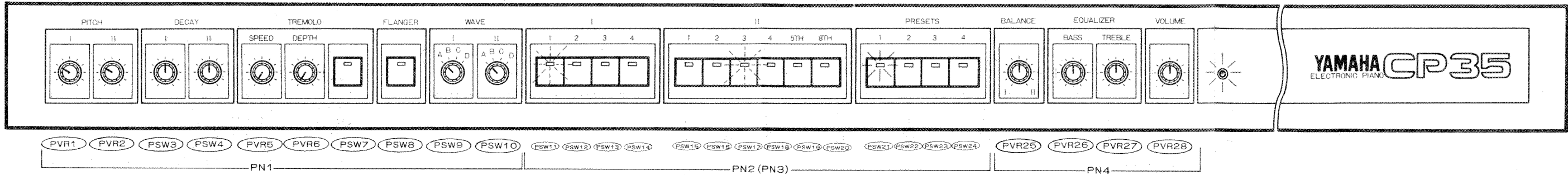
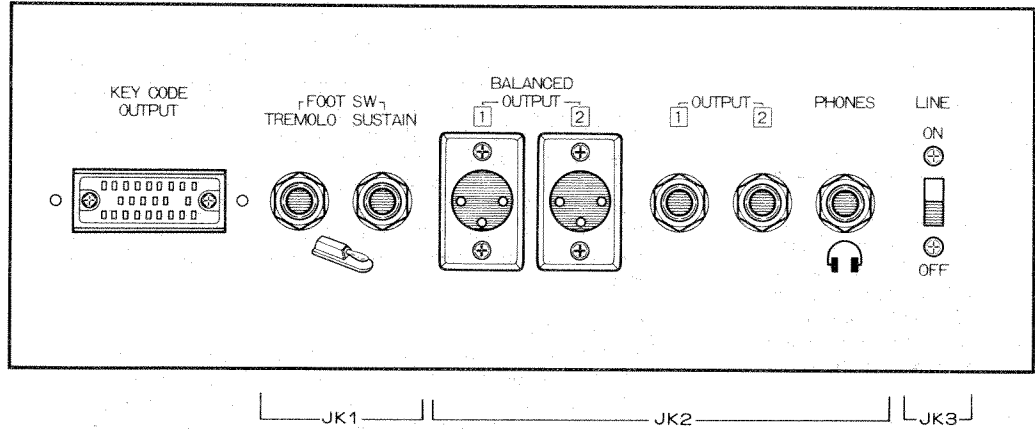


PANEL LAYOUT

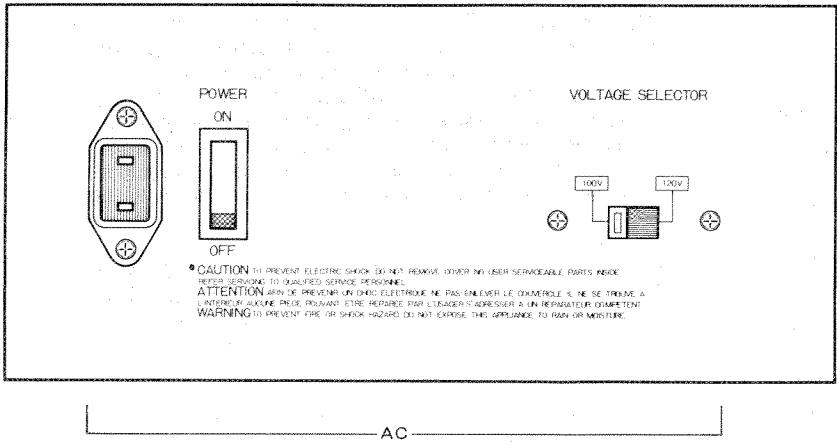
FRONT PANEL



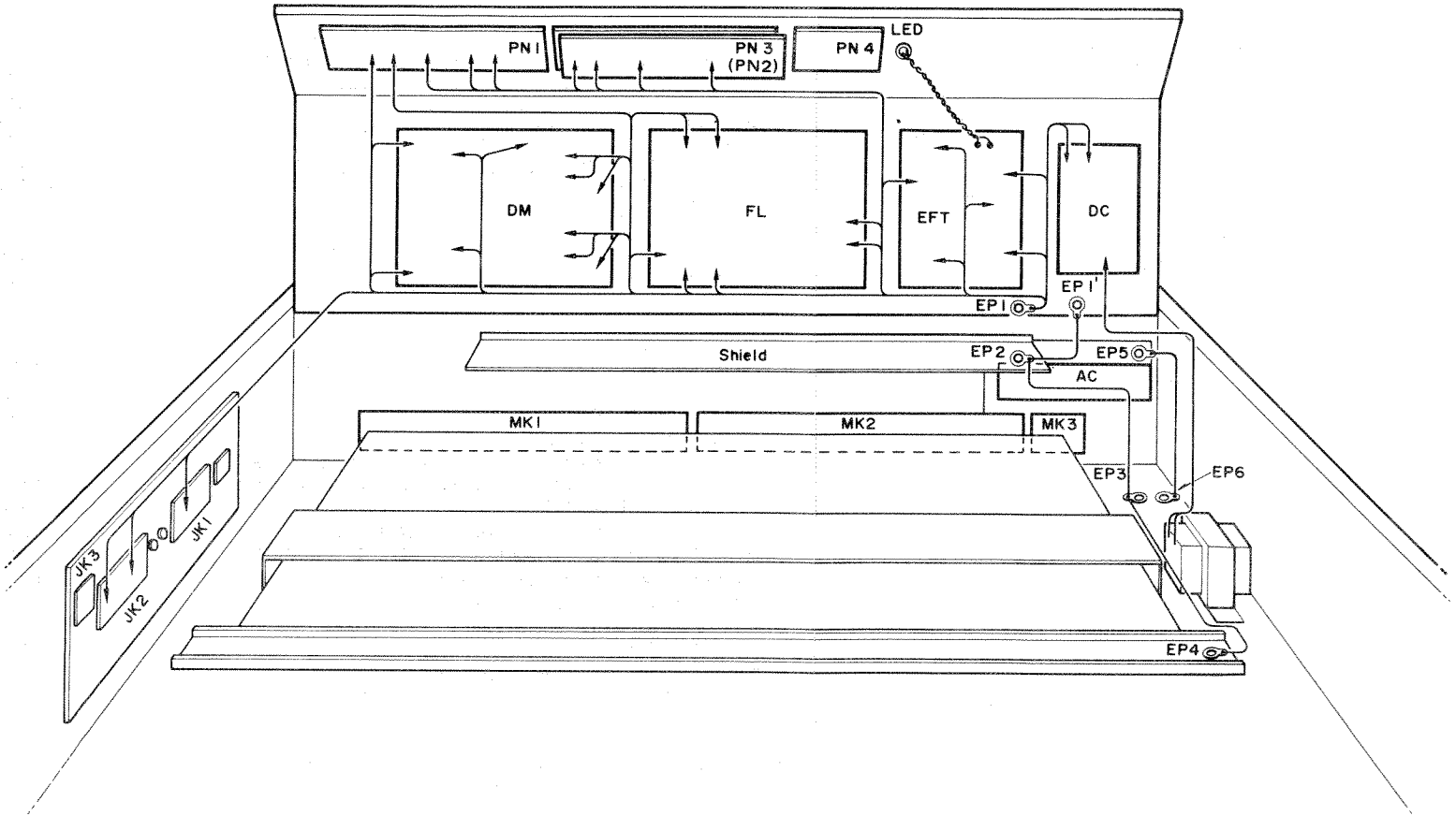
LEFT SIDE PANEL



REAR PANEL

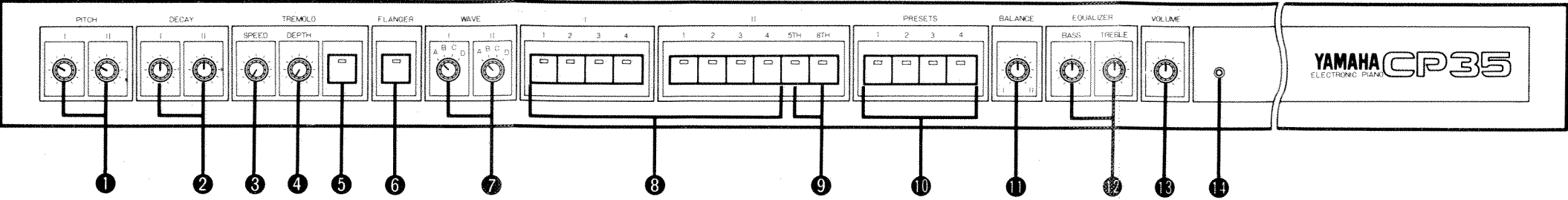


UNIT LAYOUT



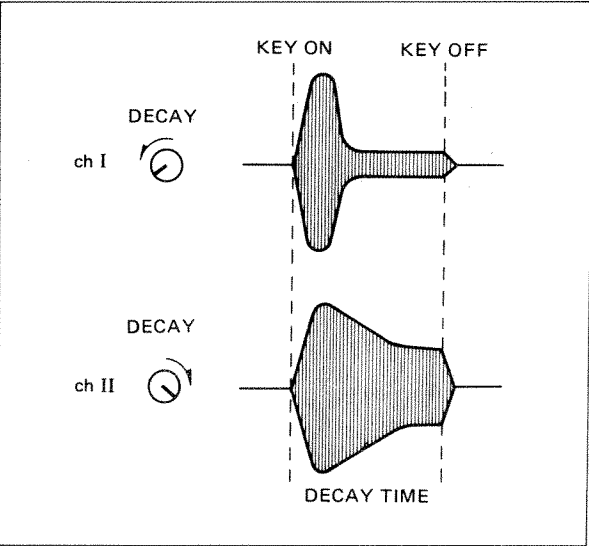
PART NAMES AND FUNCTIONS

CONTROL PANEL (FRONT PANEL)



**1 PITCH I, II**  
The PITCH I and PITCH II controls independently adjust the pitch of the CP35's sound channels I and II, respectively. Turning either of these controls to the right (clockwise) raises the pitch of the respective channel, while turning to the left (counterclockwise) lowers pitch. Setting channel I and channel II to different pitches produces a "detune" effect creating a fatter, honky-tonk piano type sound. Pitch control range is approximately from 436Hz to 453Hz. Setting the PITCH controls to approximately 10 o'clock provides 440Hz (A<sub>3</sub>) tuning.

**2 DECAY I, II**  
The DECAY I and DECAY II controls independently adjust the decay time of sound channels I and II, respectively. Turning either of these controls to the right (clockwise) lengthens the decay time of the respective channel, while turning to the left (counterclockwise) shortens decay time. The DECAY controls can each be set to eight different positions. Once the pitch, tone and balance of the two sound channels have been set, the DECAY I and II controls can be used to create a broad variety of decay time combinations providing extra sound control flexibility. By setting exceptionally long decay times it is possible to create sustained, organ-like tones.



**3 TREMOLO SPEED**  
The tremolo effect produces periodic variations in the volume of the sound. Turning the TREMOLO SPEED control to the right (clockwise) increases the speed of the volume variation, while turning it to the left (counterclockwise) creates a slower tremolo sound. If the CP35's independent OUT 1 and OUT 2 outputs are connected to separate amplifier and speaker systems, the sound will seem to sweep back and forth between the two speakers at a rate determined by the TREMOLO SPEED control.

**4 TREMOLO DEPTH**  
This control determines by how much the volume of the sound is varied by the tremolo effect. Turning the TREMOLO DEPTH control to the right (clockwise) produces a larger variation in volume, while turning it to the left (counterclockwise) produces a smaller (shallower) volume variation.

TREMOLO SPEED	TREMOLO DEPTH	TREMOLO OUTPUT
 SPEED Slow	 DEPTH Smaller	 OUT 1
 SPEED Fast	 DEPTH Larger	 OUT 2

**5 TREMOLO SWITCH**  
This switch turns the tremolo effect on or off. Pressing this switch causes its LED indicator to light showing that the tremolo effect is on. Pressing it a second time turns the tremolo effect off (LED "off").  
\* Tremolo output from OUT 1 and 2 is reverse phase.  
\* If both of the tremolo outputs from OUT 1 and OUT 2 are mixed with the monaural signal by using a mixer, the tremolo effect is not produced.

**6 FLANGER SWITCH**  
The flanger effect produces a pleasant "swooshing" or "swirling" effect with long tones, and adds interesting tonal variation to staccato passages. Pressing the FLANGER switch causes its LED indicator to light showing that the flanger effect is on. Pressing it a second time turns the flanger effect off (LED "off").

**7 WAVE I, II**  
The WAVE I and II selectors independently select the waveform shape of the channel I and channel II tone generators, respectively. Four different basic waveforms (A, B, C and D) can be selected for each channel, providing a broad range of subtle tonal variations.  
\* The WAVE selectors are only effective when the PRESETS selectors 10 are not in use.

**8 FILTER I, II SELECTORS**  
These selectors determine the tonal quality of the sound. An independent set of four FILTER selectors is provided for each sound channel. Pressing any FILTER selector causes its LED indicator to light showing that the respective filter is activated.  
1. FILTER SELECTOR 1 activates a low-pass filter thereby producing a round, warm sound. Effect is the same for channel I and channel II.  
2. FILTER SELECTOR 2 activates a low-pass filter with a higher cutoff frequency than that of FILTER SELECTOR 1, thereby producing a somewhat harder sound. The channel I FILTER 2 selector adds an attack to the sound, while the channel II FILTER 2 selector does not.  
3. FILTER SELECTOR 3 activates a bandpass filter which produces a clear, well-defined sound. Effect is the same for channel I and channel II.  
4. FILTER SELECTOR 4 activates a high-pass filter thereby producing a hard, bright sound. The channel I FILTER 4 selector adds an attack to the sound, while the channel II FILTER 4 selector does not.  
\* FILTER selectors 1 through 4 (channels I and II) are only effective when the PRESETS selectors 10 are not in use. When any of the PRESETS sounds are in use, filter settings are held in "standby", and the selected filter LED's flash to indicate the standby mode. Changing filter settings while any PRESETS selector is in use causes no change in sound quality.

**9 5TH, 8TH SELECTORS**  
These selectors raise the pitch of channel II by the designated interval with respect to channel I. Pressing the 5th selector causes the pitch of channel II to be an interval of perfect fifth higher than channel I. Pressing the 8th selector causes the pitch of channel II to be one octave higher than channel I. Pressing both the 5th and 8th selectors causes the pitch of channel II to be an interval of perfect 12th (an octave and a fifth) higher than channel I.  
\* The 5th and 8th selectors are only effective when the PRESETS selectors 10 are not in use. When any of the PRESETS sounds are in use, 8th and 5th selector settings are held in "standby", and the selected interval LED(s) flash to indicate the standby mode.

**10 PRESETS**  
Four preset sound selectors are provided, only one of which can be used at a time. PRESETS have priority over the FILTER selectors, so pressing and PRESETS selector, even while the FILTER selectors are in use, immediately switches to the PRESETS sound.

1. Immediate switching from the FILTER sound to the PRESETS sound is accomplished simply by pressing the desired PRESETS selector. When a PRESETS selector is pressed, active FILTER settings are held in "standby" with their respective LED indicators flashing.
  2. The PRESETS sounds consist of pre-programmed channel I and II WAVE, FILTER, BALANCE, and channel II 5th and 8th selector settings.
  3. Controls which do affect the sound when the PRESETS are in use are PITCH, DECAY, TREMOLO, FLANGER, EQUALIZER and VOLUME.
  4. FILTER settings can be selected or altered while the PRESETS are in use without immediately affecting the sound. FILTER settings selected in this way are indicated by the appropriate FILTER indicator LED(s) flashing. WAVE and BALANCE settings can also be altered in advance while the PRESETS are in use.
  5. Immediate switching from the PRESETS sound to the FILTER sound is accomplished by pressing the activated PRESETS selector (lighted LED) a second time.
- \* PRESETS selectors, PRESETS selector and FILTER selector settings cannot be combined.  
In addition to the combination of FILTER I 1-4 and FILTER II 1-4, using channel I and II DECAY WAVE allows you to adjust the timbre at-will. Be sure to take advantage of the sound creation possibilities of DECAY I and II.

**11 BALANCE**  
Determines the relative volumes of channels I and II—i.e. "mixing" between channels I and II. Turning the BALANCE control to the right (clockwise) increases the volume of channel II in relation to channel I, while turning it to the left (counterclockwise) increases the volume of channel I in relation to channel II.  
\* The BALANCE control is only effective when the PRESETS selectors 10 are not in use.

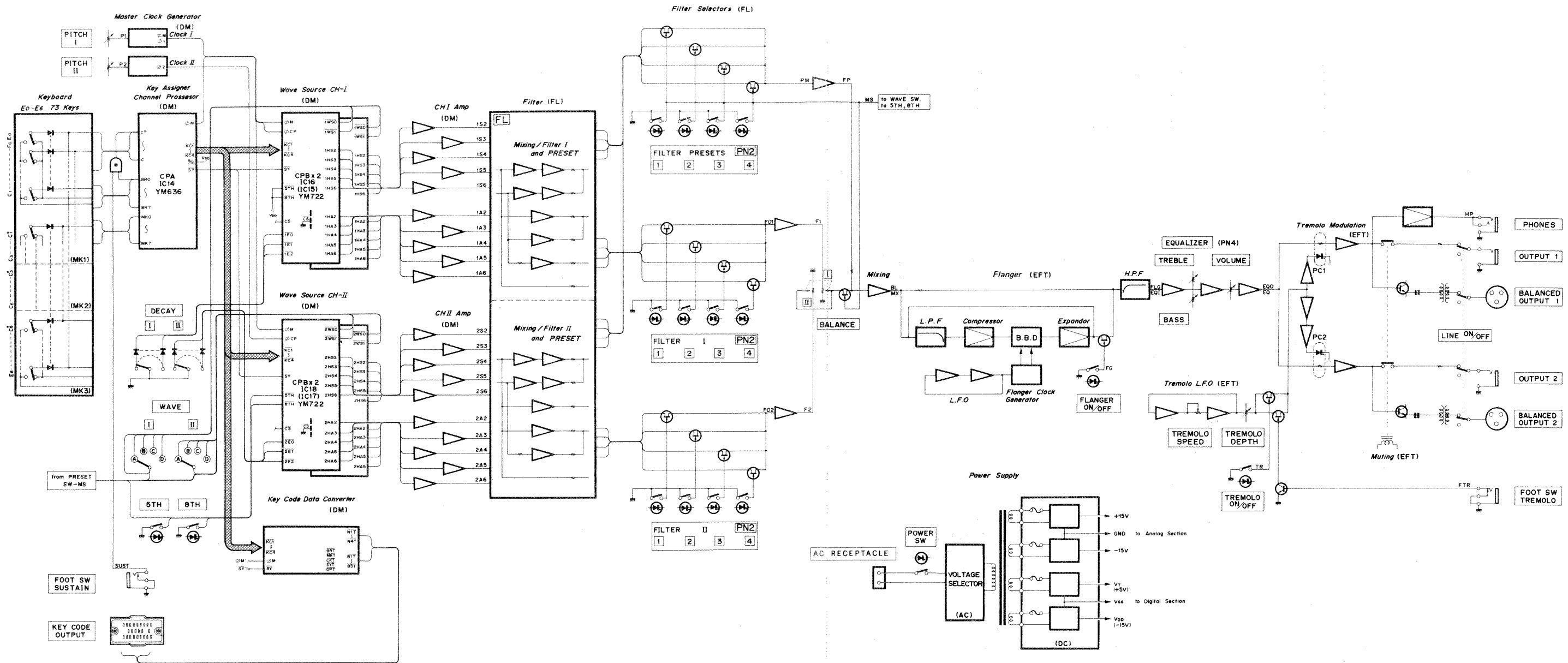
**12 EQUALIZER**  
BASS: Turning the BASS control to the right (clockwise) emphasizes the low-frequency range thereby producing a fat, heavy sound. Turning this control to the left (counterclockwise) de-emphasizes the low-frequency range, while, set to its center position response is virtually flat.  
TREBLE: Turning the TREBLE control to the right (clockwise) emphasizes the high-frequency range thereby producing a light, bright sound. Turning this control to the left (counterclockwise) de-emphasizes the high-frequency range, while, at its center position response is virtually flat.

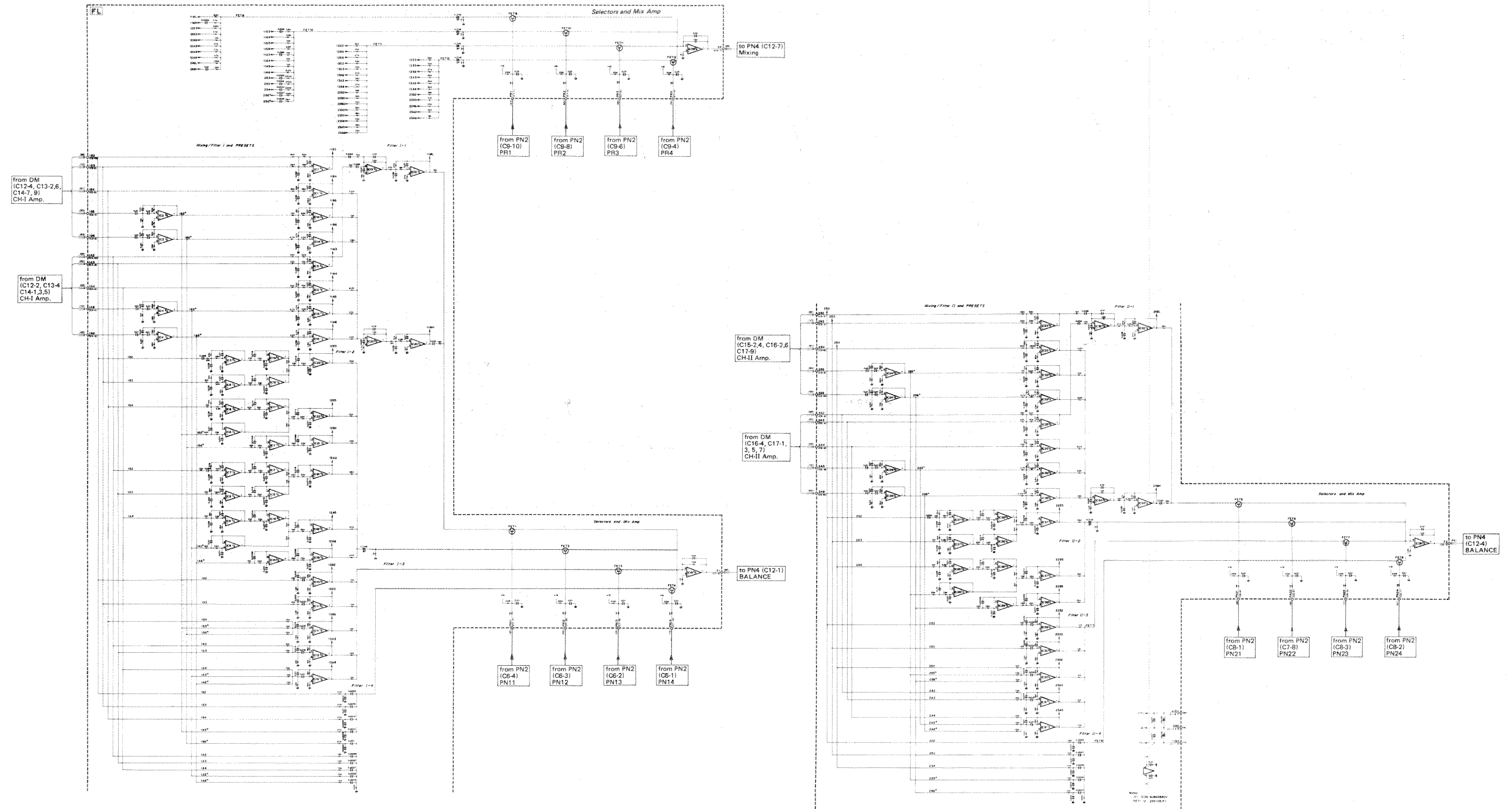
**13 VOLUME**  
Controls the overall volume level of the CP35 sound. Turning the VOLUME control to the right (clockwise) increases overall volume, while turning it to the left (counterclockwise) decreases overall volume.

**14 POWER INDICATOR**  
This indicator lights to show that the rear-panel power switch is turned on.



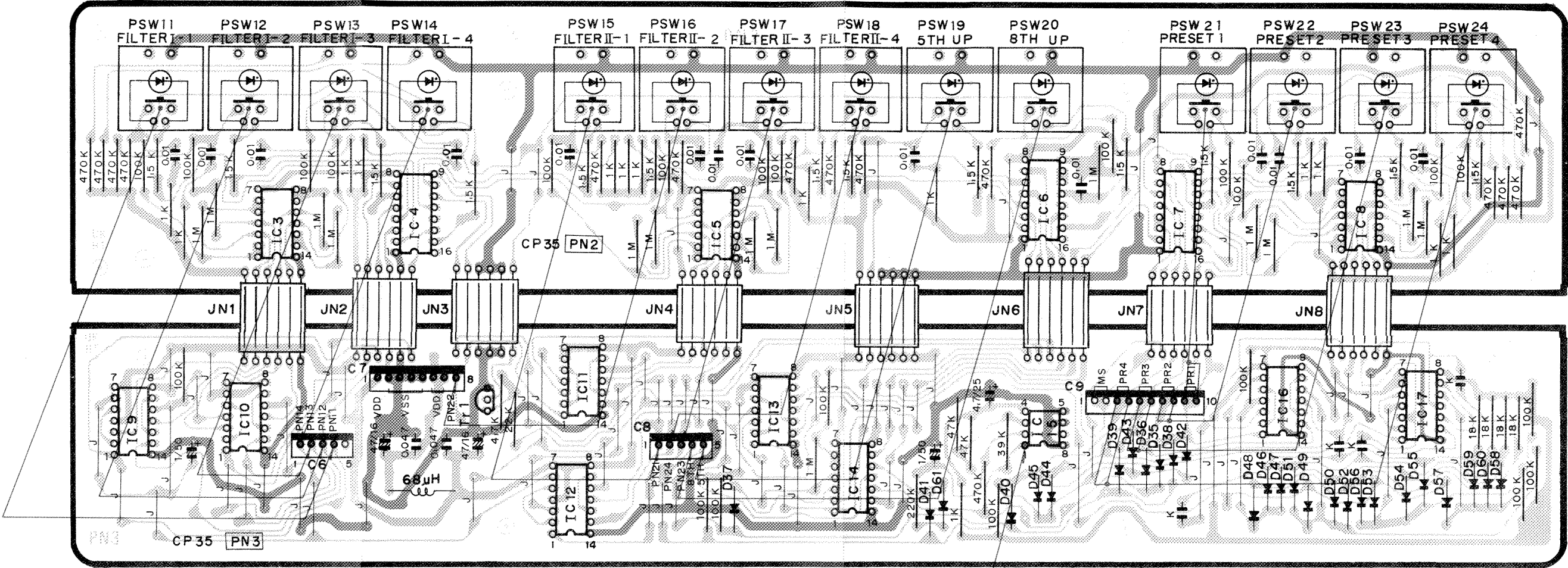
BLOCK DIAGRAM



KEC-10172-13 2

PN2, 3 Circuit Board & Wining

Pattern Side (パターン側)



Pattern Side (パターン側)

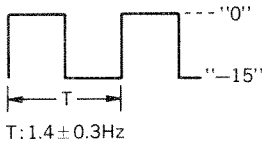
PN3 Board

**FILTER SW. Data:** The levels listed below appear at the respective terminals when the FILTER switches are turned ON or OFF.

	ON	OFF
FILTER I-1→C6-4	0V	-15V
FILTER I-2→C6-3	0V	-15V
FILTER I-3→C6-2	0V	-15V
FILTER I-4→C6-1	0V	-15V

	ON	OFF
FILTER II-1→C8-1	0V	-15V
FILTER II-2→C7-8	0V	-15V
FILTER II-3→C8-3	0V	-15V
FILTER II-4→C8-2	0V	-15V
5TH →C8-5	0V	-15V
8TH →C8-4	0V	-15V

LED Flasher Circuit



**PRESET SW. Data:**

The levels listed below appear at the respective terminals when the PRESET switches are turned ON or OFF.

	ON	OFF
PRESET1 (C9-9)	0V	-15V
PRESET2 (C9-7)	0V	-15V
PRESET3 (C9-5)	0V	-15V
PRESET4 (C9-3)	0V	-15V

Note)

- IC  
IC3, 5, 8, 14 : TC4081BP  
IC4, 6, 7 : TC4049BP  
IC9 ~ 13, 16, 17 : TC4013BP  
IC15 : NJM4558DV
- Transistor  
Tr1 : 2SA509 (O, Y)
- Diode  
D35 ~ 61 : 1S1555

• Connector

Pin No.	Pin Name	Wire Color	Destination
1	PN14	YE	FL-PN14 (C7-10)
2	PN13	OR	FL-PN13 (C7-9)
3	PN12	RE	FL-PN12 (C7-8)
4	PN11	BR	FL-PN11 (C7-7)
5	-	-	-

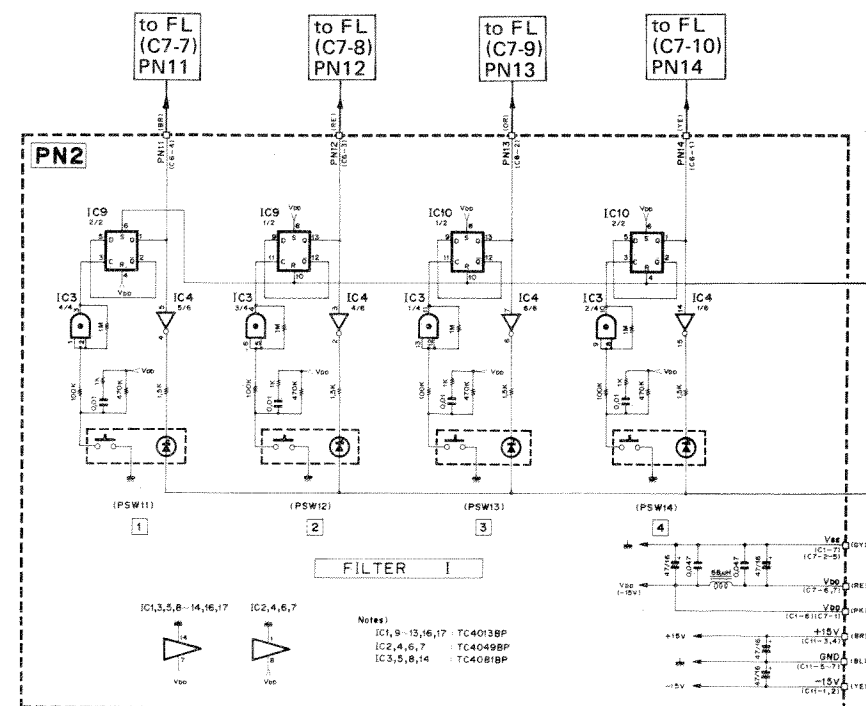
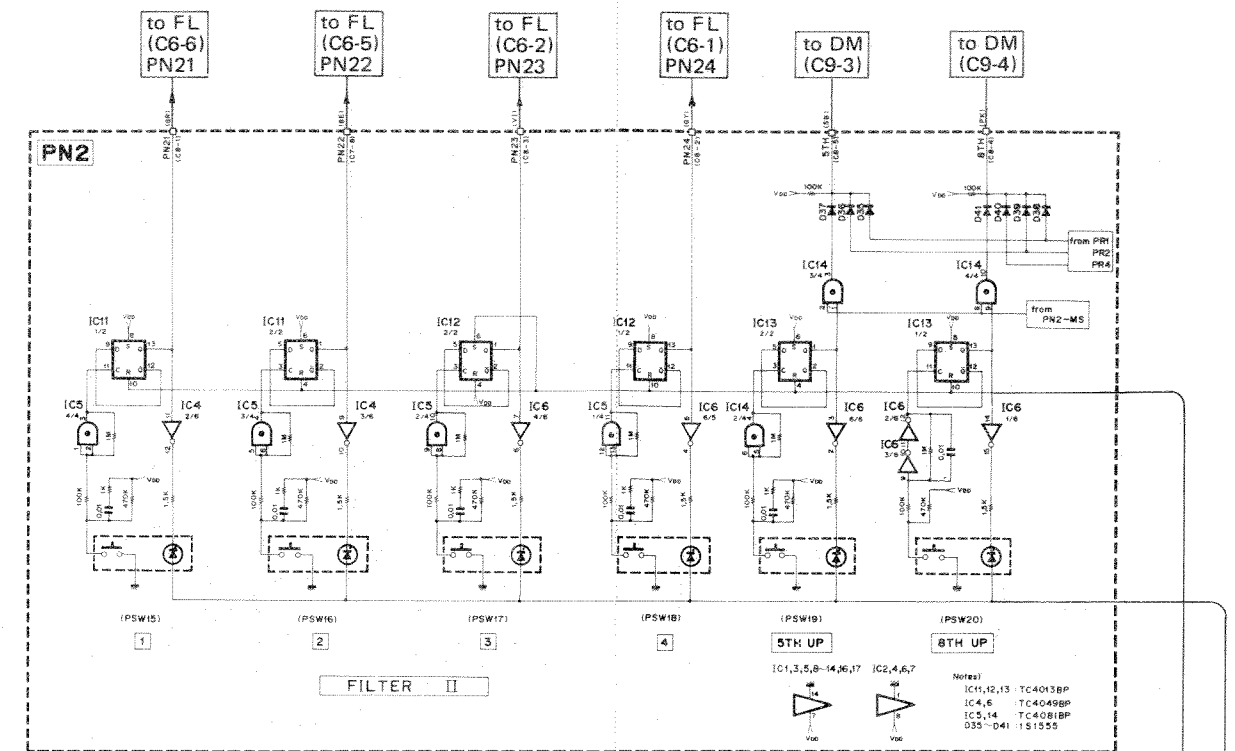
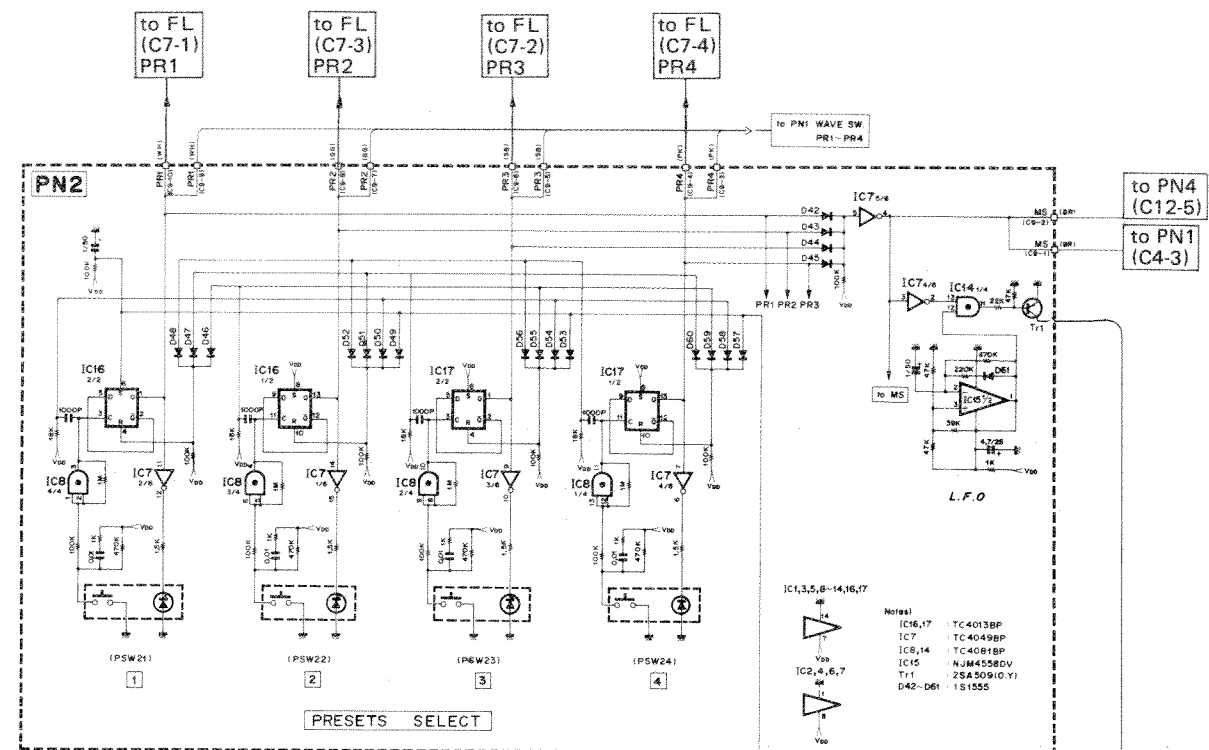
Pin No.	Pin Name	Wire Color	Destination
1	Vdd	PK	PN1-Vdd (C1-6)
2	Vss	-	-
3	Vss	GY	PN1-Vss (C1-7)
4	Vss	GY	DC-Vss (C1-3)
5	Vss	GY	DC-Vss (C1-4)
6	Vdd	RE	DC-Vdd (C2-5)
7	Vdd	RE	DC-Vdd (C2-6)
8	PN22	BE	FL-PN22 (C5-5)

Pin No.	Pin Name	Wire Color	Destination
1	PN21	GR	FL-PN21 (C6-6)
2	PN24	GY	FL-PN24 (C6-1)
3	PN23	VI	FL-PN23 (C6-2)
4	8TH	PK	DM-8TH (C9-4)
5	5TH	SB	DM-5TH (C9-3)

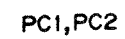
Pin No.	Pin Name	Wire Color	Destination
1	MS	BR	PN1-MS (C4-3)
2	MS	BR	PN4-MS (C12-5)
3	PR4	PK	PN1-PR4 (C4-4)
4	PR4	PK	FL-PR4 (C7-4)
5	PR3	SB	PN1-PR3 (C4-5)
6	PR3	SB	FL-PR3 (C7-2)
7	PR2	GG	PN1-PR2 (C4-6)
8	PR2	GG	FL-PR2 (C7-3)
9	PR1	WH	PN1-PR1 (C4-7)
10	PR1	WH	FL-PR1 (C7-1)



### PN2, 3 Circuit Diagram



## MEMO



Pin No.	Pin Name	Wire Color	Destination
1	BL2A	S SB	JK-BL2A (C4-7)
2	GND	S SB S	JK-GND (C4-8)
3	BL2B	S PK	JK-BL2B (C4-6)
4	GND	S PK S	JK-GND (C4-5)
5	BL1A	S WH	JK-BL1A (C4-3)
6	GND	S WH S	JK-GND (C4-4)
7	BL1B	S GG	JK-BL1B (C4-2)
8	GND	S GG S	JK-GND (C4-1)

Pin No.	Pin Name	Wire Color	Destination
1	-15V	YE	DC-15V (C3-4)
2	-15V	YE	PN4-15V (C11-2)
3	GND	BL	DC-GND (C4-8)
4	GND	BL	FL-GND (C1-5)
5	GND	BL	PN4-GND (C11-7)
6	+15V	BR	DC+15V (C4-4)
7	+15V	BR	PN4+15V (C11-4)

### C2

Pin No.	Pin Name	Wire Color	Destination
1	GND	BL	JK-GND (C1-3)
2	UB1	S VI	JK-UB1 (C2-3)
3	GND	S VI S	JK-GND (C2-4)
4	UB2	S GY	JK-UB2 (C2-5)
5	GND	S GY S	JK-GND (C2-6)
6	HP	S BR	JK-HP (C2-1)
7	GND	S BR S	JK-GND (C2-2)

Pin No.	Pin Name	Wire Color	Destination
1	TR	OR	PN1-TR (C4-1)
2	TS2	BE	PN1-TS2 (C3-2)
3	TS1	GR	PN1-TS1 (C3-1)
4	FTR	YE	JK-FTR (C1-1)
5	TD2	GY	PN1-TD2 (C3-4)
6	VM	WH	PN1-VM (C3-3)
7	TD1	VI	PN1-TD1 (C3-5)

### C3

Pin No.	Pin Name	Wire Color	Destination
1	FLG	S GR	PN4-FLG (C10-2)
2	GND	---	---
3	FG	RE	PN1-FG (C4-2)
4	MX	S YE	PN4-MX (C12-10)
5	GND	S YE S	---
6	EQ	S BE	PN4-EQ (C10-5)
7	GND	S BE S	---

Pin No.	Pin Name	Wire Color	Destination
1	VDD	RE	DC-VDD (C2-7)
2	VDD	—	—
3	VSS	GY	DC-VSS (C1-5)
4	VSS	GY	DC-VSS (C1-6)
5	VSS	—	—

1. IC  
IC1 : IG03490  
IC2 : MN3009  
IC3 : NE570  
IC4 : TA7220P  
IC5 ~ 12 : NJM4558DV
2. Transistor  
Tr1, 3 ~ 5,  
7 ~ 9 : 2SC1815 (O, Y)  
Tr2, 6, 12 : 2SA1015 (O, Y)  
Tr10, 11 : 2SA509 (O, Y)
3. FET  
FET1, 2, 3 : 2SK105 (F)
4. Diode  
D1 ~ 11 : 1S1555
5. PC  
PC1, 2 : P1501
6. Line Transformer  
T1, 2 : GD90025
7. RY  
RY : RZ12