

ch1	J19,20 BUS	J21,22 BUS	J24,26 SB-CPU	J25 OL	J13,14 Power	J23 Meter	J15,16 BUS	J17,18 BUS	ch2
Grp1-8, Aux1-3.	Aux4-6 L/R, Mon, Solo OSC.	Datenleitungen, Steuerung v. Sub CPU	ODD   EVEN Overload Detector Even/Odd Mic/Line	+15, -15 +5, +48	Meter Odd+Even	Grp1-8, Aux1-3	Aux4-6, L/R, Mon, Solo, OSC.		

Pinbelegung Bus: J15,16,19,20

- Pin 1 - Grp 1
- Pin 2 - GND
- Pin 3 - Grp 2
- Pin 4 - GND
- Pin 5 - Grp 3
- Pin 6 - GND
- Pin 7 - Grp 4
- Pin 8 - GND
- Pin 9 - Grp 5
- Pin 10 - GND
- Pin 11 - Grp 6
- Pin 12 - GND
- Pin 13 - Grp 7
- Pin 14 - GND
- Pin 15 - Grp 8
- Pin 16 - GND
- Pin 17 - nc
- Pin 18 - nc
- Pin 19 - Aux 1
- Pin 20 - GND
- Pin 21 - Aux 2
- Pin 22 - GND
- Pin 23 - Aux 3
- Pin 24 - GND

Pinbelegung Bus: J17,18,21,22

- Pin 1 - Aux 4
- Pin 2 - GND
- Pin 3 - Aux 5
- Pin 4 - GND
- Pin 5 - Aux 6
- Pin 6 - GND
- Pin 7 - Summe L
- Pin 8 - GND
- Pin 9 - Summe R
- Pin 10 - GND
- Pin 11 - Mon L
- Pin 12 - GND
- Pin 13 - Mon R
- Pin 14 - GND
- Pin 15 - Solo L
- Pin 16 - GND
- Pin 17 - Solo R
- Pin 18 - GND
- Pin 19 - NC
- Pin 20 - NC
- Pin 21 - nc
- Pin 22 - nc
- Pin 23 - OSC
- Pin 24 - GND

J13,14 Power

- Pin 1 - ]
- Pin 2 - ] +15
- Pin 3 - ]
- Pin 4 - ]
- Pin 5 - ] - 0V (+/-15V)
- Pin 6 - ]
- Pin 7 - ] -15
- Pin 8 - ]
- Pin 9 - ]
- Pin 10 - ]
- Pin 11 - ] 0V
- Pin 12 - ]
- Pin 13 - ]
- Pin 14 - ] 0V
- Pin 15 - ]
- Pin 16 - ] +5V
- Pin 17 - ]
- Pin 18 - ]
- Pin 19 - ] 0V (+5V)
- Pin 20 - ]
- Pin 21 - ] +48V
- Pin 22 - ]
- Pin 23 - ]
- Pin 24 - ] 0V (+48V)

J25 Overload

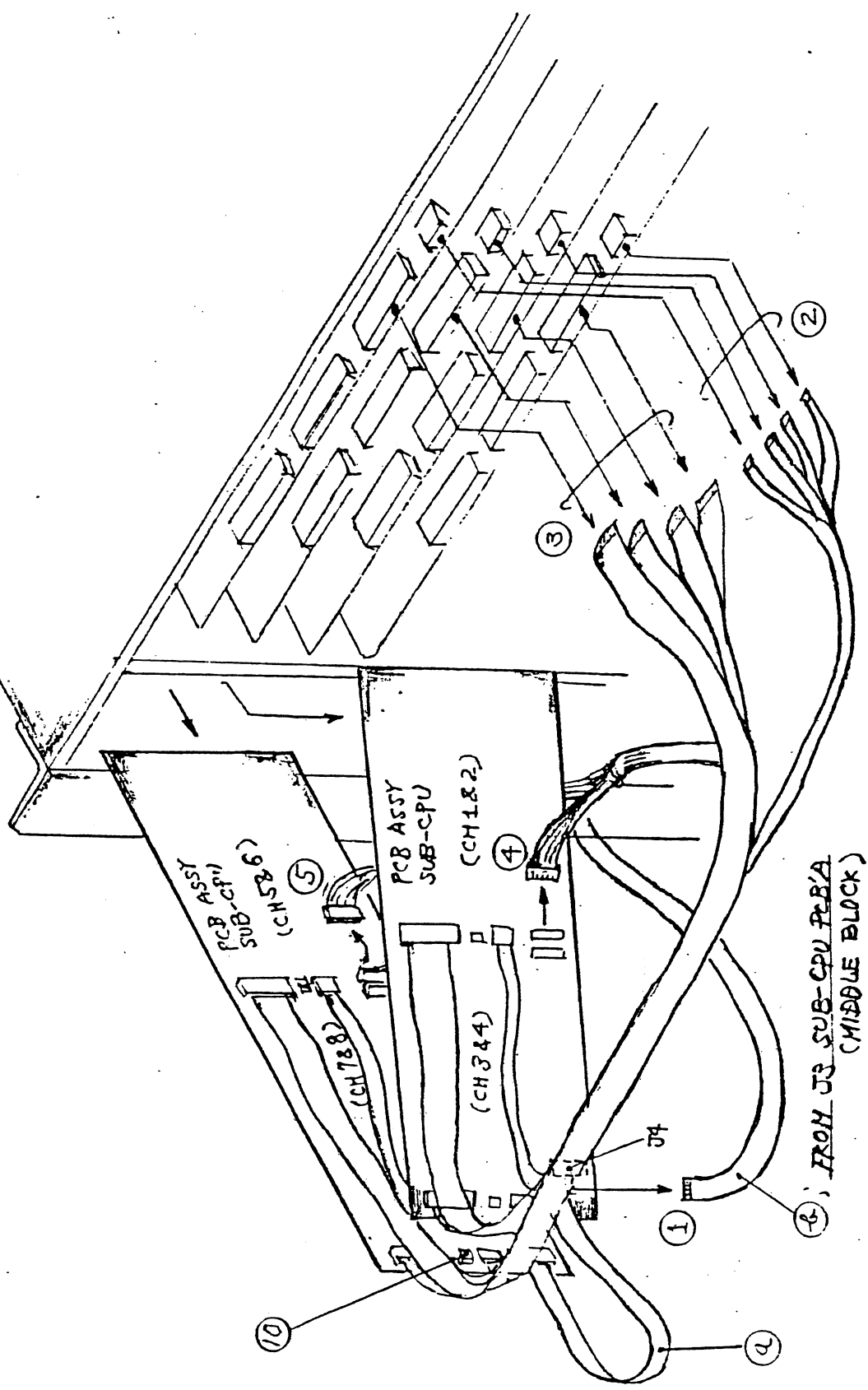
- Pin 1 - Overload ODD Mic
- Pin 2 - Overload ODD Line
- Pin 3 - ] nc
- Pin 4 - ] nc
- Pin 5 - Overload Even Mic
- Pin 6 - Overload Even Line
- Pin 7 - ] nc
- Pin 8 - ] nc

J23 Meter

- Pin 1 - Monitor ODD
- Pin 2 - L/R ODD
- Pin 3 - GND
- Pin 4 - ] nc
- Pin 5 - ] nc
- Pin 6 - Monitor Even
- Pin 7 - L/R ODD
- Pin 8 - GND

**PLUS AUDIO** GmbH  
 An den drei Hasen 26  
 61410 Oberursel  
 Tel 06171 / 40 26 - 40 28

M420 EPROM EXCHANGE PROCEDURE

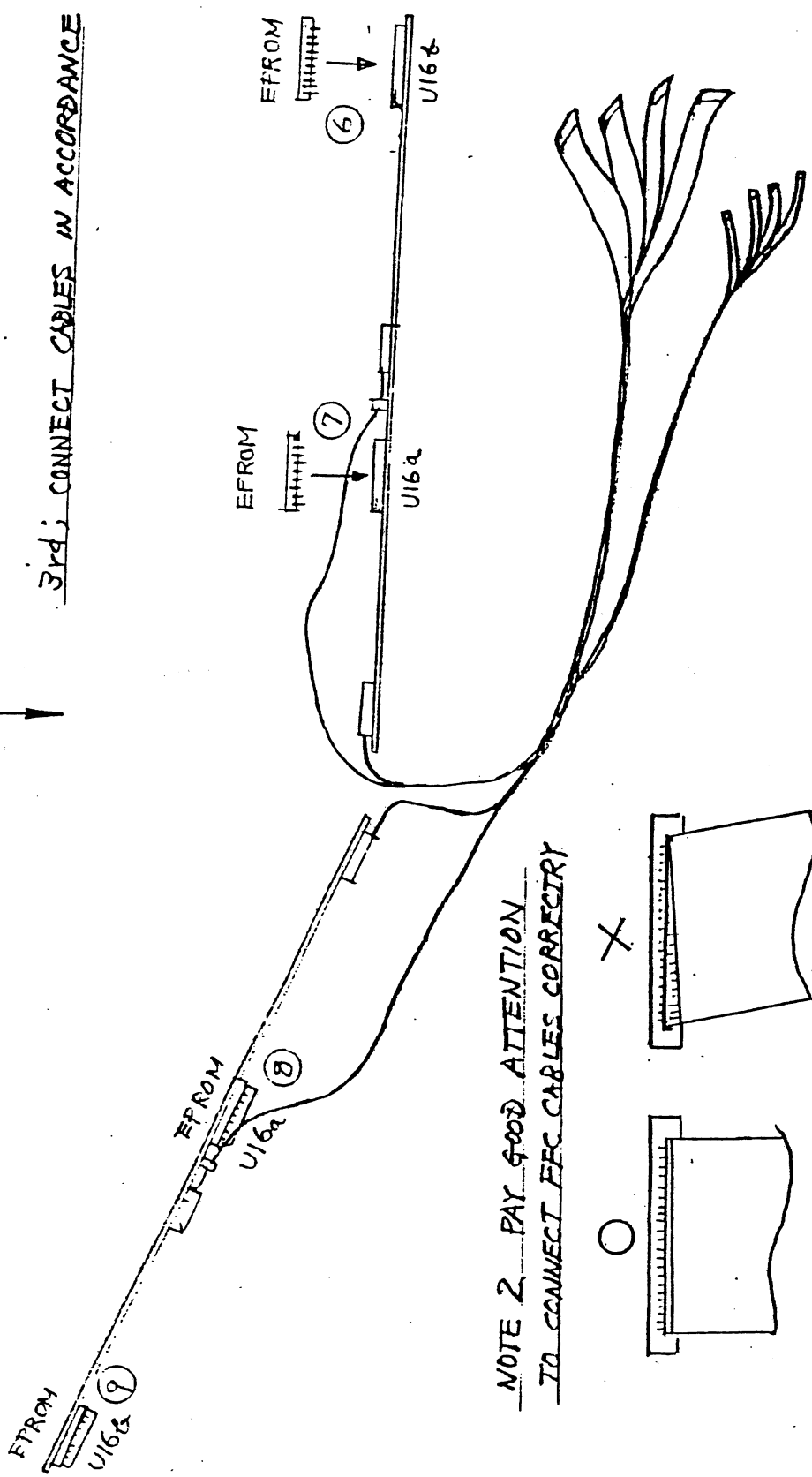


NOTE 1 RECOMMEND TO EXCHANGE EPROM WITH 1ST UPPER BLOCK X2 PCB/A SUB-CPU AND INSTALL THEM IN AND CONNECT THE CABLES AS THEY WERE, 2ND MIDDLE BLOCK, FINALLY LOWE BLOCK RESPECTIVELY.

1st: REMOVE FEC CABLE IN ACCORDANCE WITH ① ~ ⑤ & ⑩ (CH 21, 22, 23, 24 SUB-CPU PCB/A ONLY)

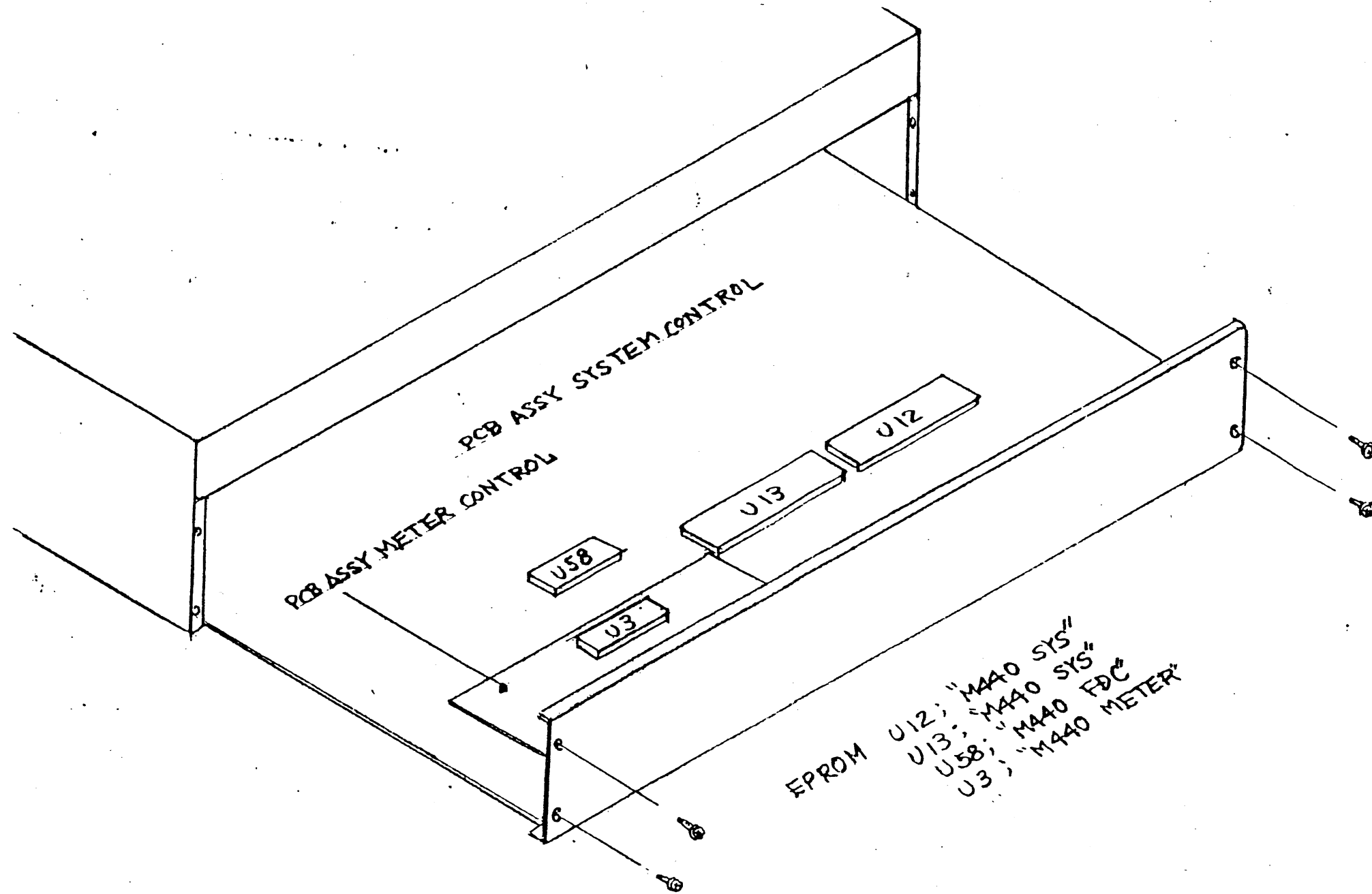
2nd: CHANGE EPROM ⑥ ~ ⑨

3rd: CONNECT CABLES IN ACCORDANCE



NOTE 2 PAY GOOD ATTENTION TO CONNECT FEC CABLES CORRECTLY

M440 EPROM EPROM EXCHANGE PROCEDURE FOR MODEL 4000



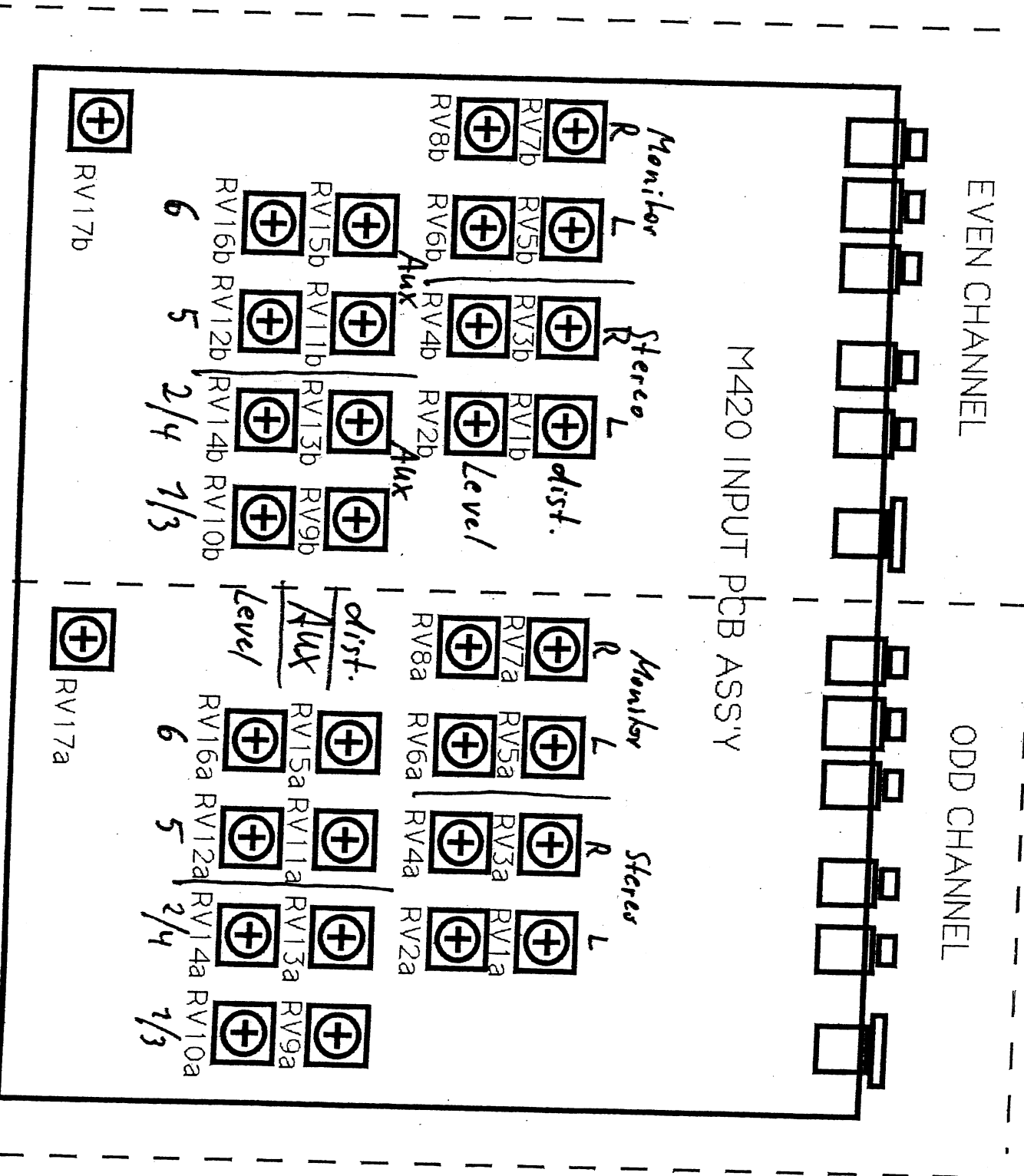
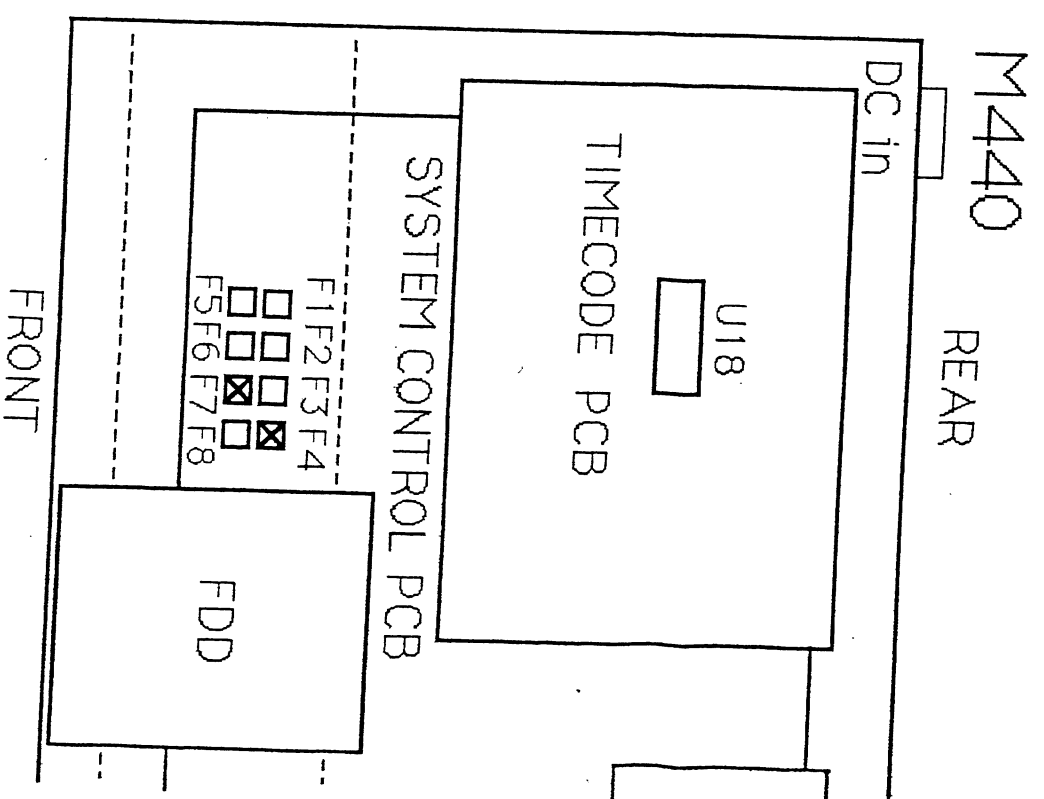
C-3

# 1. SPECIFICATIONS / SERVICE DATA (subject to change without notice)

Frequency response	
Group output/master output	better than +0dB, -1dB, 20Hz- 20kHz
Noise	
Mic equivalent input noise (150) ohm source)	-128dBu (DIN), -130dBu (IHF"A")
Residual output noise	(DIN spec/IHF "A" spec)
Group out (all assign off)	better than -92dBu/-94dBu
Group out (input 1-24 mix)	better than -80dBu/-82dBu
Stereo out (all assign off)	better than -92dBu/-94dBu
Stereo out (input 1-24 mix)	better than -80dBu/-82dBu
Total Harmonic distortion	
Group out	better than 0.06%
Stereo out	better than 0.06%
Crosstalk	
Fader mute	better than 90dB
Channel isolation	better than 80dB
Channel pan isolation	better than 80dB
Maximum input/output	
XLR outputs	+26dBu (16 volts)
TRS output	+20dBu (8 volts)
Channel equalization	
High	±15dBu max on each band
Mid	800Hz-20kHz (peaking or shelving)
Low	400Hz-12kHz (peaking w/variable Q)
	45Hz-1.5kHz (peaking or shelving)
Channel high pass filter	75/150Hz switchable. 12dB/octave
Channel peak indicator	On when level reaches 3dB below clipping.
Red LED for the mic bus	check point is mic amp or post EQ
Orange LED for the line bus	check point is line amp or post EQ

# M420 INPUT PCB ASS'Y POTENTIOMETERS

- Level Adjustment
  - RV 2, STEREO L-CH
  - RV 4, STEREO R-CH
  - RV 6, MONITOR L-CH
  - RV 8, MONITOR R-CH
  - RV 10, AUX 1/3-CH
  - RV 14, AUX 2/4-CH
  - RV 12, AUX 5-CH
  - RV 16, AUX 6-CH
- Distortion Adjustment
  - RV 1, STEREO L-CH
  - RV 3, STEREO R-CH
  - RV 5, MONITOR L-CH
  - RV 7, MONITOR R-CH
  - RV 9, AUX 1/3-CH
  - RV 13, AUX 2/4-CH
  - RV 11, AUX 5-CH
  - RV 15, AUX 6-CH
- Meter Adjustment
  - RV 17, INPUT 5 DOT MTR

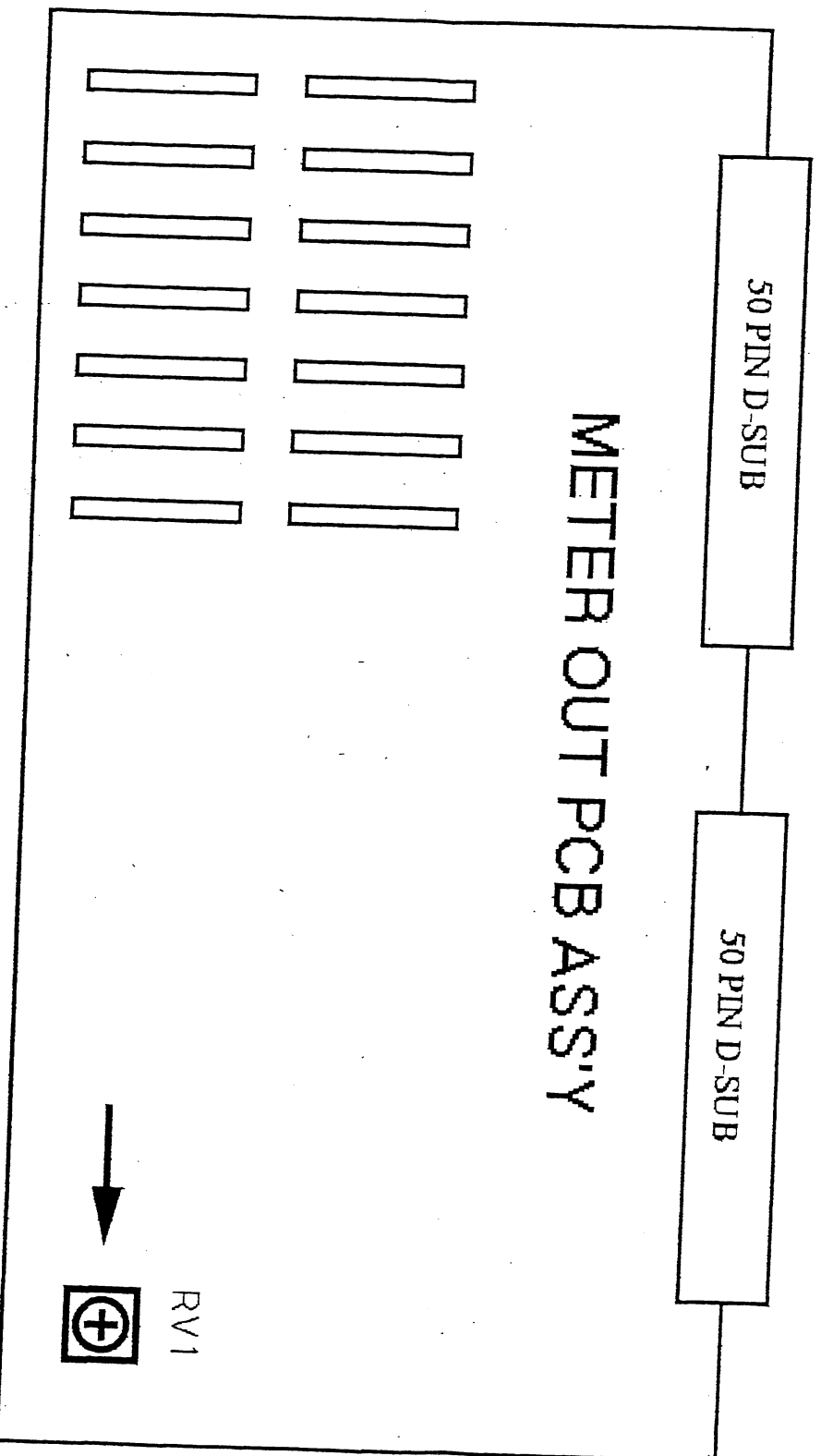


# M420 METER OUT PCB ASS'Y Adjustment

- M420 Meter Output PCB Adjustment

The potentiometer RV 1 is set for input 16 dot meter on the M411/410 surface.

Set 0 dB position on the 16 dot meter by rotating the RV 1 at the Direct output 0 dBu.



PCB ASS'Y, M430 GROUP/AUX, DIP SWITCH SETTINGS

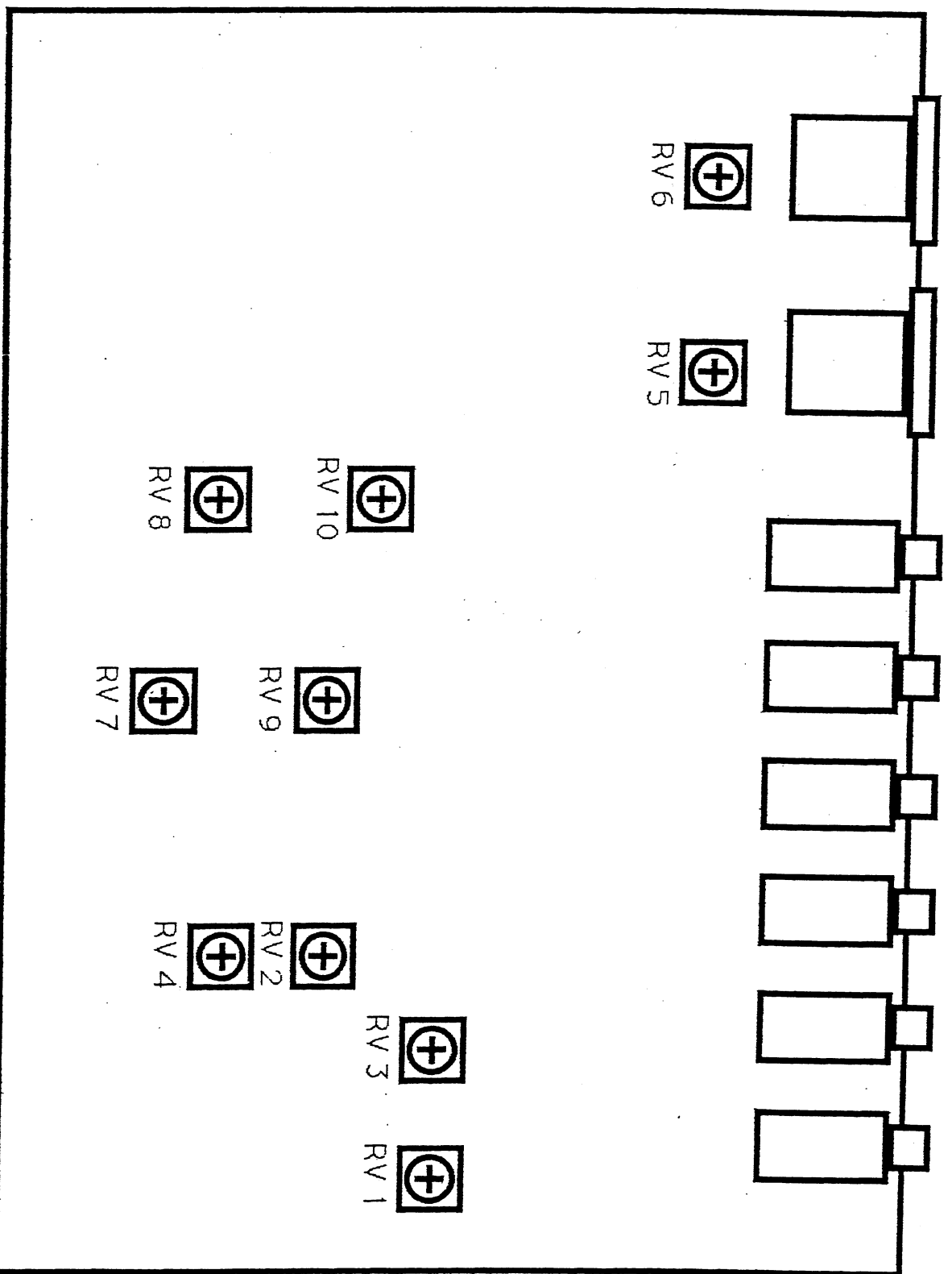
SWITCH NO.	1	2	3	4	5	6	7	8
Used in ch-1, S1 S2	ON ON	— —	— —	— —	— —	— —	— —	— —
Used in ch-2, S1 S2	— —	ON ON	— —	— —	— —	— —	— —	— —
Used in ch-3, S1 S2	— —	— —	ON ON	— —	— —	— —	— —	— —
Used in ch-4, S1 S2	— —	— —	— —	ON ON	— —	— —	— —	— —
Used in ch-5, S1 S2	— —	— —	— —	— —	ON ON	— —	— —	— —
Used in ch-6, S1 S2	— —	— —	— —	— —	— —	ON ON	— —	— —
Used in ch-7, S1 S2	— ON	— ON	— —	— —	— —	— —	ON —	— —
Used in ch-8, S1 S2	— —	— ON	— —	— —	— —	— —	— —	— ON

# M430 STEREO AMP PCB ASS'Y Adjustment

- Stereo Insert Receive Adjustment, RV2 and 4, Distortion Adjustment RV1 and 3.
  - 1) Plug in OddBu signal to stereo insert receive jacks (L+R), and set the stereo insert enable ON at the 410/411 surface.
  - 2) Measure the output level at the Stereo-out and adjust to OddBu by potentiometer RV2 (L) and RV4 (R).
  - 3) Adjust RV1 (L) and RV3 (R) for the distortion minimize.

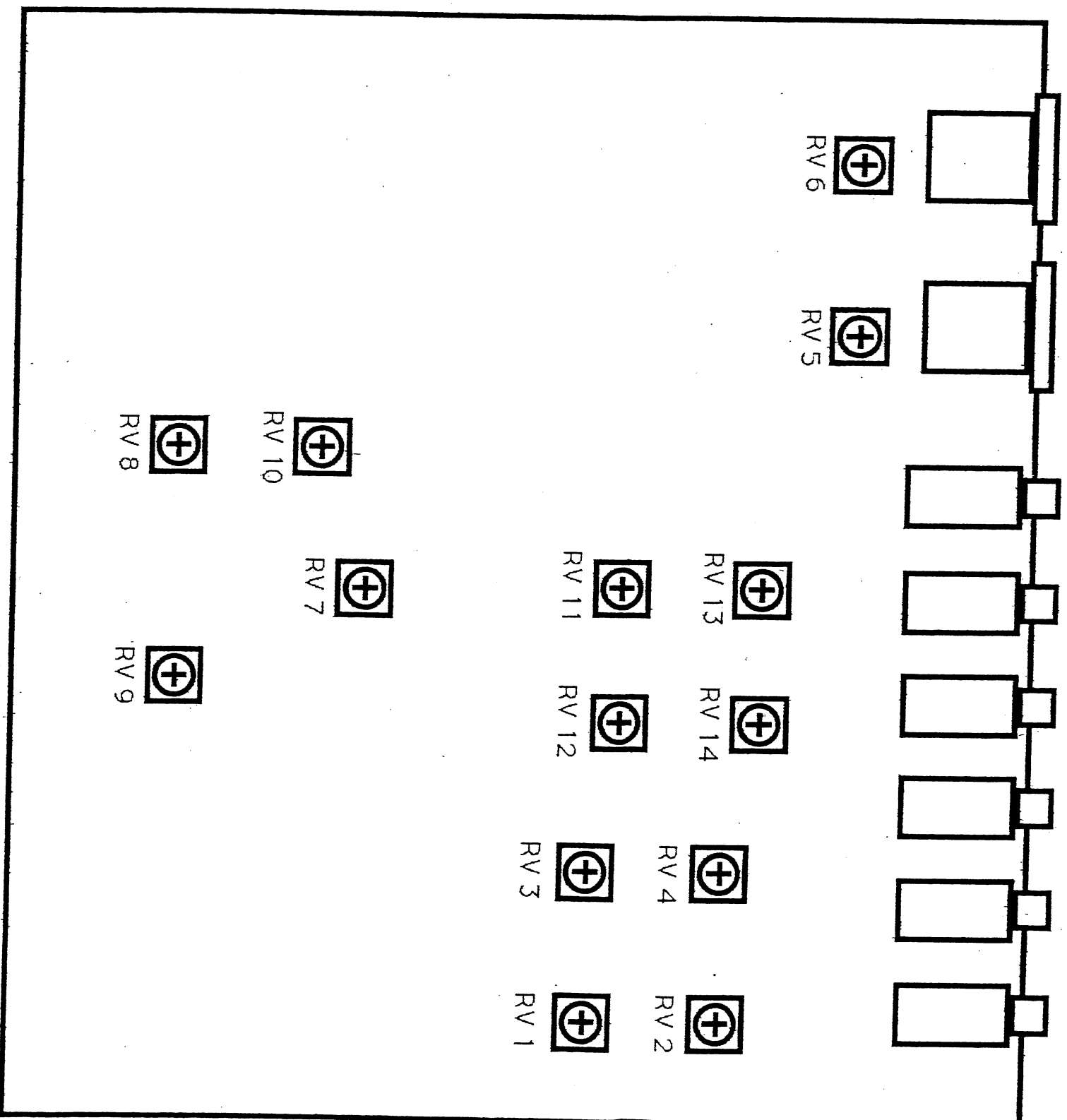
- Digital Level Adjustment
  - 1) Same as above, plug in OddBu signal to stereo insert receive jacks (L+R), and set the stereo insert enable ON at the 410/411 surface.
  - 2) Measure the output level at the Monitor-out by set "DIGITAL" ON and adjust to OddBu output by rotating RV8 (L) and RV10 (R).
  - 3) Adjust RV7 (L) and RV9 (R) for the distortion minimize.

- Common Mode Rejection Ratio Adjustment
  - 1) Adjust to minimize common mode rejection ratio for Stereo XLR outputs by rotating RV5 (L) and RV6 (R).

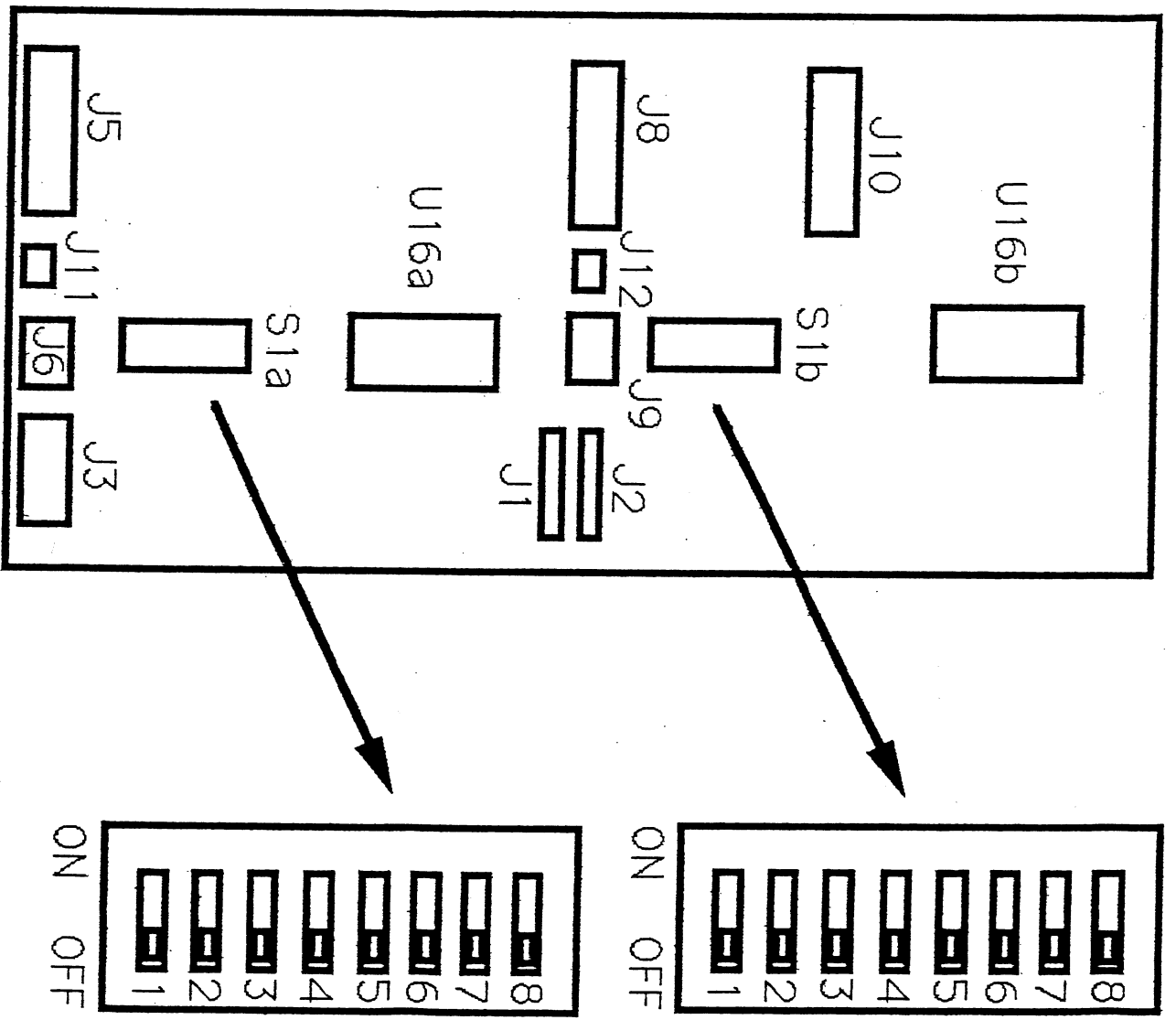




# M430 MONITOR AMP PCB ASS'Y

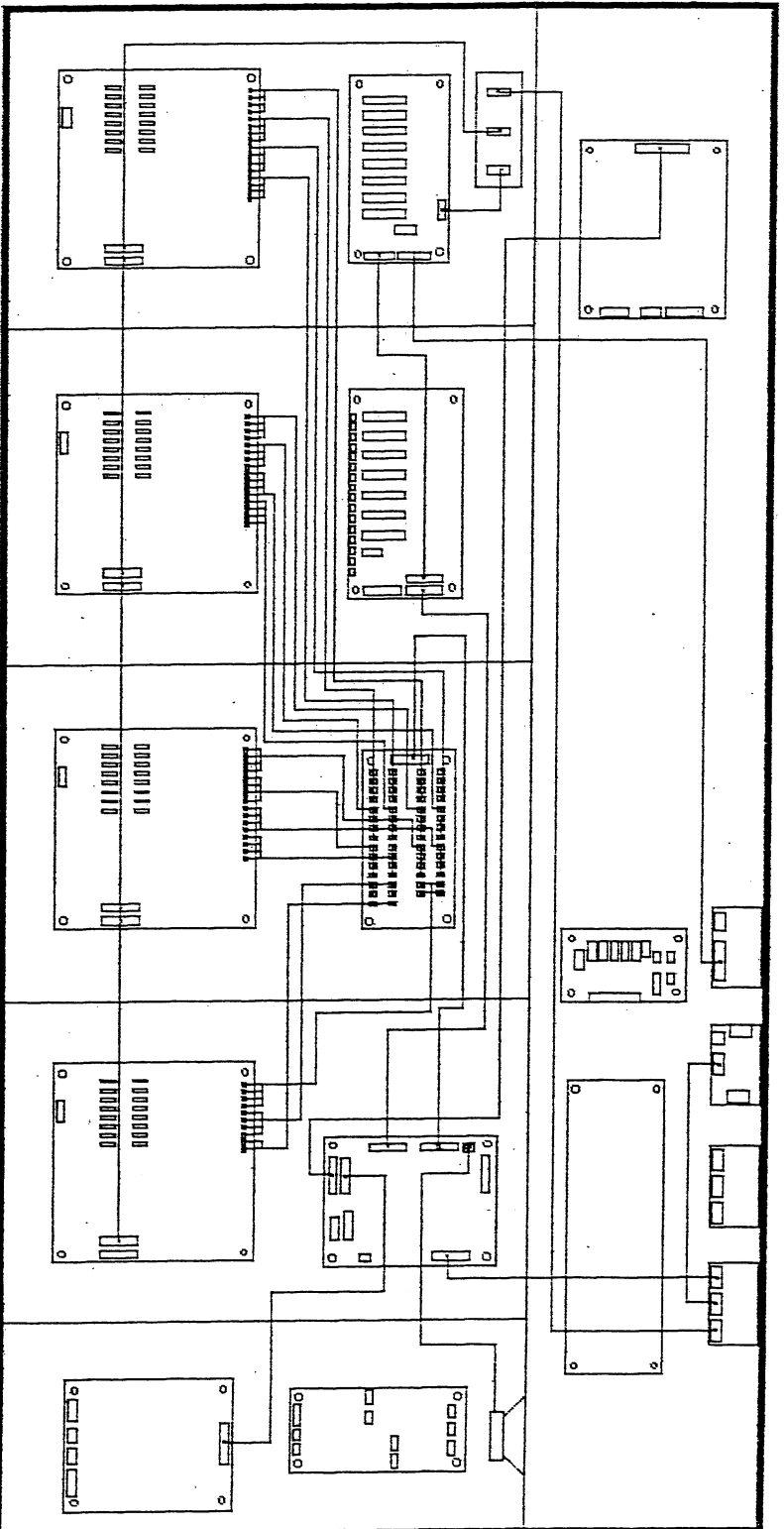
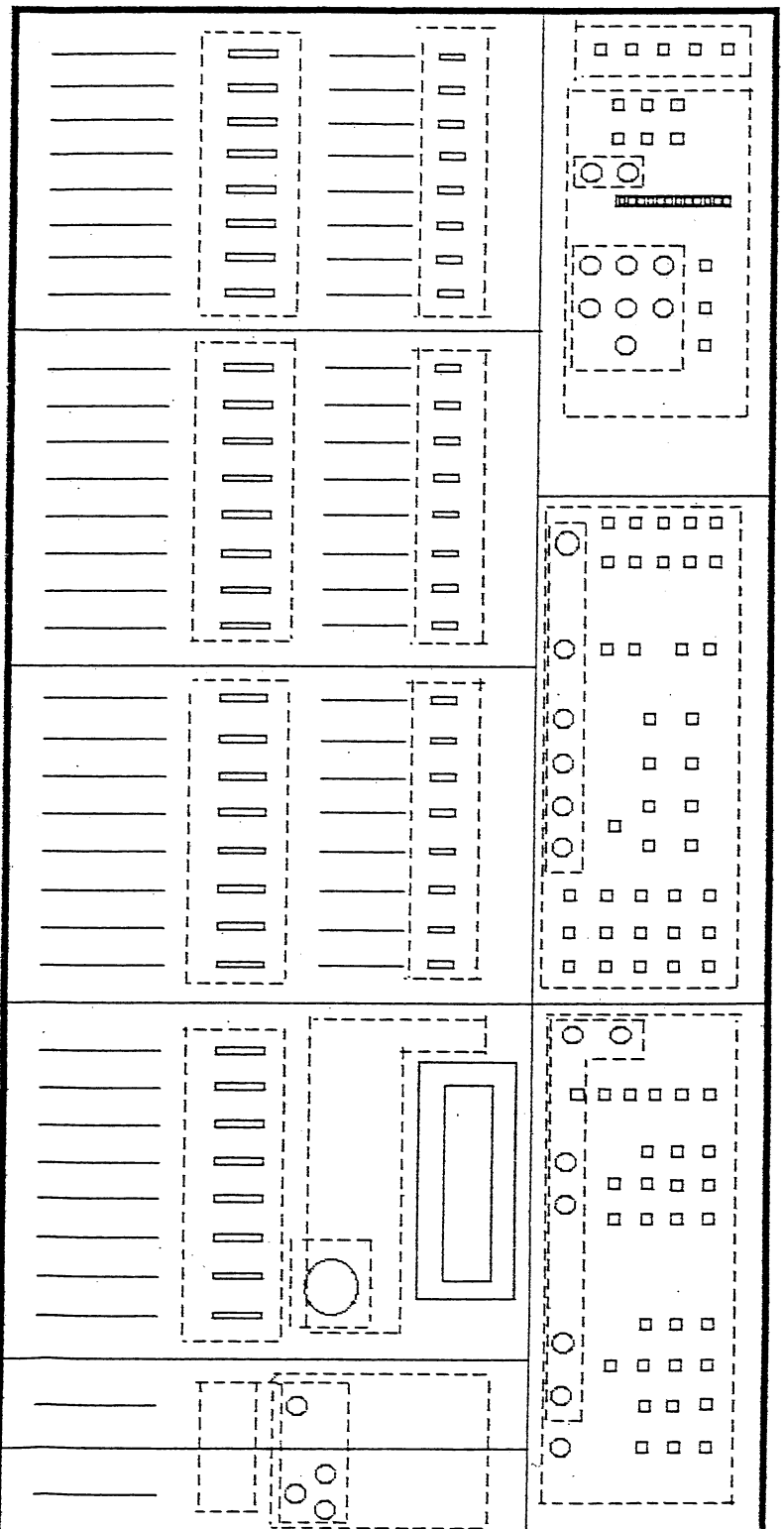
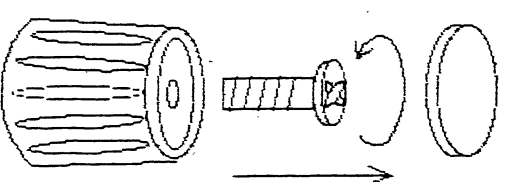


# PCB ASS'Y, SUB CPU, DIP SWITCH SETTINGS 1/2

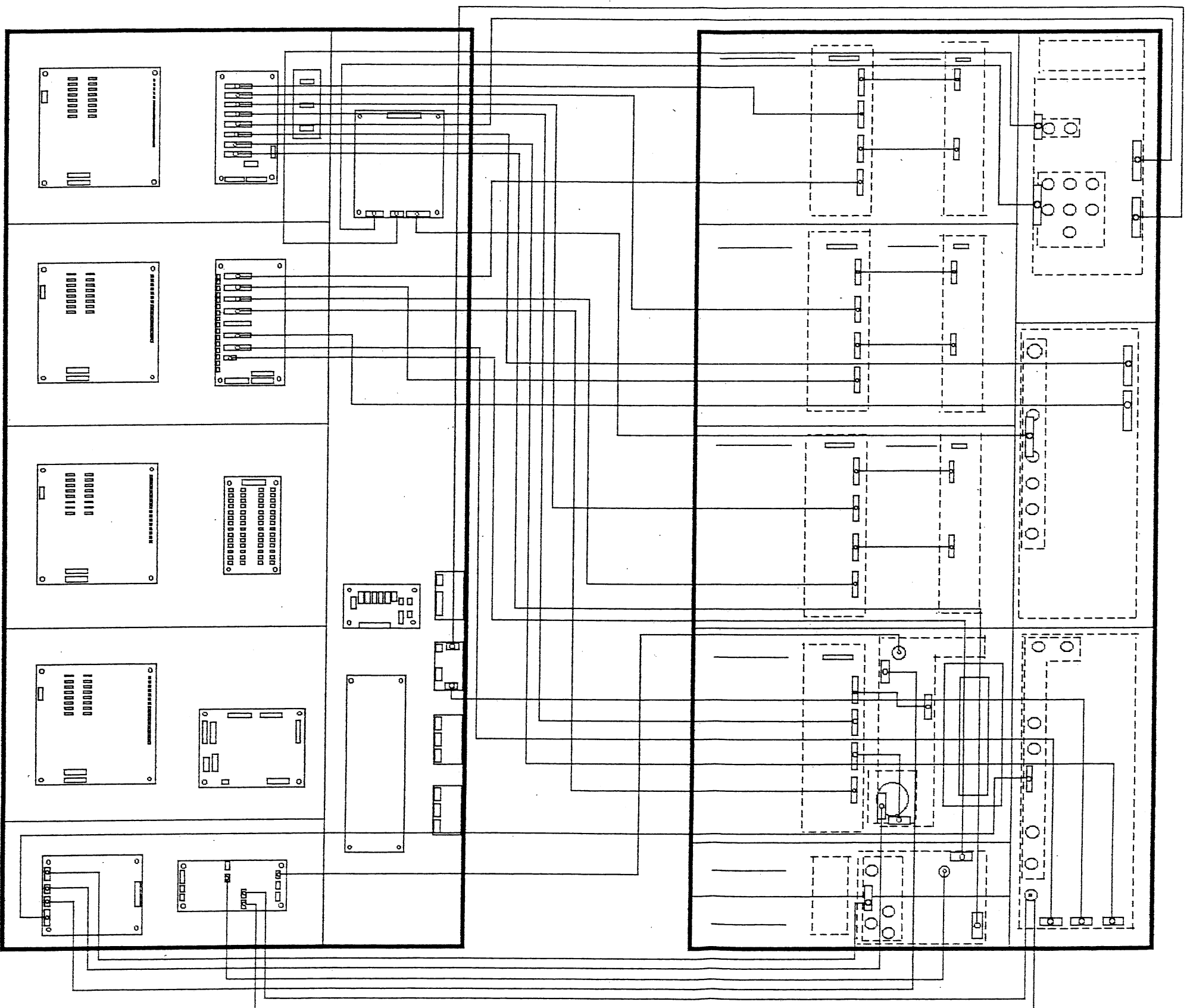


# M411 CABLE CONNECTION 1/3

Remove knob  
from surface

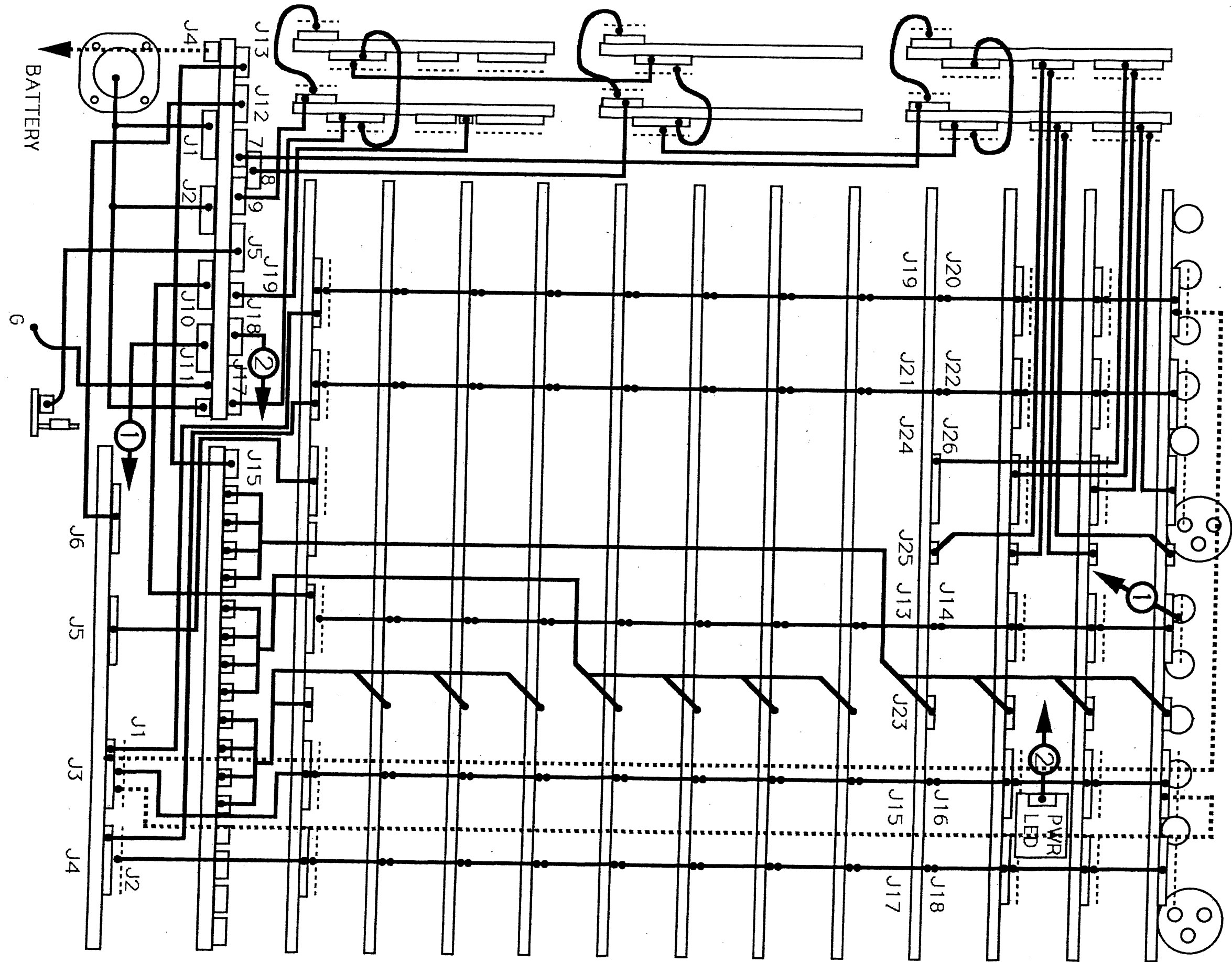


M411 CABLE CONNECTION 3/3



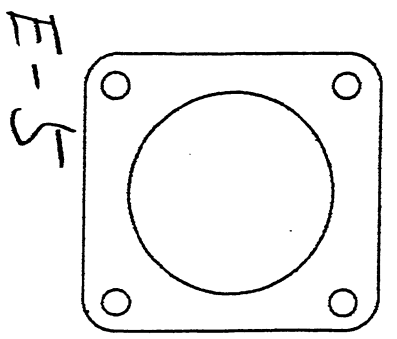
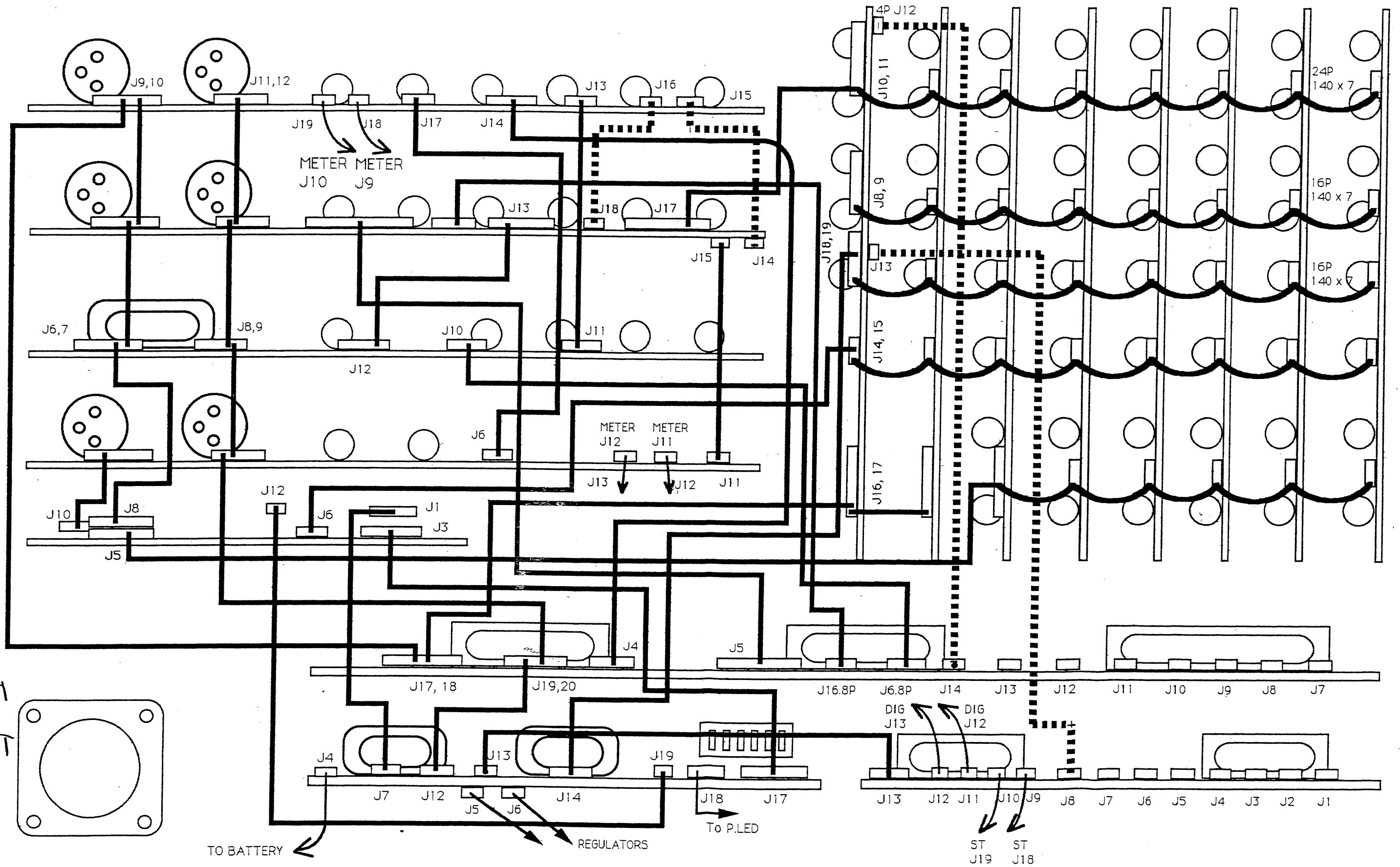
E-3

# M420 CABLE CONNECTION

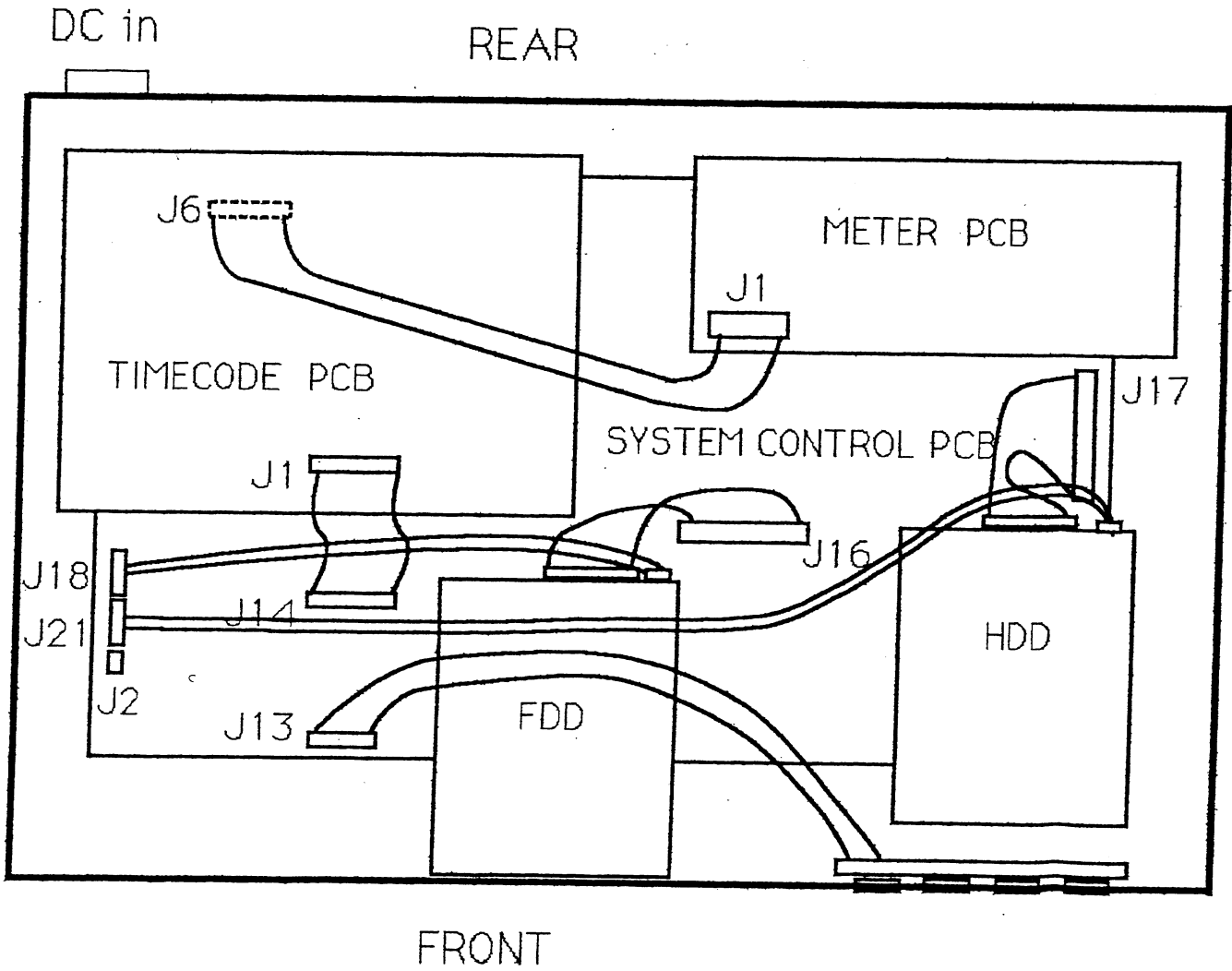


E-4

# M430 CABLE CONNECTION

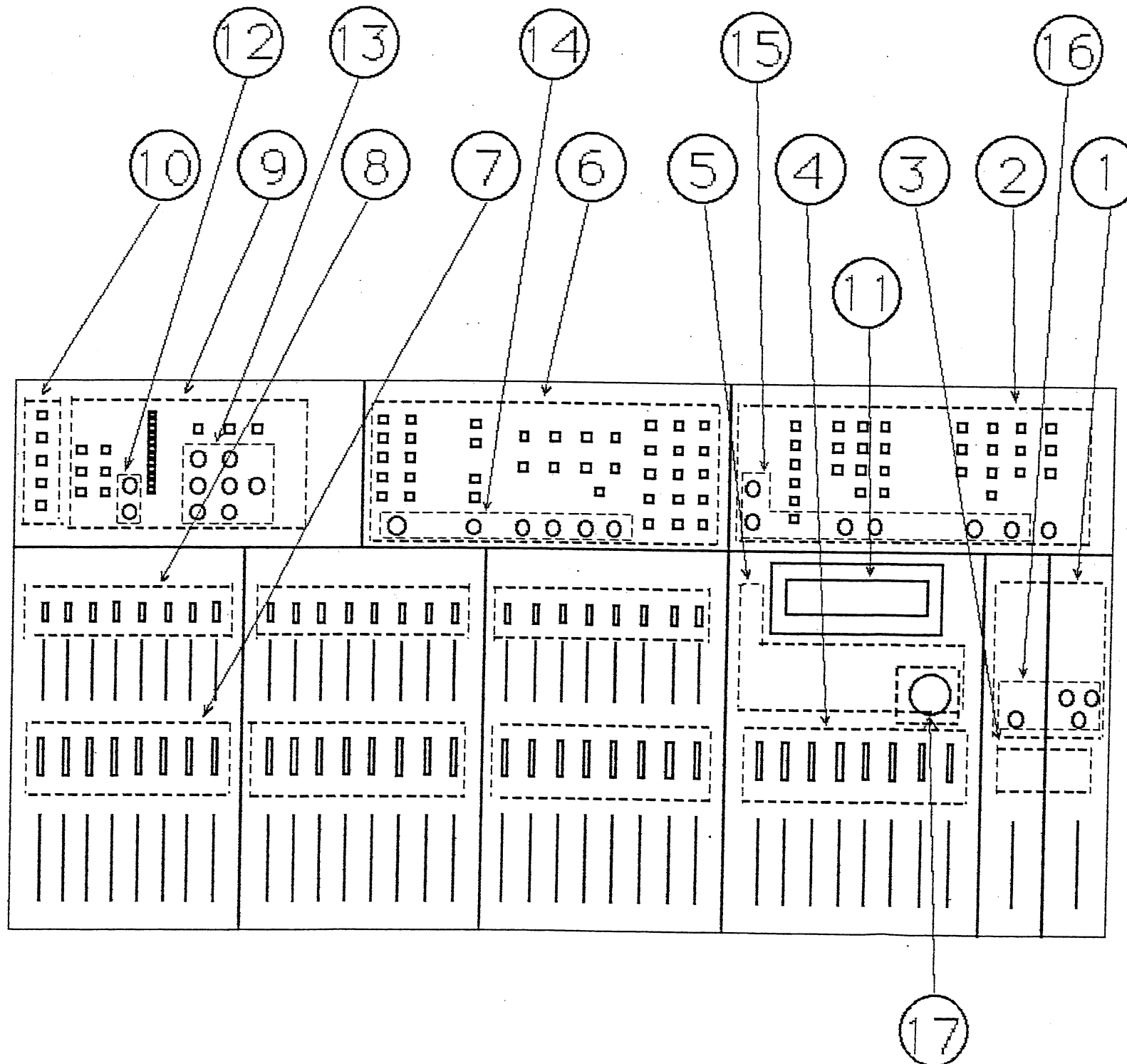


# M440 CABLE CONNECTION



E-6

# M410/411 TOP, PCB LAYOUT

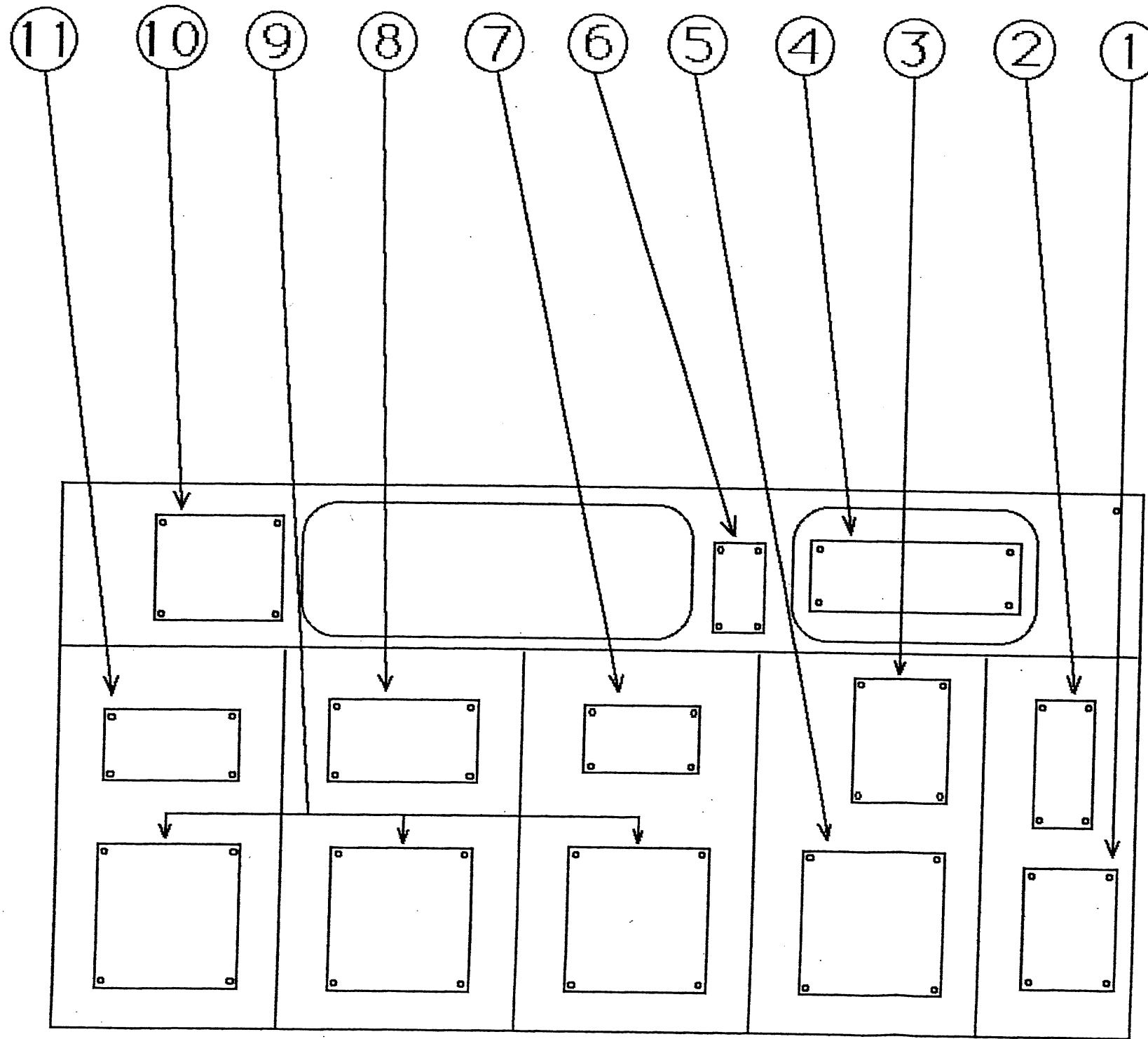


1. PCB ASSY, L/R DIGITAL  
7073040000
2. PCB ASSY, STEREO MONITOR  
7073052000
3. PCB ASSY, L/R MUTE  
7073041000
4. PCB ASSY, GROUP FADER  
7073038000
5. PCB ASSY, FUNCTION  
7073046000
6. PCB ASSY, INSELE B  
7073045000
7. PCB ASSY, LOWER FADER  
7073039000
8. PCB ASSY, UPPER FADER  
7073042000
9. PCB ASSY, INSELE A  
7073043000
10. PCB ASSY, MIXSELE  
7073044000
11. ASSY, LCD DISPLAY  
7056011000
12. PCB ASSY, ENC INPUT  
7073033000
13. PCB ASSY, ENC EQ  
7073032000
14. PCB ASSY, ENC INSELE B  
7073030000
15. PCB ASSY, ENC MONITOR  
7073031000
16. PCB ASSY, ENC L/R DIGI  
7073034000
17. PCB ASSY, ENC, FUNC B  
7073037000

F-1



# M410/411 BOTTOM, PCB LAYOUT

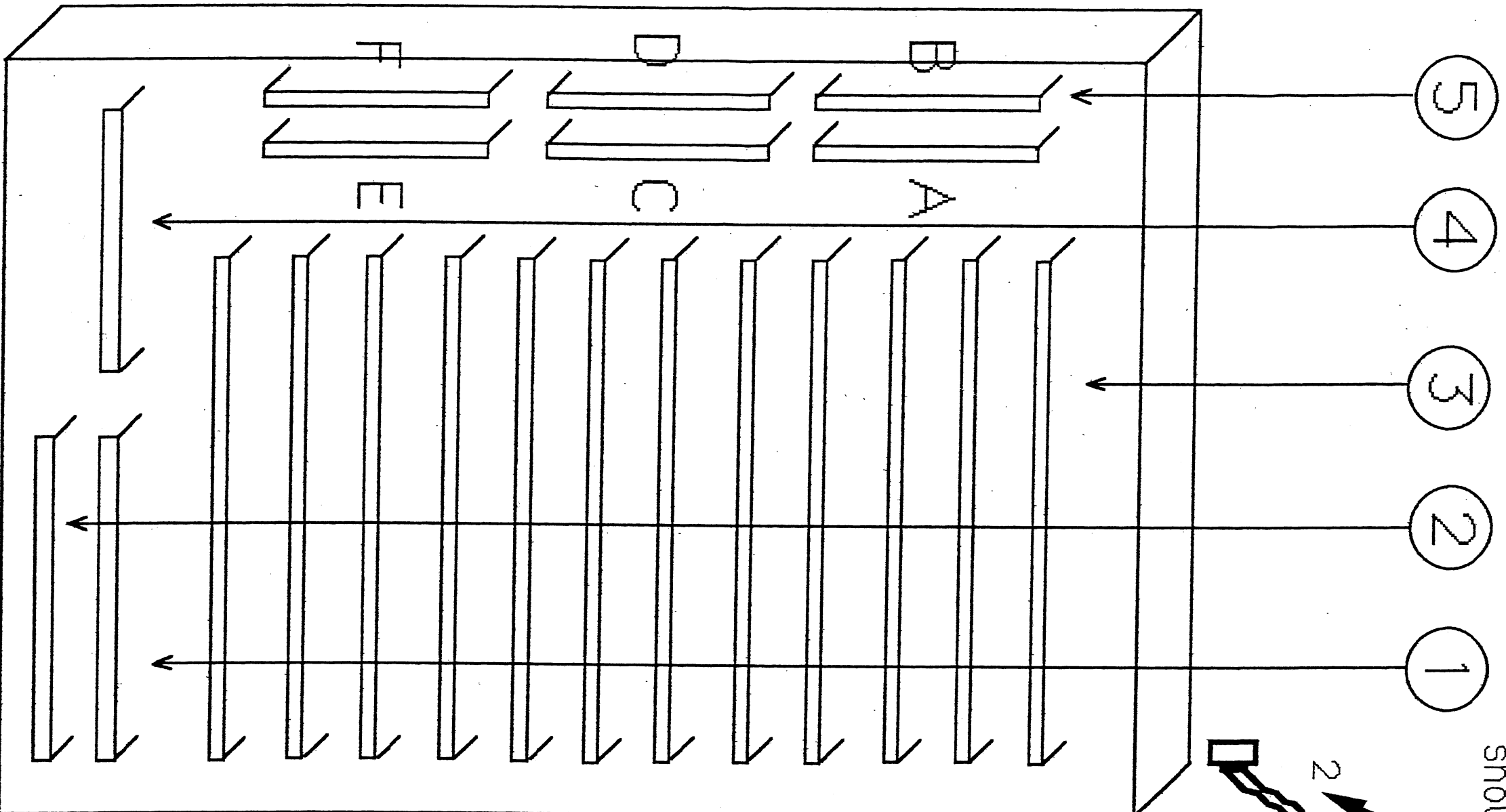
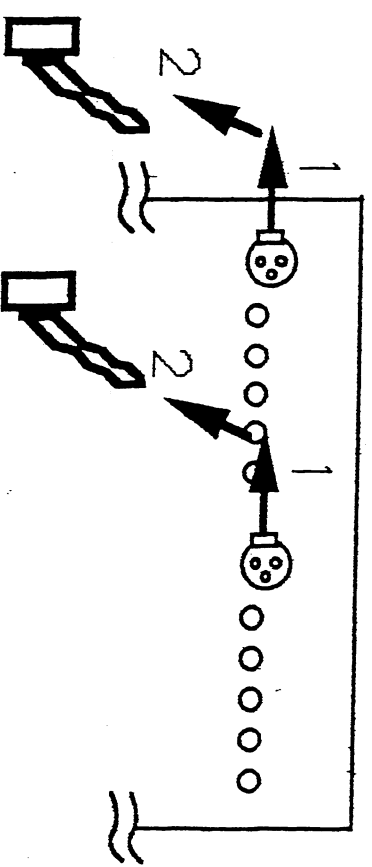


1. PCB ASSY, ENC CNTRL 2  
7073021000
2. PCB ASSY, H.P. AMP  
7073047000
3. PCB ASSY, DCC, MPU  
7073016000
4. UNIT, SW. REGULATOR  
7049002000
5. PCB ASSY, AUTO FDR MTR  
7073086000
6. PCB ASSY, POWER SUP. CN  
7073035000
7. PCB ASSY, FADER CNTRL  
7073017000
8. PCB ASSY, LED CNTRL  
7073019000
9. PCB ASSY, AUTO FDR IN  
7073085000
10. PCB ASSY, ENC CNTRL 1  
7073020000
11. PCB ASSY, SW CNTRL  
7073018000

F-2

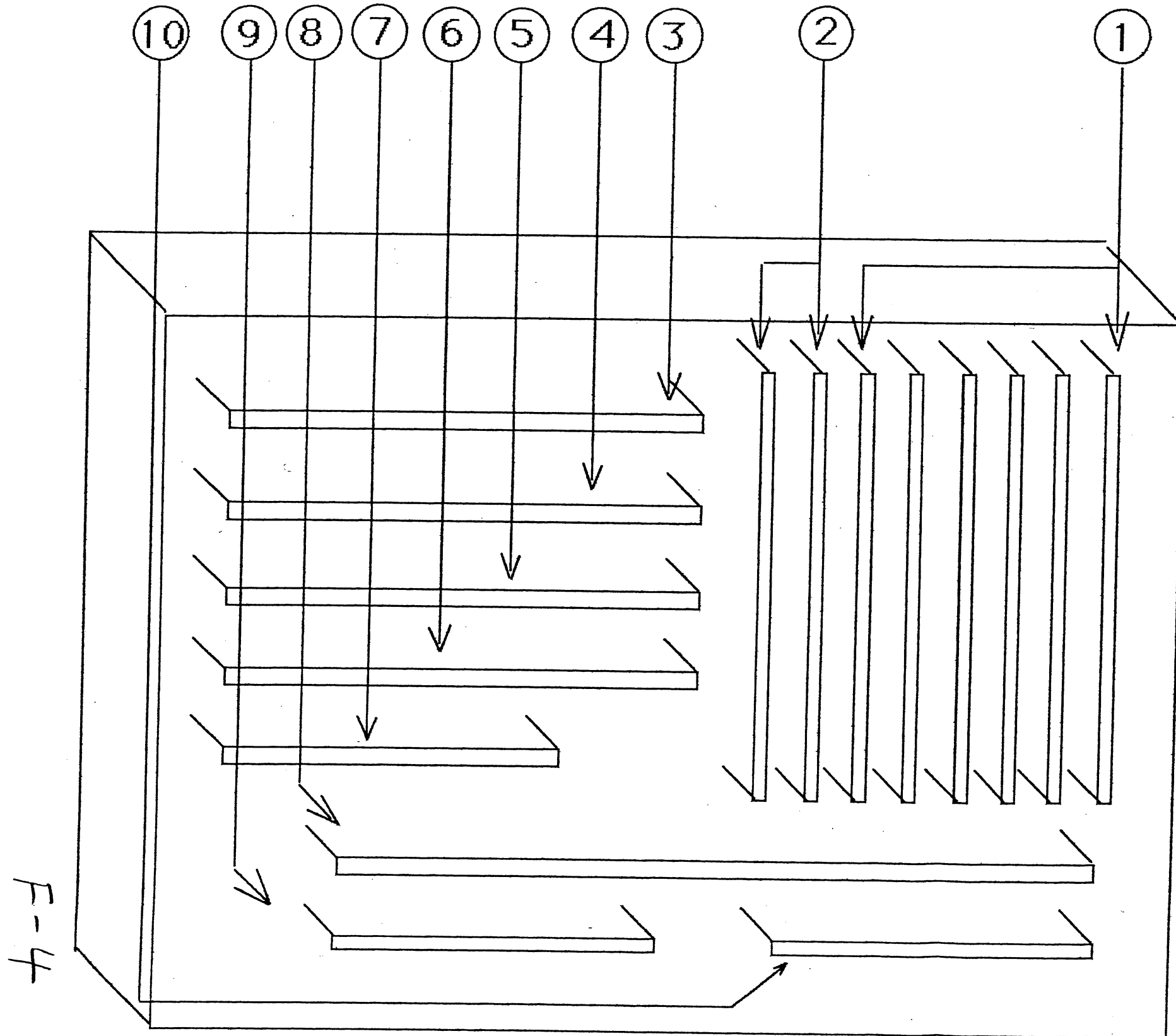
# M420 PCB LAYOUT

When remove input PCB Ass'y, should remove XLR lock pins.



1. PCB ASSY, METER OUT  
7073055000
  2. PCB ASSY, OUTPUT  
7073056000
  3. PCB ASSY, INPUT  
7073053000
  4. PCB ASSY, PWR, CON  
7073058000
  5. PCB ASSY, SUB CPU  
7073054000
- A=1 to 4 ch  
 B= 5 to 8 ch  
 C= 9 to 12 ch  
 D= 13 to 16 ch  
 E= 17 to 20 ch  
 F= 21 to 24 ch

# M430 PCB LAYOUT

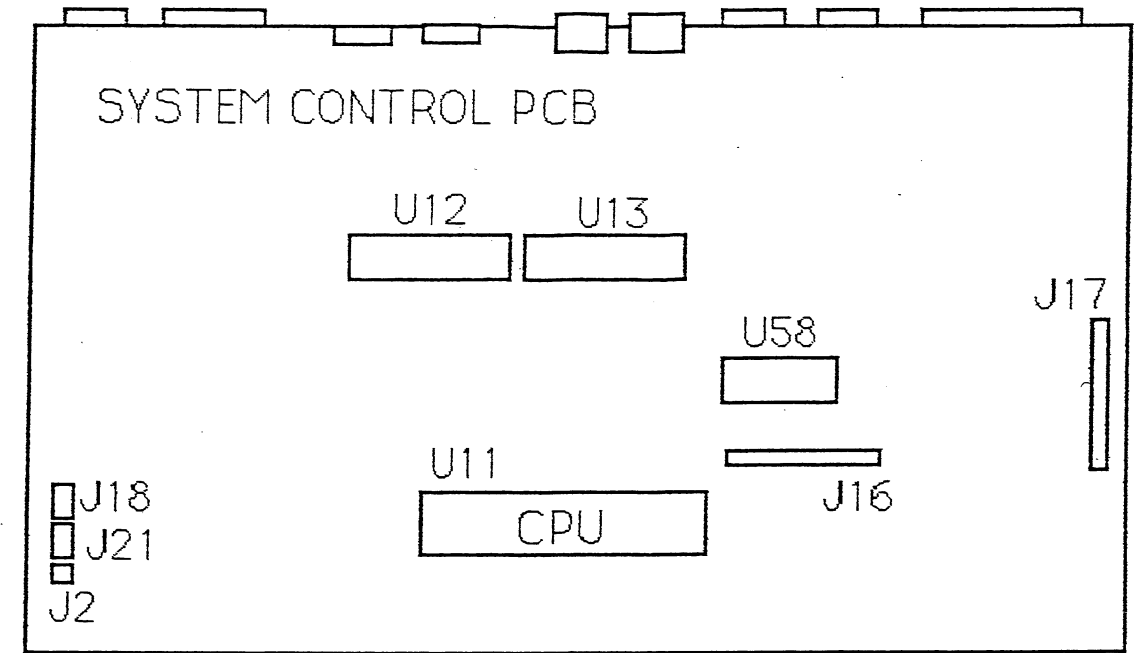
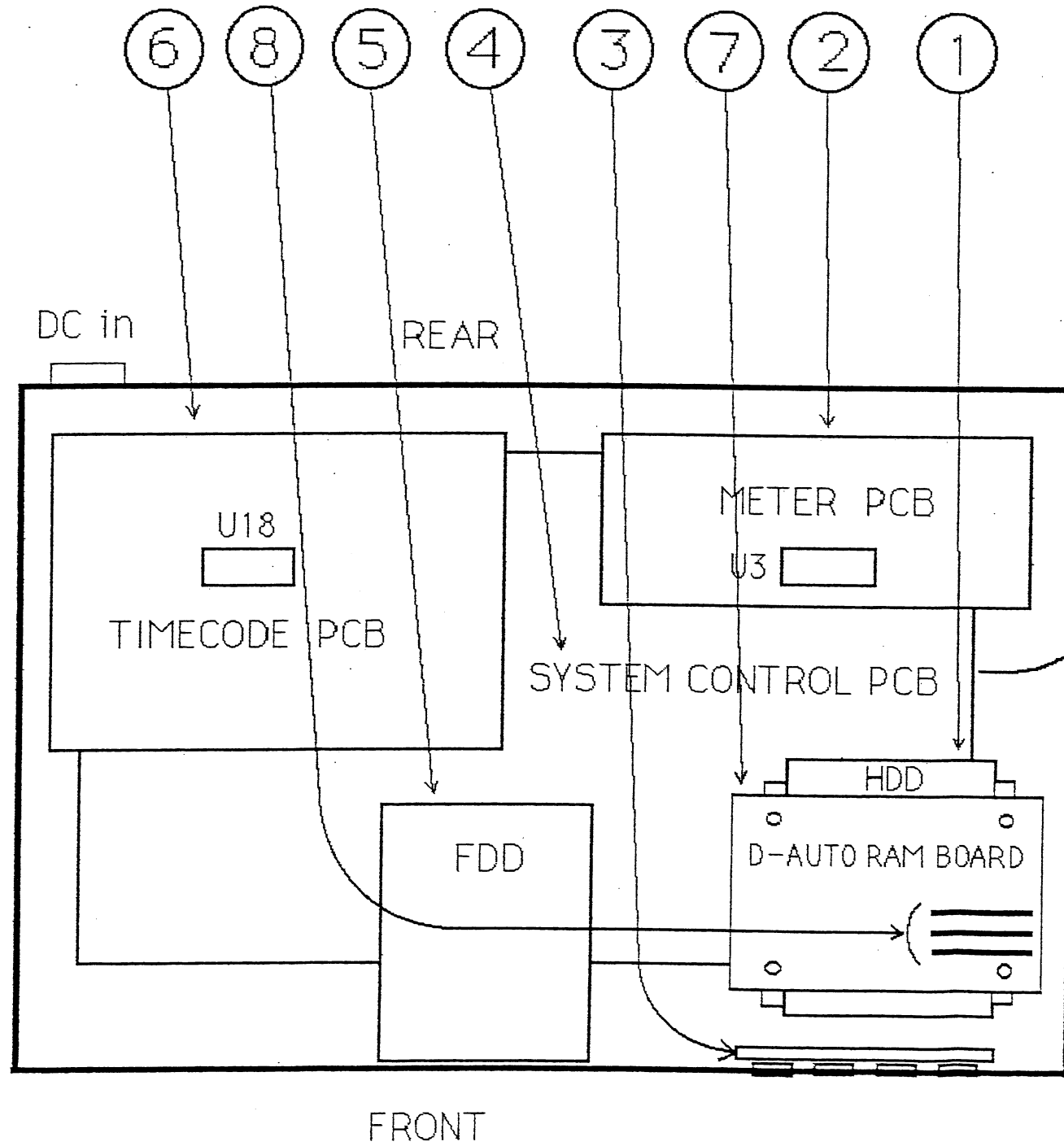


1. PCB ASSY, GROUP, AUX  
7073062000
2. PCB ASSY, GROUP, AMP  
7073061000
3. PCB ASSY, STEREO A  
7073064000
4. PCB ASSY, MONITOR, AMP  
7073063000
5. PCB ASSY, TB, HP A  
7073065000
6. PCB ASSY, DIGITAL MIX  
7073067000
7. PCB ASSY, SUB CPU  
7073081000
8. PCB ASSY, BUS CNECTR  
7073060000
9. PCB ASSY, POWER CON  
7073083000
10. PCB ASSY, METER CNECTR  
7073066000

F-4

# M440, PCB LAYOUT

U12, U13, ROM. SYSCON  
 U58, ROM. FDC  
 U18, ROM. TIMECODE  
 U3, ROM. METER



1. HARD DISK DRIVE ASSY  
7044005000
2. PCB ASSY, MTR CONT  
7073069000
3. PCB ASSY, SW, FRONT  
7073068000
4. PCB ASSY, SYSCON  
7073070000
5. FLOPPY DISK DRIVE ASSY  
7044003000
6. PCB ASSY, TIMECODE  
7073078000
7. PCB ASSY, D-AUTO RAM BOARD  
7073095000
8. PCB ASSY, RAM EXPND  
7073096000 (OPTION PCB)

F-5

# M4000 SERVICE PARTS

NO.	PARTS NO.	ASSEMBLIES
<b>M410411</b>		
1	7073014000	PCB ASSY, METER, MPU
2	7073015000	PCB ASSY, METER, TC
3	7073016000	PCB ASSY, DCC, MPU
4	7073017000	PCB ASSY, FADER CNTRL
5	7073018000	PCB ASSY, SW CNTRL
6	7073019000	PCB ASSY, LED CNTRL
7	7073020000	PCB ASSY, BNC CNTRL 1
8	7073021000	PCB ASSY, BNC CNTRL 2
9	7073022000	PCB ASSY, SIDE, CAR CN
10	7073023000	PCB ASSY, METER A
11	7073079000	PCB ASSY, T.B, YR
12	7073024000	PCB ASSY, DSUBCNTRL
13	7073025000	PCB ASSY, DCC, MET BR CN
14	7073026000	PCB ASSY, DCC, AUDIO CN
15	7073027000	PCB ASSY, H. P. CNCTR
16	7073028000	PCB ASSY, H. P. VOL
17	7073029000	PCB ASSY, TR
18	7073080000	PCB ASSY, MULTIPLY
19	7073030000	PCB ASSY, BNC, INSEL B
20	7073031000	PCB ASSY, ENC, MONITOR
21	7073032000	PCB ASSY, BNC, EQ
22	7073033000	PCB ASSY, ENC, INPUT
23	7073034000	PCB ASSY, BNC, L/R, DIGITAL
24	7073035000	PCB ASSY, POWER SUP, CN
25	7073036000	PCB ASSY, BNC, FUNC A
26	7073037000	PCB ASSY, BNC, FUNC B
27	7073038000	PCB ASSY, GROUP, FADER
28	7073039000	PCB ASSY, LOWER, FADER
29	7073040000	PCB ASSY, L/R DIGITAL
30	7073041000	PCB ASSY, L/R MUTE
31	7073042000	PCB ASSY, UPPER, FADER
32	7073043000	PCB ASSY, INSELEA

33	7073044000	PCB ASSY, MIXSEL
34	7073045000	PCB ASSY, INSELE B
35	7073046000	PCB ASSY, FUNCTION
36	7073047000	PCB ASSY, H. P. AMP
37	7073048000	PCB ASSY, LCD, CN A
38	7073049000	PCB ASSY, LCD, CN B
39	7073050000	PCB ASSY, AC, CN
40	7073051000	PCB ASSY, METER B
41	7073052000	PCB ASSY, STEREO MONTR
42	7049002000	UNIT, SW. REGULATOR
43	7073085000	PCB ASSY, AUTO FDR CTR IN
44	7073086000	PCB ASSY, AUTO FDR CTR MSTR

**M420**

1	7073053000	PCB ASSY, INPUT
2	7073054000	PCB ASSY, SUB CPU
3	7073055000	PCB ASSY, METER OUT
4	7073056000	PCB ASSY, OUTPUT
5	7073057000	PCB ASSY, P, LED
6	7073058000	PCB ASSY, PWR, CON
7	7073059000	PCB ASSY, REGURATOR

**M430**

1	7073082000	PCB ASSY, P, LED
2	7073083000	PCB ASSY, PWR, COM
3	7073084000	PCB ASSY, REGURATOR
4	7073081000	PCB ASSY, SUB CPU
5	7073060000	PCB ASSY, BUS CNNECTR
6	7073061000	PCB ASSY, GROUP, AMP
7	7073062000	PCB ASSY, GROUP, AUX
8	7073063000	PCB ASSY, MONITOR, AMP
9	7073064000	PCB ASSY, STEREO A
10	7073065000	PCB ASSY, TB, HP A
11	7073066000	PCB ASSY, METER CN
12	7073067000	PCB ASSY, DIGITAL, MIX

**M440 / 440B / 440C**

1	7073068000	PCB ASSY, SW, FRONT
2	7073069000	PCB ASSY, MTR, CONT
3	7073070000	PCB ASSY, SYNC ON
4	7073078000	PCB ASSY, TIMECODE
5	7073095000	PCB ASSY, D-AUTO RAM BOARD
6	7073096000	PCB ASSY, RAM EXPND

**M490**

1	7073072000	PCB ASSY, LED
2	7073073000	PCB ASSY, POWER SUPPLY
3	7073074000	PCB ASSY, TR A
4	7073075000	PCB ASSY, TR B
5	7073076000	PCB ASSY, TR C
6	7073077000	PCB ASSY, YOT, SELECT

**INTERFACE CABLE ASSY**

1	7076350001	RMT, CONTROL DSUB 25 (5m)
2	7076351001	AUDIO MULTI 14 PIN (5m)
3	7076350002	RMT, CONTROL DSUB 25 (30m)
4	7076351002	AUDIO MULTI 14 PIN (30m)
5	7076350003	RMT, CONTROL DSUB 25 (50m)
6	7076351003	AUDIO MULTI 14 PIN (50m)
7	7076350004	RMT, CONTROL DSUB 25 (100m)
8	7076351004	AUDIO MULTI 14 PIN (100m)
9	7076043000	DC POWER, 16 PIN
10	7076041000	AUDIO MULTI, 50 PIN
11	7076042000	RMT, CONTRL, DSUB 9 PIN
12	7076040000	AUDIO MULTI, 24 PIN

**OTHERS**

1	7044003000	FLOPPY DISK DRIVE ASSY
2	7044005000	HARD DISK DRIVE ASSY
3	7056011000	LCD DISPLAY ASSY
4	7040024000	ROTARY, ENCODER, EC16B
5	7040025000	VR, FADER, 100MM, 10KB

6	7040026000	VR, FADER, 60MM, 10KB
7	7040027000	VR, RK16312, 10KAA
8	7040028000	VR, RK16311, 10KA
9	7040029000	FADER, MTR, 100MM, 10KB
10	7040030000	FADER, MTR, 60MM, 10KB
11	7026010100	KNOB, FADER, DCC
12	7026017000	KNOB, FADER, DCC, TS
13	7026013000	KNOB, FUNCTION
14	7078001000	KNOB, ASSY, LARGE
15	7078002000	KNOB, ASSY, SMALL
16	7078003000	KNOB, ASSY, T BHP



M4000 SERVICE PARTS KIT

M410/411

1	7073014000	PCB ASSY, METER, MPU
2	7073015000	PCB ASSY, METER, TC
3	7073016000	PCB ASSY, DCC, MPU
4	7073017000	PCB ASSY, FADER CNTRL
6	7073019000	PCB ASSY, LED CNTRL
7	7073020000	PCB ASSY, BNC CNTRL 1
8	7073021000	PCB ASSY, BNC CNTRL 2
10	7073023000	PCB ASSY, METER A
27	7073038000	PCB ASSY, GROUP, FADER
28	7073039000	PCB ASSY, LOWER, FADER
31	7073042000	PCB ASSY, UPPER, FADER
32	7073043000	PCB ASSY, INSELE A
34	7073045000	PCB ASSY, INSELE B
36	7073047000	PCB ASSY, H. P. AMP
40	7073051000	PCB ASSY, METER B
41	7073052000	PCB ASSY, STEREO MONTR
42	7049002000	UNIT, SW. REGULATOR
43	7073085000	PCB ASSY, AUTO FDR CTR IN
44	7073086000	PCB ASSY, AUTO FDR CTR MSTR

M420

1	7073053000	PCB ASSY, INPUT
2	7073054000	PCB ASSY, SUB CPU
3	7073055000	PCB ASSY, METER OUT
4	7073056000	PCB ASSY, OUTPUT
6	7073058000	PCB ASSY, PWR, CON

M430

2	7073083000	PCB ASSY, PWR, COM
4	7073081000	PCB ASSY, SUB CPU
5	7073080000	PCB ASSY, BUS CNNECTR
6	7073061000	PCB ASSY, GROUP, AMP
7	7073062000	PCB ASSY, GROUP, AUX

8	7073063000	PCB ASSY, MONITOR, AMP
9	7073064000	PCB ASSY, STEREO A
10	7073065000	PCB ASSY, TB, HP A
11	7073066000	PCB ASSY, METER CN
12	7073067000	PCB ASSY, DIGITAL, MIX

**M440B**

2	7073069000	PCB ASSY, MTR, CONT
3	7073070000	PCB ASSY, SY SC ON
4	7073078000	PCB ASSY, TIMECODE

**M490**

1		M490 WHOLE UNIT
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**INTERFACE CABLE ASSY**

1	7076350001	PMT, CONTROL DSUB 25 (5m)
2	7076351001	AUDIO MULTI 14 PIN (5m)
9	7076043000	DC POWER, 16 PIN
10	7076041000	AUDIO MULTI, 50 PIN
11	7076042000	PMT, CONTRL, DSUB 9 PIN
12	7076040000	AUDIO MULTI, 24 PIN

**OTHERS**

1	7044003000	FLOPPY DISK DRIVE ASSY
2	7044005000	HARD DISK DRIVE ASSY