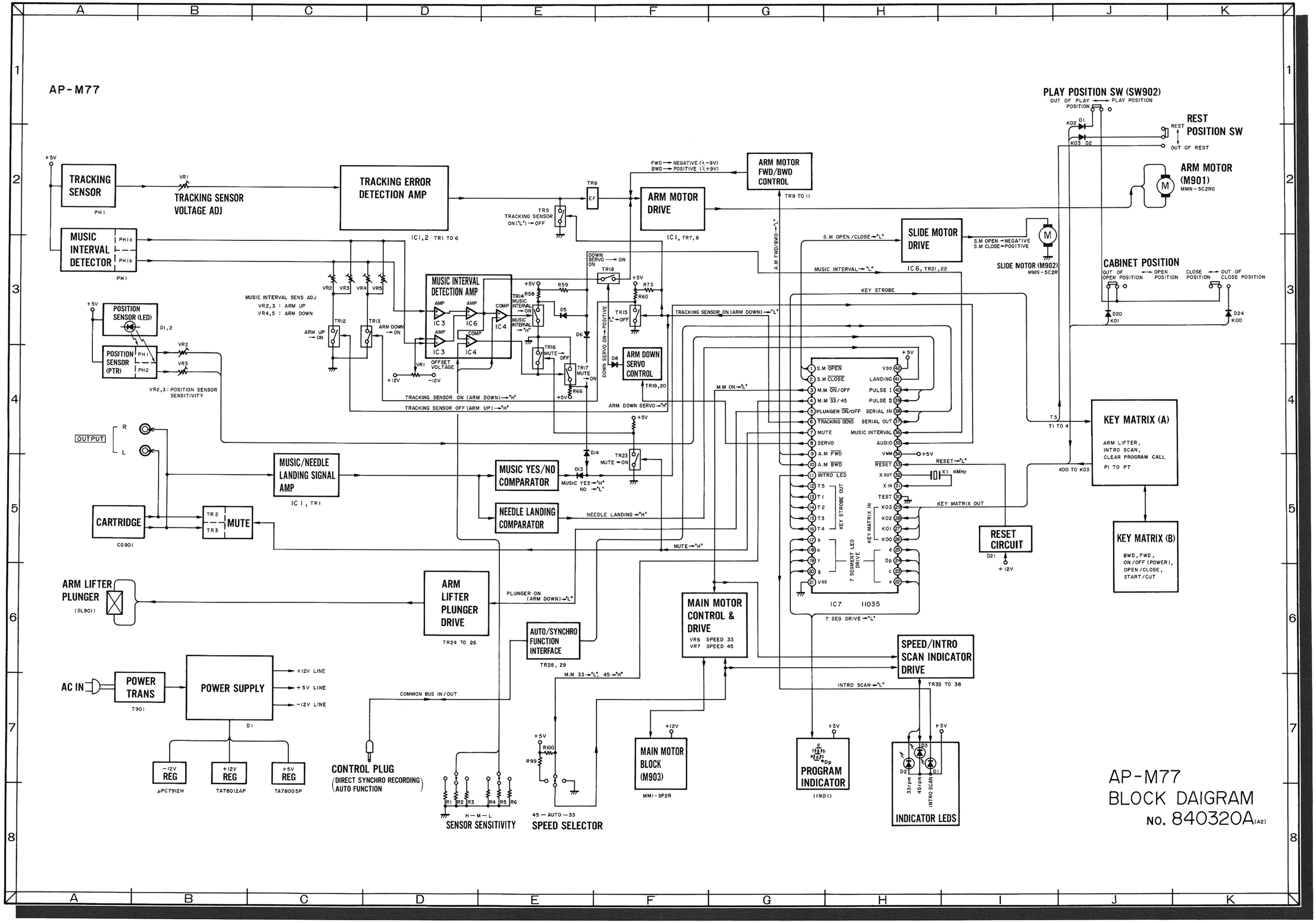
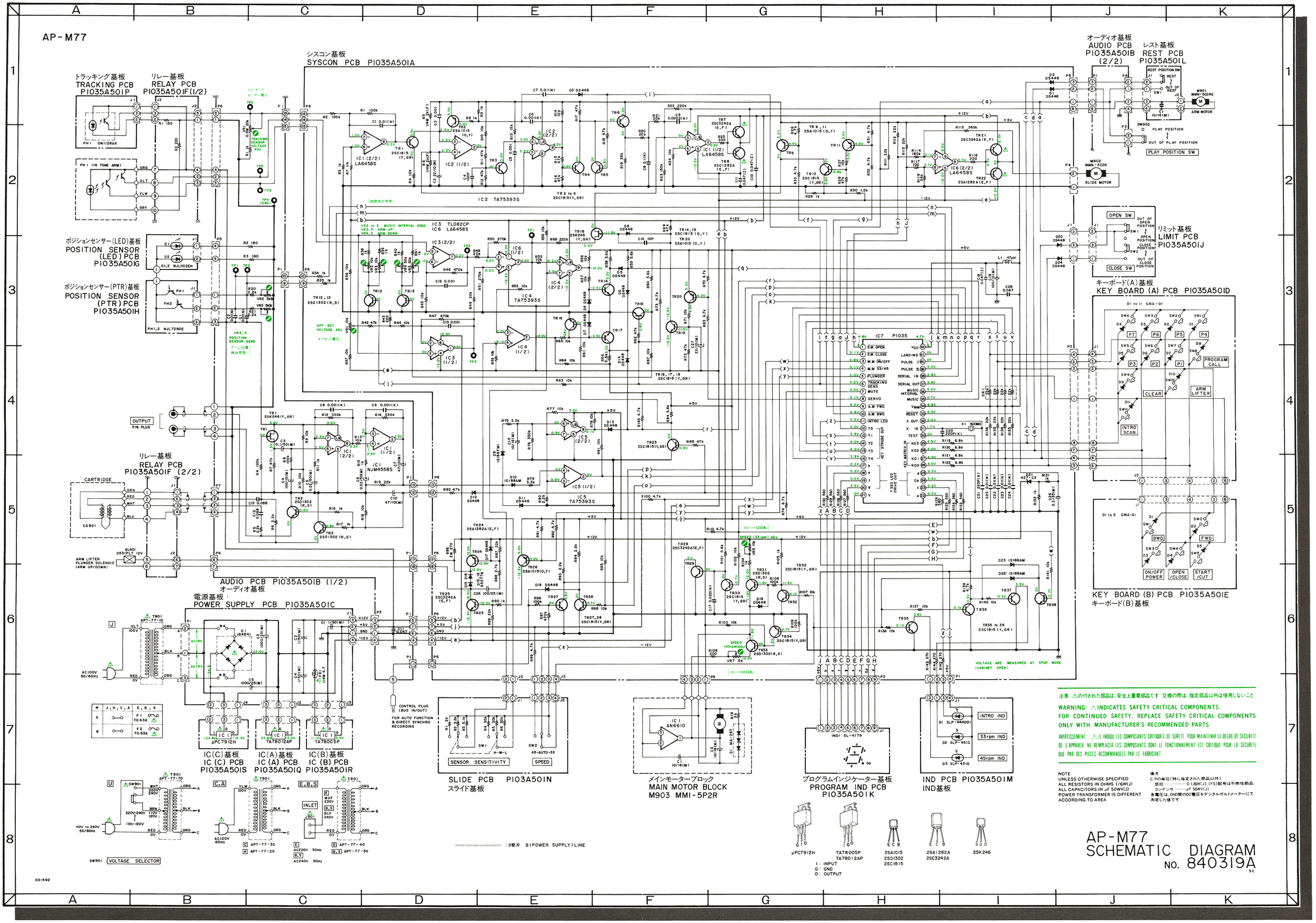
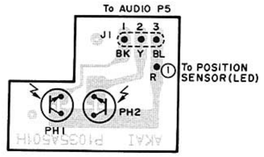
AKAI

MODEL AP-M77

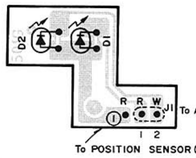
P.C BOARDS
SCHEMATIC DIAGRAM


AP-M77
TRACKING SENSOR
PH1
TRACKING SENSOR VOLTAGE ADJ
TRACKING ERROR DETECTION AMP
IC1,2 TR1 TO 6
MUSIC INTERVAL DETECTOR
PH1a
PH1b
PH1
ARM MOTOR FWD/BWD CONTROL
FWD → NEGATIVE (≒-9V)
BWD → POSITIVE (≒+9V)
TR9 TO 11
ARM MOTOR DRIVE
IC1, TR7,8
TR5 TRACKING SENSOR ON ("L") → OFF
TR6
EF
PLAY POSITION SW (SW902)
OUT OF PLAY POSITION ← PLAY POSITION
REST POSITION SW
REST
OUT OF REST
ARM MOTOR (M901)
MMN-5C2RG
SLIDE MOTOR DRIVE
IC6, TR21,22
S.M OPEN/CLOSE → "L"
S.M OPEN → NEGATIVE
S.M CLOSE → POSITIVE
SLIDE MOTOR (M902)
MMN-5C2R
CABINET POSITION
OUT OF OPEN POSITION ← OPEN POSITION
CLOSE POSITION ← OUT OF CLOSE POSITION
D20
K01
D24
K00
MUSIC INTERVAL → "L"
KEY STROBE
A.M FWD/BWD → "L"
MUSIC INTERVAL SENS ADJ
VR2,3 : ARM UP
VR4,5 : ARM DOWN
MUSIC INTERVAL DETECTION AMP
IC3
IC6
IC4
OFFSET VOLTAGE
DOWN SERVO ON → ON
TR18
TR14 MUSIC INTERVAL → ON
MUSIC INTERVAL → "H"
TR16 MUTE → OFF
TR17 MUTE → ON
TR15 "L" → OFF
DOWN SERVO ON → POSITIVE
ARM DOWN SERVO CONTROL
TR19,20
TRACKING SENSOR ON (ARM DOWN) → "L"
TRACKING SENSOR ON (ARM DOWN) → "H"
TRACKING SENSOR OFF (ARM UP) → "H"
ARM DOWN SERVO → "H"
ARM UP → ON
ARM DOWN → ON
POSITION SENSOR (LED)
D1,2
POSITION SENSOR (PTR)
VR2,3 : POSITION SENSOR SENSITIVITY
OUTPUT
R
L
M.M ON → "L"
S.M OPEN
S.M CLOSE
M.M ON/OFF
M.M 33/45
PLUNGER ON/OFF
TRACKING SENS
MUTE
SERVO
A.M FWD
A.M BWD
INTRO LED
T5
T1
T2
T3
T4
KEY STROBE OUT
KEY MATRIX IN
7 SEGMENT LED DRIVE
VSS
VDD
LANDING
PULSE I
PULSE II
SERIAL IN
SERIAL OUT
MUSIC INTERVAL
AUDIO
VMM
RESET
X OUT
X IN
TEST
K03
K02
K01
K00
IC7 11035
7 SEG DRIVE → "L"
RESET → "L"
X1 4MHz
KEY MATRIX OUT
RESET CIRCUIT
D21
+12V
T5
T1 TO 4
K00 TO K03
KEY MATRIX (A)
ARM LIFTER, INTRO SCAN, CLEAR PROGRAM CALL
P1 TO P7
KEY MATRIX (B)
BWD, FWD, ON/OFF (POWER), OPEN/CLOSE, START/CUT
CARTRIDGE
CG901
TR2
TR3
MUTE
MUSIC/NEEDLE LANDING SIGNAL AMP
IC1, TR1
MUSIC YES/NO COMPARATOR
MUSIC YES → "H"
NO → "L"
TR23 MUTE → ON
D13
D14
NEEDLE LANDING COMPARATOR
NEEDLE LANDING → "H"
MUTE → "H"
ARM LIFTER PLUNGER
(SL901)
ARM LIFTER PLUNGER DRIVE
TR24 TO 26
PLUNGER ON (ARM DOWN) → "L"
AUTO/SYNCHRO FUNCTION INTERFACE
TR28, 29
M.M 33 → "L", 45 → "H"
MAIN MOTOR CONTROL & DRIVE
VR6 SPEED 33
VR7 SPEED 45
SPEED/INTRO SCAN INDICATOR DRIVE
TR35 TO 38
INTRO SCAN → "L"
AC IN
POWER TRANS
T901
POWER SUPPLY
D1
+12V LINE
+5V LINE
-12V LINE
-12V REG
μPC7912H
+12V REG
TA78012AP
+5V REG
TA78005P
COMMON BUS IN/OUT
CONTROL PLUG
(DIRECT SYNCHRO RECORDING AUTO FUNCTION)
R1 R2 R3 R4 R5 R6
H — M — L
SENSOR SENSITIVITY
R100
R99
45 — AUTO — 33
SPEED SELECTOR
MAIN MOTOR BLOCK (M903)
MM1-5P2R
PROGRAM INDICATOR
(IND1)
D2
D3
D1
33rpm
45rpm
INTRO SCAN
INDICATOR LEDS
AP-M77
BLOCK DAIGRAM
NO. 840320A(A2)

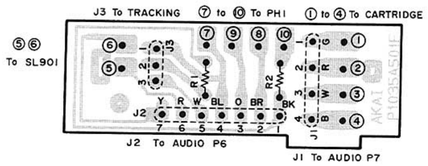

AP-M77
トラッキング基板
TRACKING PCB
P1035A501P
リレー基板
RELAY PCB
P1035A501F(1/2)
シスコン基板
SYSCON PCB P1035A501A
オーディオ基板
AUDIO PCB
P1035A501B
(2/2)
レスト基板
REST PCB
P1035A501L
ポジションセンサー(LED)基板
POSITION SENSOR
(LED) PCB
P1035A501G
ポジションセンサー(PTR)基板
POSITION SENSOR
(PTR) PCB
P1035A501H
リミット基板
LIMIT PCB
P1035A501J
キーボード(A)基板
KEY BOARD (A) PCB P1035A501D
リレー基板
RELAY PCB
P1035A501F (2/2)
AUDIO PCB P1035A501B (1/2)
オーディオ基板
電源基板
POWER SUPPLY PCB P1035A501C
IC(C)基板
IC (C) PCB
P1035A501S
IC(A)基板
IC (A) PCB
P1035A501Q
IC(B)基板
IC (B) PCB
P1035A501R
SLIDE PCB P103A501N
スライド基板
メインモーターブロック
MAIN MOTOR BLOCK
M903 MMI-5P2R
プログラムインジケーター基板
PROGRAM IND PCB
P1035A501K
IND PCB P1035A501M
IND基板
KEY BOARD (B) PCB P1035A501E
キーボード(B)基板
SLIDE MOTOR
ARM MOTOR
PLAY POSITION SW
OPEN SW
CLOSE SW
PROGRAM CALL
CLEAR
ARM LIFTER
INTRO SCAN
BWD
FWD
ON/OFF POWER
OPEN /CLOSE
START /CUT
CARTRIDGE
OUTPUT PIN PLUG
ARM LIFTER PLUNGER SOLENOID (ARM UP/DOWN)
CONTROL PLUG (BUS IN/OUT)
FOR AUTO FUNCTION & DIRECT SYNCHRO RECORDING
SENSOR SENSITIVITY
SPEED
INTRO IND
33rpm IND
45rpm IND
SW901 VOLTAGE SELECTOR
VOLTAGE ARE MEASURED AT STOP MODE (CABINET OPEN)
:B電源 B(POWER SUPPLY)LINE
注意：⚠の付された部品は、安全上重要部品です 交換の際は、指定部品以外は使用しないこと
WARNING: ⚠INDICATES SAFETY CRITICAL COMPONENTS.
FOR CONTINUED SAFETY, REPLACE SAFETY CRITICAL COMPONENTS ONLY WITH MANUFACTURER'S RECOMMENDED PARTS.
AVERTISSEMENT ⚠ IL INDIQUE LES COMPOSANTS CRITIQUES DE SURETE POUR MAINTENIR LE DEGRE DE SECURITE DE L'APPAREIL NE REMPLACER LES COMPOSANTS DONT LE FONCTIONNEMENT EST CRITIQUE POUR LA SECURITE QUE PAR DES PIECES RECOMMANDEES PAR LE FABRICANT
NOTE
UNLESS OTHERWISE SPECIFIED
ALL RESISTORS IN OHMS 1/6W(J)
ALL CAPACITORS IN μF 50WV(J)
POWER TRANSFORMER IS DIFFERENT ACCORDING TO AREA
備考
C, Rの単位(特に指定された部品以外)
抵抗……Ω 1/6W(J), (F)記号は不燃性部品
コンデンサ……μF 50WV(J)
各電圧は、GND間のDC電圧をデジタルボルトメーターにて測定した値です
AP-M77
SCHEMATIC DIAGRAM
NO. 840319A
3C
001492



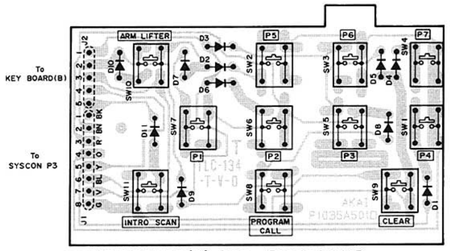
ポジションセンサー(PTR)基板
POSITION SENSOR(PTR) PCB
P1035A501H



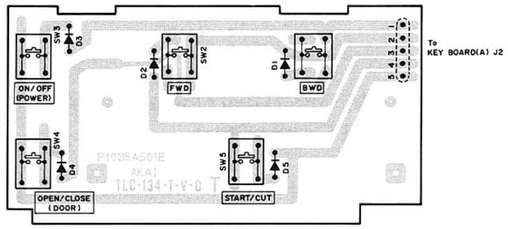
ポジションセンサー(LED)基板
POSITION SENSOR(LED) PCB
P1035A501G



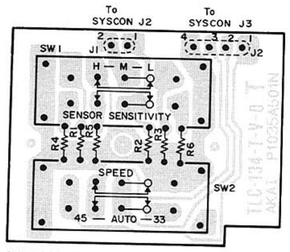
RELAY PCB P1035A501F
リレー基板



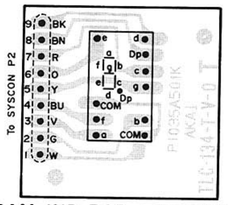
KEY BOARD(A) PCB P1035A501D
キーボード(A)基板



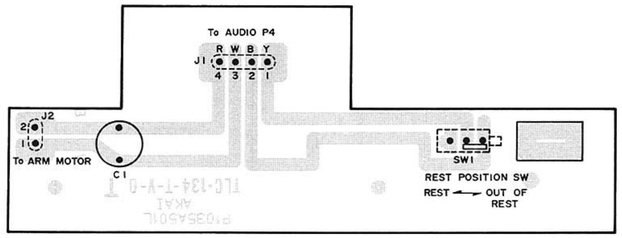
KEY BOARD(B) PCB P1035A501E
キーボード(B)基板



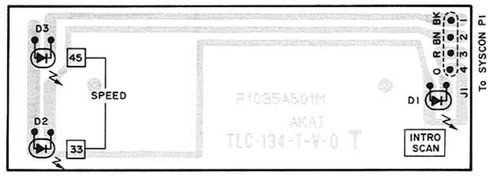
SLIDE PCB P1035A501N
スライド基板



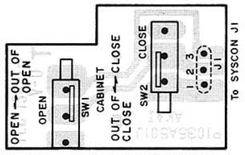
PROGRAM IND PCB P1035A501K
プログラムインジケーター基板



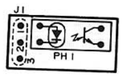
REST PCB P1035A501L
レスト基板



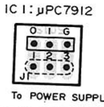
IND PCB P1035A501M
IND基板



LIMIT PCB P1035A501J
リミット基板



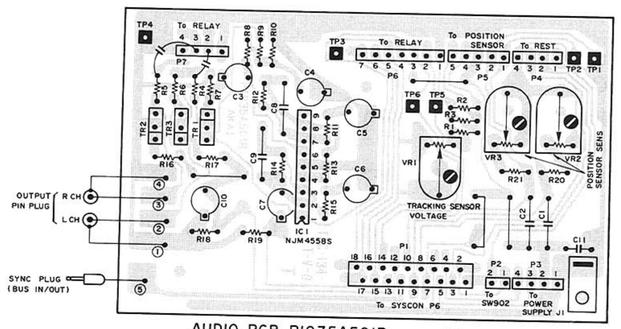
TRACKING PCB P1035A501P
トラッキング基板



IC(C) PCB P1035A501S
IC(C)基板

IC(A) PCB P1035A501Q
IC(A)基板

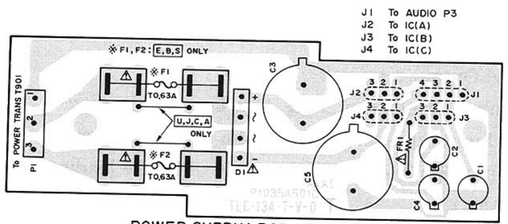
IC(B) PCB P1035A501R
IC(B)基板



AUDIO PCB P1035A501B
オーディオ基板

TR1 ----------2SK246(Y,GR)
TR2,3---------2SD1302(R,S)

2SD1302 2SK246



POWER SUPPLY PCB P1035A501C
電源基板

A B C D

1 2 3

TR1, 3to6,10,14to17,19
23,27,28,30,32,34to38-----2SC1815(Y,GR)
TR2,9,11----------2SA1015(O,Y)
TR7,21,25,29----------2SC3242A(E,F)
TR8,22,24----------2SA1282A(E,F)
TR12,13,31,33----------2SD1302(R,S)
TR18----------2SK246(Y,GR)

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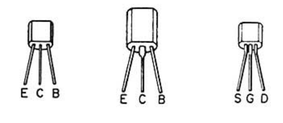
B = NPN TRANSISTOR
B = PNP TRANSISTOR



2SA1015 2SA1282A 2SK246
2SD1302 2SC3242A
2SC1815

LOCATION OF COMPONENTS

〈IC〉

IC1--------B1
IC2---------A2
IC3--------C1
IC4--------B2
IC5-------- B3
IC6--------C1
IC7--------C3

〈TR〉

TR1-------A2
TR2-------A2
TR3-------A3
TR4------B1
TR5-------B2
TR6-------B1
TR7-------B1
TR8-------B1
TR9------ C2
TR10------C2
TR11------C2
TR12-------C2
TR13------C2
TR14------B2
TR15-------B2
TR16-------B2
TR17-------B2
TR18-------C2
TR19-------C2
TR20------C2
TR21------C1
TR22-------C1
TR23------B2
TR24------B3
TR25-------B3
TR26------ B3
TR27------C3
TR28-------C3
TR29-------C1
TR30-------C1
TR31-------C1
TR32-------C1
TR33-------C1
TR34-------C1
TR35-------D2
TR36-------D2
TR37-------D2
TR38-------D2

〈TERMINAL〉

P1--------D2
P2--------D3
P3--------D3
P4--------B1
P5--------B1
P6--------A3
J1---------D2
J2---------B2
J3---------D2

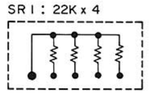
〈VOLUME〉

VR1-------D2
VR2-------D2
VR3-------D2
VR4-------D2
VR5-------D2
VR6-------D1
VR7-------D1

〈TEST POINT〉

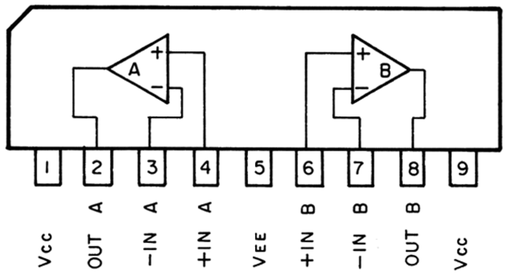
TP1-------D1
TP2------D1
TP3------D1

SR1: 22K x 4

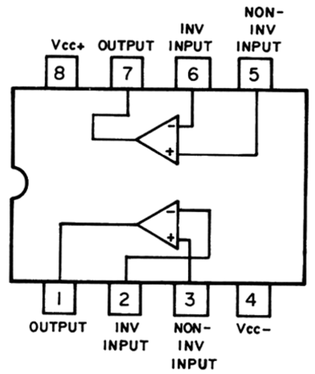


SYSTEM CONTROL PCB P1035A501A
システムコントロール基板

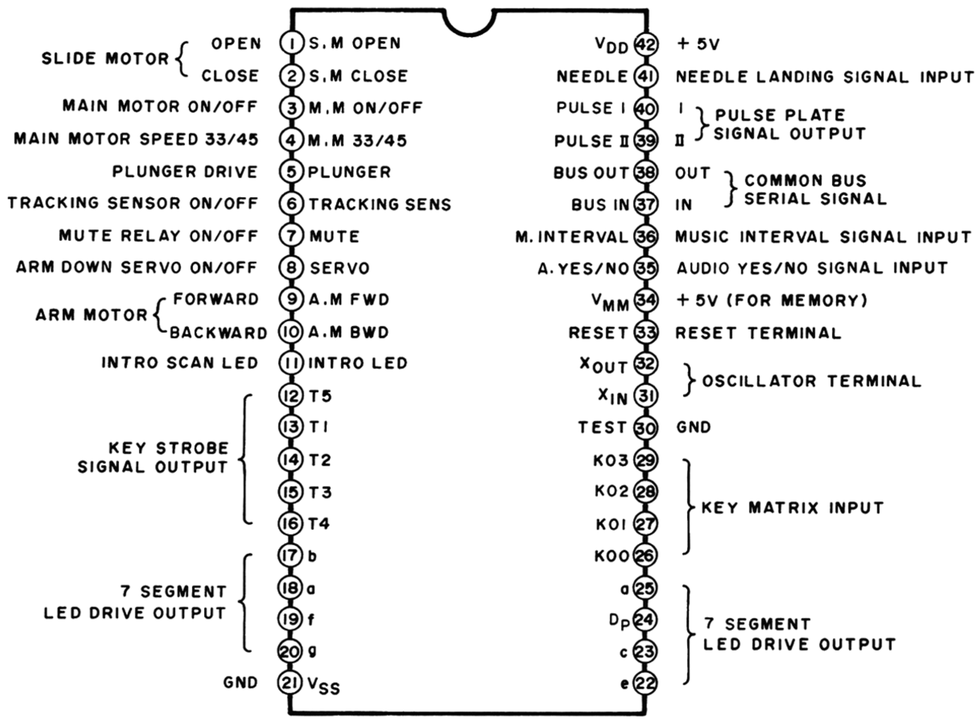
LA6458S, NJM4558S (Dual Operational Amp)
TA75393S (Dual Comparator)



TL082CP



P1035



TERMINAL DESCRIPTION OF IC P1035 (4 Bit Micro Computer)

Pin No.	Symbol	Description
1	$\overline{\text{SM OPEN}}$	Slide Motor (M902) OPEN Drive output. SM starts turning and opens the cabinet at "L".
2	$\overline{\text{SM CLOSE}}$	Slide Motor (M902) CLOSE Drive output. SM starts turning and closes the cabinet at "L"
3	MM $\overline{\text{ON}}$/OFF	Main Motor (M903) ON/OFF Drive output. MM is ON at "L", OFF at "H".
4	$\overline{33}$/45	Main Motor Speed (33/45) Selection output. 33 rpm at "L", 45 rpm at "H".
5	PLUNGER	Arm Lifter Plunger (SL901) Drive output. Active at "L".
6	$\overline{\text{TRACKING SENS}}$	Tracking Sensor ON/OFF Control output. ON at "L", OFF at "H".
7	MUTE	Mute ON/OFF Control output. ON at "H", OFF at "L".
8	SERVO	Arm Down Servo Drive output. Servo is ON at "H", OFF at "L".
9	$\overline{\text{AM FWD}}$	Arm Motor (M901) Forward Drive output. AM turns forward (Tone arm to the left) at "L".
10	$\overline{\text{AM BWD}}$	Arm Motor (M901) Backward Drive output. AM turns backward (Tone arm to the right) at "L".
11	$\overline{\text{INTRO LED}}$	Intro Scan LED Drive output, lit at "L".
12	T5	Key Strobe Signal output terminal for the mechanical switches such as CLOSE, OPEN, PLAY & REST switches.
13	T1	Key Strobe Signal output terminal for the tact switches such as START/CUT, OPEN/CLOSE, POWER ON/OFF, & INTRO SCAN switches.
14	T2	Key Strobe Signal output terminal for the tact switches such as FWD, BWD, CUE (ARM LIFTER) & CLEAR switches.
15	T3	Key Strobe Signal output terminal for the tact switches such as PROGRAM CALL, 1, 2, & 3 switches.
16	T4	Key Strobe Signal output terminal for the tact switches such as 4, 5, 6 & 7 switches.
17	b	7 Segment LED Drive output, lit at "L".
18	a	
19	f	
20	g	
21	Vss	Connect to GND.
22	e	7 Segment LED Drive output, lit at "L".
23	c	
24	Dp	
25	d	
26	K00	Key Matrix Input terminal for the switches switch as 4, PROGRAM CALL, FWD, START/CLOSE & CLOSE.
27	K01	Key Matrix Input terminal for the switches such as 1, 5, CUE (ARM LIFTER), OPEN/CLOSE & OPEN.
28	K02	Key Matrix Input terminal for the switches such as 2, 6, BWD, POWER (ON/OFF) & PLAY.
29	K03	Key Matrix Input terminal for the switches, such as 3, 7, CLEAR, INTRO SCAN & REST.
30	TEST	Connect to GND.
31	X IN	Crystal Oscillator Terminal.
32	X OUT	Crystal Oscillator Terminal.
33	$\overline{\text{RESET}}$	Reset Signal Input Terminal, Reset at "L".
34	V_{MM}	Connected to +5V for memory.
35	MUSIC	Music (Audio) YES/NO Signal Input terminal.
36	MI	Music Internal Signal Input terminal.
37	BUS IN	Common Bus Serial Signal Input terminal.
38	BUS OUT	Common Bus Serial Signal Output terminal.
39	PULSE II	Pulse Plate Slave Signal Input terminal for Tone Arm Location Sensing.
40	PULSE I	Pulse Plate Master Signal Input terminal for Tone Arm Location Sensing.
41	NEEDLE	Needle Landing Signal Input terminal for the detection of needle landing.
42	V_{DD}	Power Supply terminal (+5V).