH control fully CCW. (Other control setting do not matter.)
3) Adjust VR114 for a frequency of 11.5 KHz to 12 KHz at marked CP4.

DOUBLING

1) Select DOUBLING mode.
2) Set DELAY TIME control fully CW, WIDTH control fully CCW. (Other control setting do not matter.)
3) Adjust VR115 for a frequency of 32 KHz to 33 KHz at marked CP4.

FLANGER

1) Select FLANGER mode.
2) Set WIDTH control fully CCW.
(Other control setting do not matter)
3) Adjust VR116 for a frequency of 98 KHz to 102 KHz at marked CP4.

STEREO CHORUS

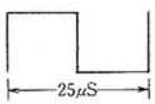
1) Select STEREO CHORUS mode.
2) Set WIDTH control fully CCW.
3) Adjust VR117 for a frequency of 98 KHz to 102 KHz at marked CP4.

WIDTH

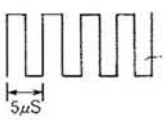
FLANGER

1) Select FLANGER mode.
2) Set SPEED control fully CCW, WIDTH control fully CW. (Other control setting do not matter.)
3) Adjust VR118 to get waveshape as shown at marked CP4.

LOW Adjust clock frequency of 40 KHz to 44 KHz at minimum frequency.



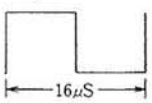
HIGH Adjust clock frequency of 200 KHz to 220 KHz at maximum frequency.



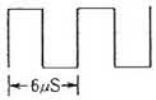
STEREO CHORUS

1) Select STEREO CHORUS mode.
2) Set SPEED control fully CCW, WIDTH control fully CW. (Other control setting do not matter.)
3) Adjust VR119 to get wave form as shown at marked CP4.

LOW Adjust clock frequency of 62.5 KHz at minimum frequency.



HIGH Adjust clock frequency of 166 Hz. at maximum frequency.



DOUBLING

1) Select DOUBLING mode.
2) Set DELAY TIME control fully CW, SPEED control fully CCW, WIDTH control fully CW.
(Other control setting do not matter.)
3) Make sure clock frequency is 20 KHz (50μsec) to 50 KHz (20μsec) at marked CP4.

DELAY

1) Select DELAY mode.
2) Set DELAY TIME control fully CW, SPEED control fully CCW, and WIDTH control fully CW.
(Other control setting do not matter.)
3) Make sure clock frequency is 8.7 KHz (114μsec) to 14.2 KHz (70μsec) at marked CP4.

BBD OUTPUT BALANCE

1) Set controls as per Fig, A.

Fig. A

2) Adjust VR103 (IC108) to get the wave form as per Fig. B, at marked CP-1.
3) Adjust VR106 (IC109) to get the wave form as per Fig. B, at marked CP-2.
4) Adjust VR109 (IC110) to get the wave form as per Fig. B, at marked CP-3.

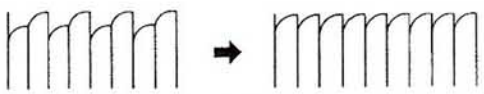


Fig.B

BBD BIAS

1) Set controls as per Fig, A.

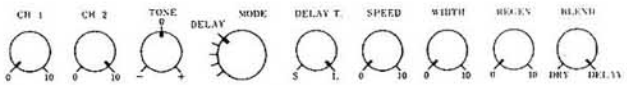


Fig. A

2) Put 440 mV (−5dBm) 400 Hz sinwave into CH2 input (Push-Inst).
3) Select FLANGER mode.
4) Adjust VR102 for a symmetrical clipless wave at EFFECT OUT.
5) Select DOUBLING mode.
6) Adjust VR105 for a symmetrical clipless wave at EFFECT OUT.
7) Select DELAY mode.
8) Adjust VR108 for a symmetrical clipless wave at EFFECT OUT.
9) Make sure distortion is less than 1.5% at longest delay time.

1) Set controls as per Fig, A.

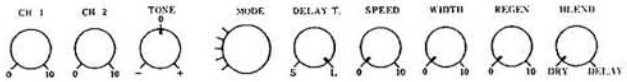


Fig. A

2) Put 250 mV (−10dBm) 400 Hz sinwave into CH2 input (Push-Inst.)
3) Adjust CH2 LEVEL control for 780 mV (OdBm) level at EFFECT OUTPUT.
4) Set BLEND control fully CW (DELAY).
5) Select FLANGER mode.
6) Adjust VR104 for 780 mV (OdBm) level at EFFECT OUTPUT.
7) Select DOUBLING mode.
8) Adjust VR107 for 780 mV (OdBm) level at EFFECT OUTPUT.
9) Select DELAY mode.
10) Adjust VR110 for 780 mV (OdBm) level at EFFECT OUTPUT.

HEAD ROOM INDICATOR

1) Set controls as per Fig, A.

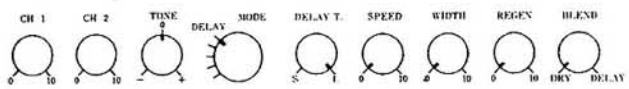


Fig. A

2) Put 250 mV (−10dBm) 400 Hz sinwave into CH2 input (Push-Inst.)
3) Adjust CH2 LEVEL control for 780 mV (OdBm) level at EFFECT OUTPUT.
4) Adjust VR101 to light 4 LEDS (OdB) as per Fig, B.

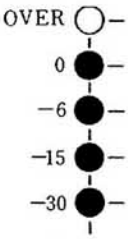
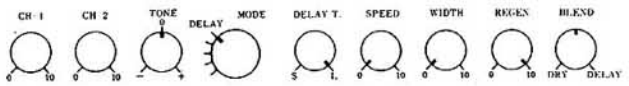


Fig. B

REGEN

1) Plug musical instrument (Guitar family) into CH2 INPUT (Push-Inst) and Amplifier into EFFECT OUTPUT.



2) Set controls as per Fig, A.
(Other controls setting do not matter.)
3) Adjust VR111 (DELAY) to the point where ocillation, just begins.
4) Select DOUBLING mode.
5) Adjust VR112 (DOUBLING) to the point where ocillation, just begins.
6) Select FLANGER mode.
7) Set controls SPEED and WIDTH controls fully CW.
8) Adjust VR113 (FLANGER) to the point where ocillation, just begins.

PCB TOP VIEW