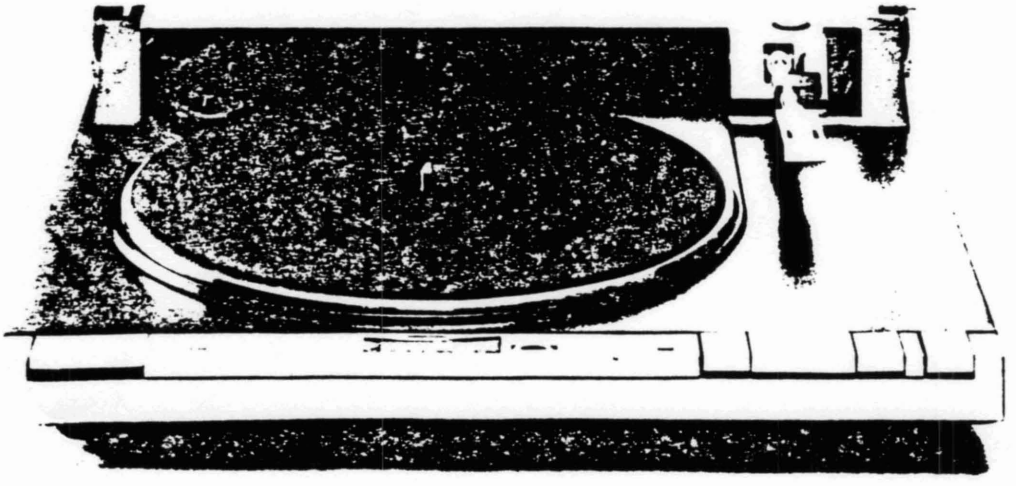
SERVICE MANUAL

PX-101

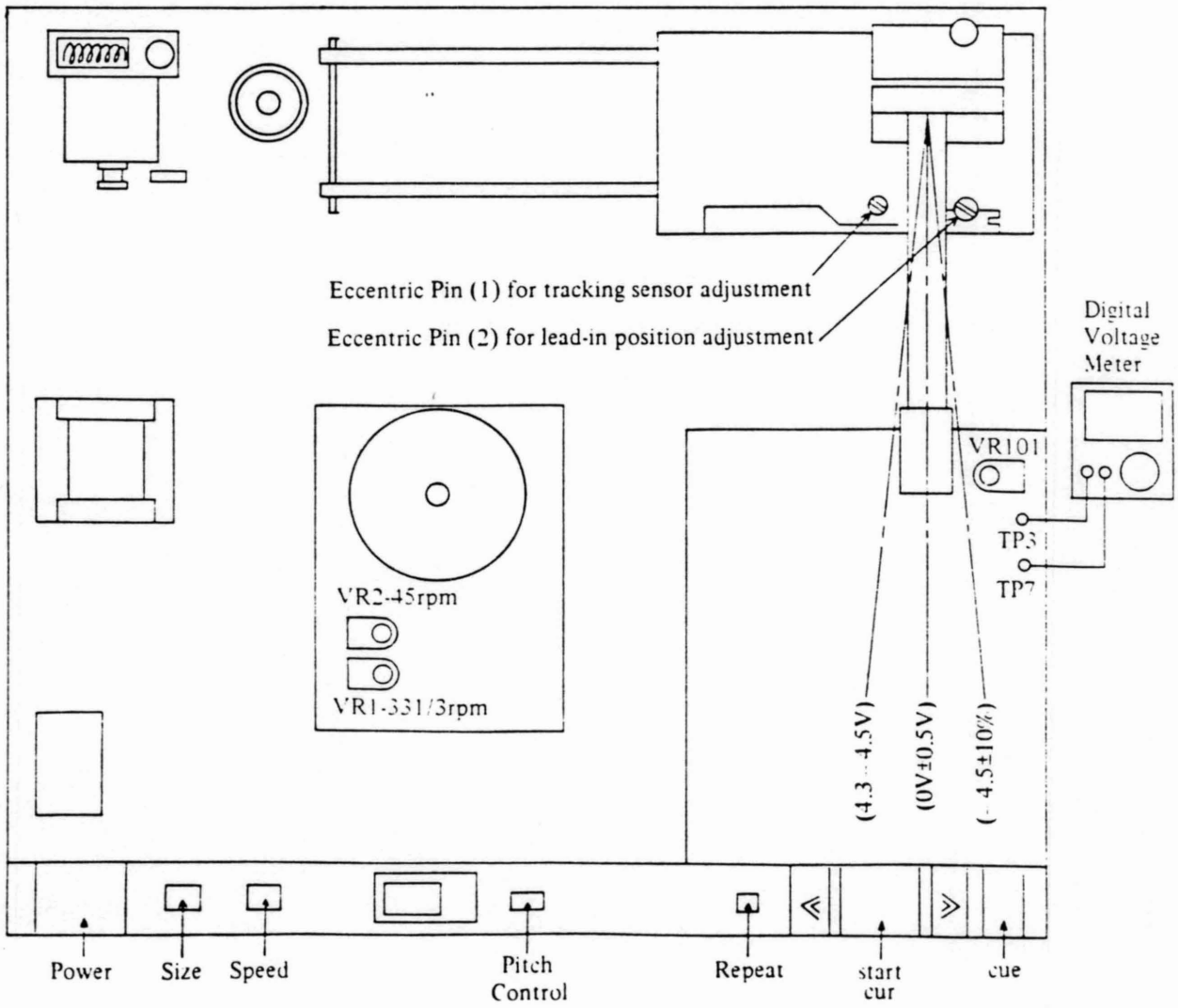
Fully Automatic Tangential Tracking Turntable



PX-T07

Contents

Adjustment Locations



Adjustment Procedures

1. Adjustment of Tracking Sensor
   a. Set the digital voltage meter to DC 20V range.
      Connect + pin to TP3, and - pin to TP7.
   b. Adjust the VR101 so that voltage becomes 4.3-4.5V when the tonearm is swung to left side end by hand.

      (Voltage gradually increases + by rotating the VR101 to clockwise direction)
   c. Move the tonearm inward so that the main motor starts rotation.
      Then lower the tonearm by cue switch.
      Adjust the eccentric pin (1) left side, on the tonearm base so that voltage becomes 0V$\pm$0.5V.

      (Voltage increases + by rotating the eccentric pin to clockwise direction)

   d. Lift the tonearm by cue switch.
      Check that voltage deviation should be within 0.5V against voltage of above c. (0V$\pm$0.5V).

2. Adjustment of lead-in position.
   a. The tonearm should perform lead-in motion and descend at 30cm position by pushing the start switch on with setting size selector to 30cm.
   b. For a dislocation of the descending position.
      Adjust the eccentric shaft (2) on the tonearm base so that lead-in position enters within the following figures.

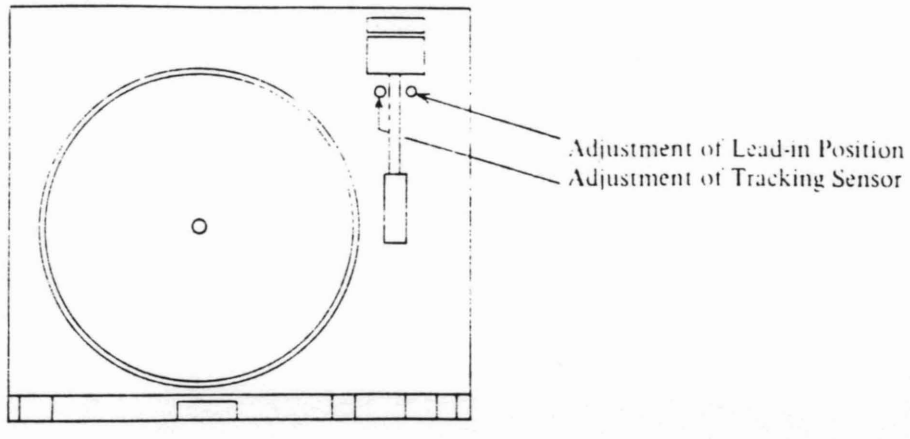
      30cm. Lead-in count : 8-28 count (Test record NEC ES-1008)
      Descending position: 148mm-146mm (from main motor shaft)
      17cm. Lead-in count : 16-33 count
      Descending position: 85.5mm-83.8mm
      The same adjustment procedure as that for 30cm should be taken for 17cm.

      (Lead-in position moves gradually outward by rotating the eccentric pin (2) to clockwise direction)

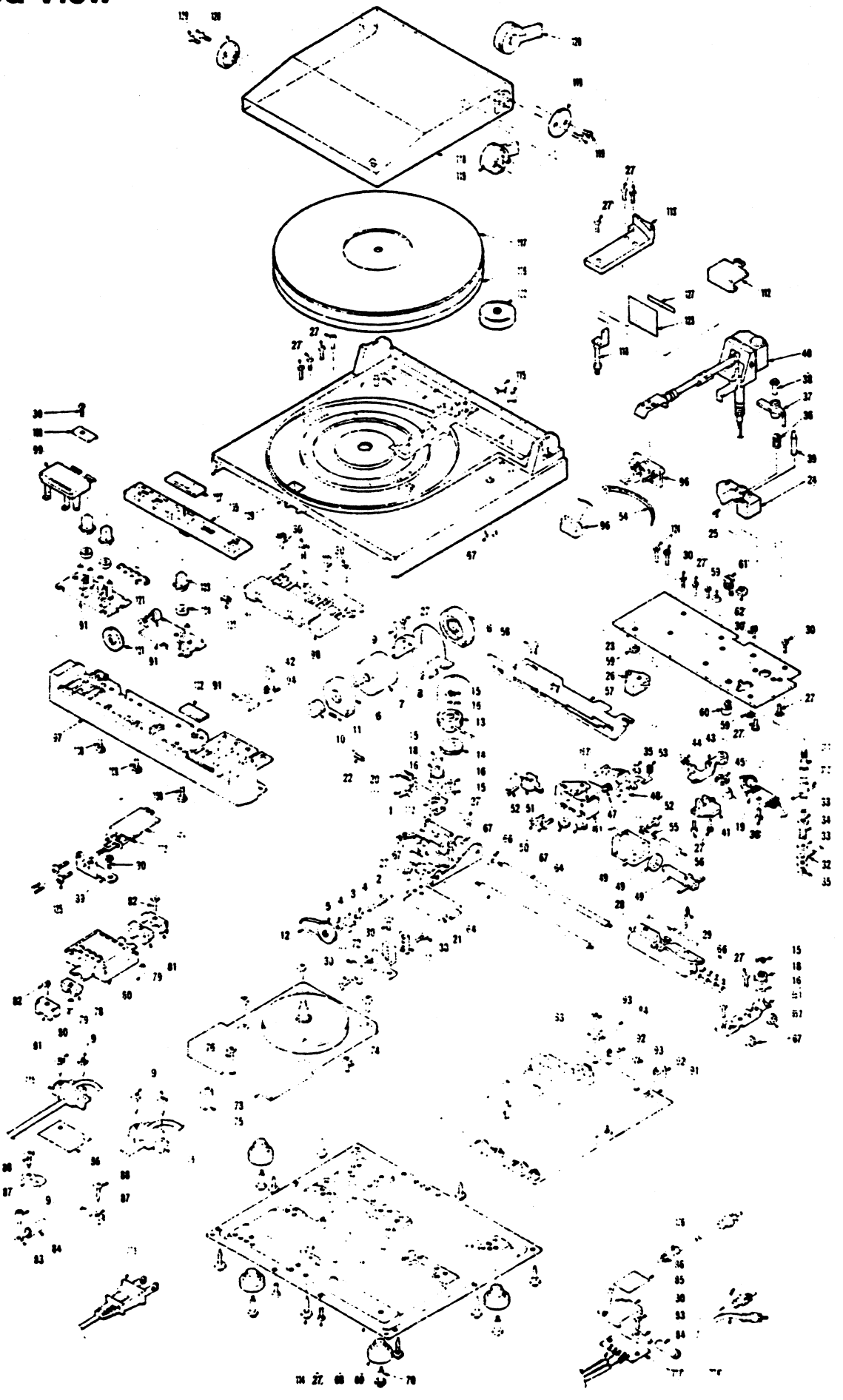
3. Adjustment of speed of direct drive motor.

   Set the speed to 45 rpm and adjust a semi-fixed resistor VR1 so that the appropriate set of bars for 45 rpm becomes stationary.
   Then set the speed to 33-1/3 rpm and proceed the same adjustment as that for 45 rpm by adjusting a semi-fixed resistor VR2.

   (Speed fast by rotating the semi-fixed resistors clockwise direction from the reverse side)



Exploded View



Exploded View Parts List

Remarks: Stock No...Important parts in stock

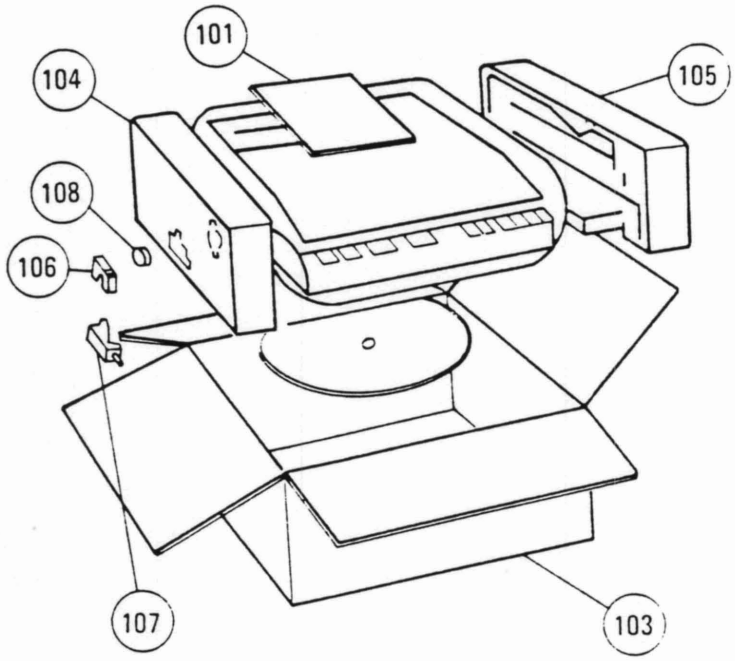
Symbol No.	Stock No.	Part No.	Description
1		911619-1	Mecha. Angle Ass'y
2	UOQ0017	911597	Worm Ass'y
3	UZQ0023	897675	Bearing (1)
4	YWQ0001	YP2104005	Polyslider Wsr. 2.1x4x0.5
5	BXQ0005	897677	Pulley (2)
6	UZQ0024	873145-1	Motor Rubber
7	AMQ0005	706443	Motor Ass'y DML-148U-51S1
8	URQ0004	911354	Motor Holder
9		Y09300602	Scr. TPT +3x6
10	BXQ0004	897813	Pulley (1)
11		Y13200301	Scr. FT -2x3
12	UZQ0025	911598	Belt
13	BXQ0007	911328-1	Drum Pulley
14	UOQ0018	911327	Worm Wheel
15		Y34000301	E Ring E-3
16	YWQ0002	YP4610005	Polyslider Wsr. 4.6x1x0.5
17	UZQ0020	911600	Pulley Angle Ass'y (1)
17-1		911332	Pulley Angle
17-2		911535	Pulley Shaft
18	BXQ0006	911329	Pulley
19	PCQ0020	911606	T Sensor PCB
20	UUQ0009	911601	Spring
21	UNQ0011	911355	Rubber Plate
22	YZQ0103	Y21301601	Scr. FM Hexagon 3x16
23		873168-1	PU Chassis
24	WZQ0029	911418	PU Base
25	YZQ0104	Y13300401	Scr. FT -3x4
26	UZQ0027	911417	Guide
27	YZQ0113	Y10300801	Scr. +3x8
28	UTQ0001	911762	Guide Pipe Ass'y
29	UZQ0028	911515-1	Wire Rope Ass'y
30		Y10300601	Scr. +3x6
31	UZQ0029	911820	EL Shaft Ass'y (1)
31-1		911819	EL Shaft
31-2		Y42161601	Spring Pin 1.6ø
32		910075-2	Earth Lead Ass'y
33		912113	BS Washer
34	UUQ0013	910073	Spring
35		Y3400201	E Ring E-2
36	UUQ0014	287680	Cam Spring
37	WZQ0030	912381	EL Plate
38	YZQ0105	911822	EL Nut
39	UZQ0030	911825	Lock Shaft
40	WZQ0031	852818	PU Ass'y
41	APQ0016	911999	T Sensor Ass'y (1)
42	YZQ0106	Y10301801	Scr. BT3x18
43	UZQ0031	911351	T Sensor Holder
44	UUQ0010	911609	Spring
45	YWQ0003	Y93500020	CS Ring
46	UZQ0032	911611	Solenoind Angle Ass'y
46-1		911331	Solenoid Angle
46-2		899992	Shaft
47	UUQ0011	911521	Twist Coil Spring
48	UZQ0033	911333-1	EL Lever
49	AYQ0006	911612-1	Solenoid Ass'y
50		Y01300404	Scr. TP +3x4

Symbol No.	Stock No.	Part No.	Description
51	SPQ0018	911667-1	Leaf Switch Ass'y
52		Y01300501	Scr. FM +3x5
53	UUQ0012	911826	Spring
54		894408	Wire Fastener
55		888750	Lug
56		U01200353	UL Tube
57	URQ0005	911420	Slit Plate
58	YZQ0107	911827	Guide Pin
59		Y34000302	C Ring
60	YZQ0108	911997	Eccentric Pin
61	YZQ0109	911828	Eccentric Pin
62	YZQ0110	Y34000501	E Ring E-5
64	UZQ0034	911603	Guide Bar
65	UZQ0035	911823	Guide Angle Ass'y (1)
65-1		911421	Guide Angle
65-2		911535	Pulley Shaft
66	YWQ0004	911646	Rubber Washer
67		Y22000301	Flange Nut M3
68	UEQ0005	852833	Main Chassis Ass'y(1)
69	WNQ0004	911520-1	Foot
70	YZQ0111	911634	Special Screw
71	APQ0017	911658-1	Sensor PCB Ass'y
71-1	TCQ0025	911605	Sensor PCB
71-2	TCQ0025	911605	Sensor PCB
72	UZQ0036	911346	Sensor Holder
73	AMQ0006	632171	Motor Ass'y
74		Y01401002	Scr. FM +4x10
75	UZQ0037	912758	PC Support
76		Y10303501	Scr. BT +3x25
77	PCQ0021	873525	PWH PCB Ass'y (U)
	PCQ0022	873264	PWH PCB Ass'y (AK)
77-1	PCQ0024	911593A	PWH PCB
77-2	SPQ0019	910673-2	Power Switch (U)
	SPQ0020	910673	Power Switch (AK)
77-3		892435-1	Power Cord Ass'y
		895617-1	Power Cord Ass'y (AK)
77-4	BKQ0006	871474	Shield Wire Ass'y
77-5	BUQ0001	912509	Cord Stopper (1) (U)
	BUQ0003	911362	Cord Stopper (AK)
77-6	BUQ0002	912594	Cord Stopper (2) (U)
	BUQ0003	911362	Cord Stopper (2) (AK)
77-7	PCQ0023	911593B	PWH PCB
78	PTQ0019	873526-1	Trans. Ass'y(U)
	PTQ0020	873593	Trans Ass'y (A)
79	UZQ0038	911348	Trans Rubber
80	UTQ0002	Y99000402	Pipe Spacer
81	UZQ0039	911349	Trans Holder
82		Y10402002	Scr. CT +4x20
83		890755	Lug
84		U10300602	UL Tube (Black)
85	CJQ0004	911554	Shield Cover
86		Z70300302	UL Tape
87		811466	Nylon Clip
88		Y09300801	Scr. TPT +3x8
89		912874	Power Switch Bracket

Symbol No.	Stock No.	Part No.	Description
90			Scr. TP +3x6
91	PCQ0023	632213	Control Circuit Ass'y
92	UZQ0040	911344-2	PC Support
93		Y10302201	Scr. BT +3x22
94	UZQ0041	911344	PC Support
95		Y1030181	Scr. BT +3x18
96	ASQ0010	912991	Jack Plate Ass'y
97	WAQ0010	849186	Front Panel (1)
98	WHQ0001	912940	Operation Button Ass'y
99	WHQ0002	912985	Power Switch Ass'y
100	UZQ0042	911408	Power Button ANG
101	WJQ0010	910568-1	Volume Knob
102	UMQ0005	898529-4	Mirrow
103	WJQ0011	912850	Button
104	UWQ0003	912900	Rubber
105	WAQ0011	852804	Front Panel (2)
106			Non Use
107	WEQ0016	912851	Strobo Window

Symbol No.	Stock No.	Part No.	Description
108		Y10301201	Scr. BT +3x12
109	WAQ0012	849206	Cabinet
110	WZQ0032	911380-1	Rest Stand
111		911530	Cabinet Shield (2)
112	WEQ0017	912846	Cabinet Cover (1)
113	WEQ0018	912847	Cabinet Cover (2)
114	YZQ0112		Scr. TP +3x16
115	UZQ0043	911639	Hole Cover
116	UZQ0046	620100-2	Turn Table
117	WZQ0033	873562	TT Sheet
118	WZQ0205	852796	Dust Cover Ass'y
119	UZQ0044	911622-7	Hinge Ass'y
120	UZQ0045	911622-8	Hinge Ass'y
121	WEQ0019	912848	LED Cover
122	WZQ0302-2	890876	EP Adapter
123	WSQ0002	912986	Rated Label
124		Y10300803	Scr. CT 3x8
125			Scr. TP +3x6
126	BKQ0005	913093	Pin Plug Cord

Packing Material Parts List



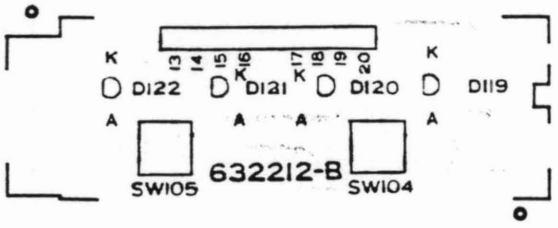
Symbol No.	Stock No.	Part No.	Description
101	ME0245	912988	Owner's Mnual
102	WZ1169	912989	Cartridge Spacer
103	XAQ0014	852817	Carton
104	XBQ0013	852816	Pad L
105	XBQ0014	852816	Pad R
106	WZQ0034		Main Weight
107	WZQ0035		Head Shell
108	WZQ0302B	890876	EP Adapter

U
- UZ(UC): 120V for USA
- UP(UQ): 120V for Canada

A
- AK : 220V for Europe, South-East Asia(Changeable 120V, 220V, 240V)
- AG : 240V for England, Australia, South-East Asia(Changeable 120V, 220V, 240V)
- AZ : 120V for South-East Asia (Changeable 120V, 220V, 240V)

Control PCB (B) Parts List

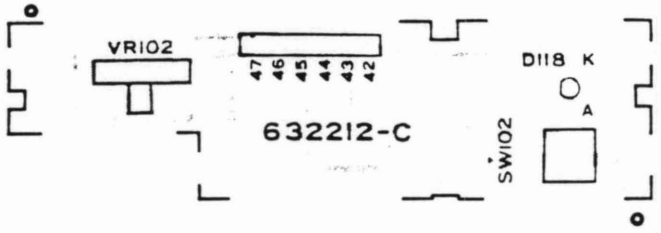
Control PCB (B)



Symbol No.	Stock No.	Part No.	Description
(Switch)			
SW104	SPQ0021	913004	Tact SW KEF10902 speed
SW105	SPQ0021	913004	Tact SW KEF10902 size
(LED)			
D119	TDQ0017	913015	LED SEL221 OR size 30(12")
D120	TDQ0017	913015	LED SEL221 OR size 17(7")
D121	TDQ0017	913015	LED SEL221 OR speed 33 1/3
D122	TDQ0017	913015	LED SEL221 OR speed 45

Control PCB (C) Parts List

Control PCB (C)

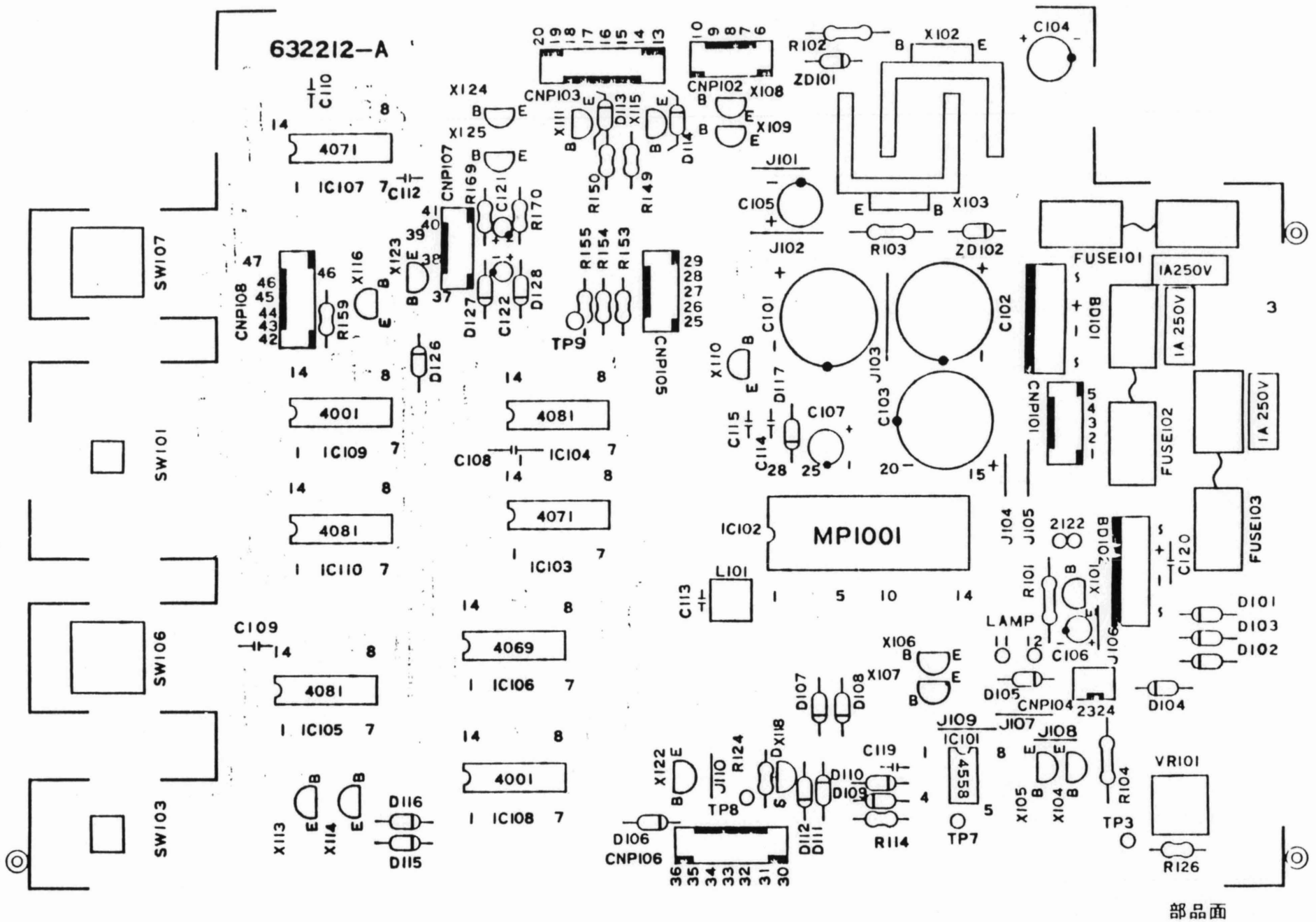


Symbol No.	Stock No.	Part No.	Description
(Switch)			
SW102	SP5034	911739	Tact SW KEC10901 repeat
(Variable Resistor)			
VR102	RVQ0005	910961-1	60KB Pitch Control
(LED)			
D118	TDQ0017	913015	LED SEL221 OR Repeat

Control PCB (D) Parts List

Control PCB (D)

Symbol No.	Stock No.	Description
(LED)		
D123	TD0232	EAA5534S Strobo
D124	TD0232	EAA5534S Strobo


632212-A
632212-A
SW107
SW101
SW106
SW103
C110
4071
IC107
C112
CNP108
R159
X116
X123
X124
X125
CNP107
R169
C121
R170
D127
C122
D128
D126
4001
IC109
4081
IC110
C108
4081
IC104
4071
IC103
C109
4081
IC105
4069
IC106
4001
IC108
X113
X114
D116
D115
CNP103
X111
D113
X115
D114
R150
R149
TP9
R155
R154
R153
CNP105
CNP102
X108
X109
R102
ZD101
X102
C104
JI01
C105
JI02
R103
ZD102
X103
FUSE101
1A250V
BD101
C101
C102
C103
J103
X110
D117
C115
C114
C107
CNP101
FUSE102
FUSE103
IC102
MP1001
L101
C113
J104
J105
2122
R101
X101
BD102
C120
LAMP
C106
D101
D103
D102
D105
D104
X106
X107
D107
D108
CNP104
2324
J109
J107
J108
IC101
4558
C119
D110
D109
R114
TP7
X105
X104
R104
TP3
VR101
R126
X122
JI10
R124
D118
TP8
D112
D111
D106
CNP106
部品面

Control PCB (A) Parts List

Remarks: Stock No...Important Parts in stock

Symbol No.	Stock No.	Part No.	Description
(Switch)			
SW101	SP5034	911739	Tact SW KEC10901 start/cut
SW103	SP5034	911739	Tact SW KEC10901 cue
SW106	SPQ0022	911740	2 Action Tact SW return
SW107	SPQ0022	911740	2 Action Tact SW forward
(Variable Resistor)			
VR101	RTQ0013	Z4060015	10KB 1/4W VZ083L1

Symbol No.	Stock No.	Part No.	Description
(Fuse Holder)			
	AH0028	893395	5 (S)
	AH0029	893395-1	6 (U)
(Fuse)			
Fuse101	BF0205	893791-1	T400mA (S)
	BF0075	704395-2	1A 250V 6ø (U)
Fuse102	BF0206	892171	T500mA 250V (S)
	BF0075	704395-2	1A 250V 6ø (U)
Fuse103	BF0206	892171	T500mA 250V (S)
	BF0075	704395-2	1A 250V 6ø (U)
(Coil)			
L101	LAQ0028	706295	400 kHz

Symbol No.	Stock No.	Description
(IC)		
IC101	TC5002	NJM4558D
	TC5006	or uPC4558C
		or RC4558P
		or uPC4557C
		or NJM4559D
IC102	TCQ0040	MP1001
IC103	TCQ0041	uPD4071C
		or uPD4071BC
		or MSM4071RS
IC104	TCQ0042	uPD4081C
		or uPD4081BC
		or MSM4081RS
IC105	TCQ0042	uPD4081C
		or uPD4081BC
		or MSM4081RS
IC106	TCQ0043	uPD4069UBC
		or MSM4069RS
IC107	TCQ0044	uPD4011BC
		or MSM4011RS
IC108	TCQ0045	uPD4001BC
		or MSM4001RS
IC109	TCQ0045	uPD4001BC
		or MSM4001RS
IC110	TCQ0042	uPD4081C
		or uPD4081BC
		or MSM4081RS
(Transistor & FET)		
X101		2SC923E,F
	TRQ4004	or 2SC828Q
	TR0029	or 2SC945P,Q,R
		or 2SC2785F,E,I,K
	TR0362	or 2SC1815Y,GR
	TR04017	or 2SC2308B,C
X102	TRQ5016	2SD882Q,P,E

Symbol No.	Stock No.	Description
		or 2SD612E,F
X103	TR0256	2SB772Q,P,E,
		or 2SB632E,F
X104	TR05016	2SD882Q,P,E
	TR0194	or 2SD667C,D
X105	TR0256	2SB772Q,P,E
	TR0195	or 2SB647C,D
X106	TR0194	2SD667D
-X107	TR0136	or 2SD571L,K
X108		2SC923E,F
-X116	TRQ4004	or 2SC828Q
	TR0029	or 2SC945P,Q,K
		or 2SC2785F,E,I,K
	TR362	or 2SC1815Y,GR
	TRQ4017	or 2SC2308B,C
X117	Non Use	
X118		2SK68L,K
	TF0016	or 2SK68A L,K
	TF0009	or 2SK106A,B
X119	Non Use	
X120	Non Use	
X121	Non Use	
X122		2SC923E,F
-X123	TRQ4004	or 2SC828Q
	TR0029	or 2SC945P,Q,K
		or 2SC2785F,E,I,K
	TR0362	or 2SC1815Y,GR
	TR04017	or 2SC2308B,C
X124	TR0043	2SA733K,P,Q
-X125		or 2SA1175H,F,E
	TR0087	2SA1015Y,GR
(Diode)		
D101		1SS53
	TD5012	or 1S953
		or 1S1588

Remarks: Resistor: Rd...Carbon, Rm...Metal Film,
Capacitor: El...Electrolytic, Ce...Ceramic,

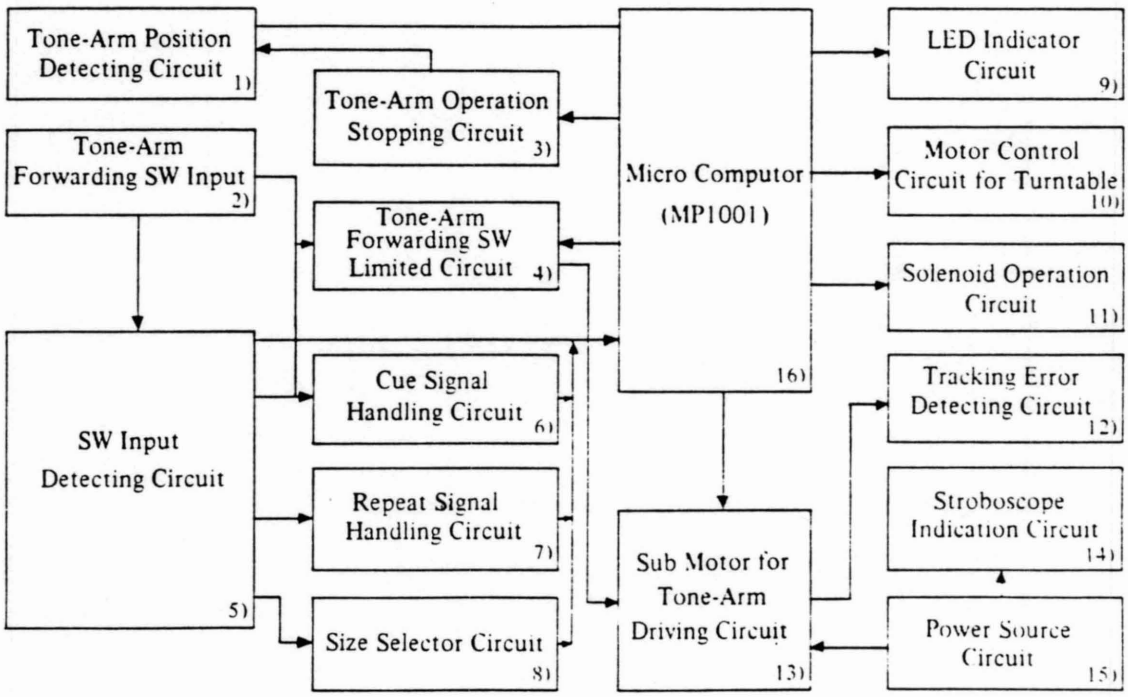
Symbol No.	Stock No.	Description
D102	TD5012	1SS53 or 1S953 or 1S1588
D103	TD5012	1SS53 or 1S953 or 1S1588
D104	TD5012	1SS53 or 1S953 or 1S1588
D105	TDQ0521	1S1887 or F14C or EM-1
D106	TDQ0521	1S1887 or F14C or EM-1
D107	TD5012	1SS53 or 1S953 or 1S1588
D108	TD5012	1SS53 or 1S953 or 1S1588
D109	TD5012	1SS53 or 1S953 or 1S1588
D110	TD5012	1SS53 or 1S953 or 1S1588
D111	TD5012	1SS53 or 1S953 or 1S1588
D112	TD5012	1SS53 or 1S953 or 1S1588
D113	TD5012	1SS53 or 1S953 or 1S1588
D114	TD5012	1SS53 or 1S953 or 1S1588
D115	TD5012	1SS53 or 1S953 or 1S1588
D116	TD5012	1SS53 or 1S953 or 1S1588
D117	TD5012	1SS53 or 1S953 or 1S1588
(Diode)		
BD101	TDQ0520	RB-151
BD102	TDQ0520	RB-150

Symbol No.	Stock No.	Description
(Capacitor)		
C101	CE0460	1000uF 35V El
C102	CE0836	1000uF 25V El
C103	CE0836	1000uF 25V El
C104	CE0443	100uF 16V El
C105	CE0443	100uF 16V El
C106	CE0129	10uF 25V El
C107	CE0346	3.3uF 50V El
C108	CK0140	0.047uF 50V Ce
C109	CK0109	470pF 50V Ce
C110	CK0138	0.01uF 50V Ce
C112	CK0138	0.01uF 50V Ce
C113	CK0138	0.01uF 50V Ce
C114	CK0138	0.01uF 50V Ce
C115	CK0138	0.01uF 50V Ce
C119	CK0138	0.01uF 50V Ce
C120	CK0142	0.1uF 50V Ce
C121	CE0786	1uF 50V El
C122	CE0786	1uF 50V El
C123	CE0817	10uF 16V El
C124	CE0817	10uF 16V El
C125		1uF 50V El
(Resistor)		
R101	RD2578	330 1/2W Rd
R102	RD2578	680 1/2W Rd
R103	RD2578	680 1/2W Rd
R104	RSQ0002	27 1W Rm
R114	RB0450	1.8M 1/4W Rd
R124	RB0450	1.8M 1/4W Rd
R126	RD2049	390 1/4W Rd
R149	RD0052	220 1/4W Rd
R150	RD0052	220 1/4W Rd
R153	RD0450	1.8M 1/4W Rd
R154	RD0450	1.8M 1/4W Rd
R155	RD0450	1.8M 1/4W Rd
R159	RD0052	220 1/4W Rd
R160	RD0043	1K 1/4W Rd
R161	RD0043	1K 1/4W Rd
R162	RD0030	10K 1/4W Rd
R163	RD0030	10K 1/4W Rd
R164	RD0030	10K 1/4W Rd
R165	RD0030	10K 1/4W Rd
R166	RD0030	10K 1/4W Rd
R167	RD0030	10K 1/4W Rd
R168	RD0030	10K 1/4W Rd
(Zener Diode)		
ZD101	TD5011	RD5.6EB2
ZD102	TD5011	RD5.6EB2
(Lamp Pilot)		
PL-01	AL00002	Lamp Pilot

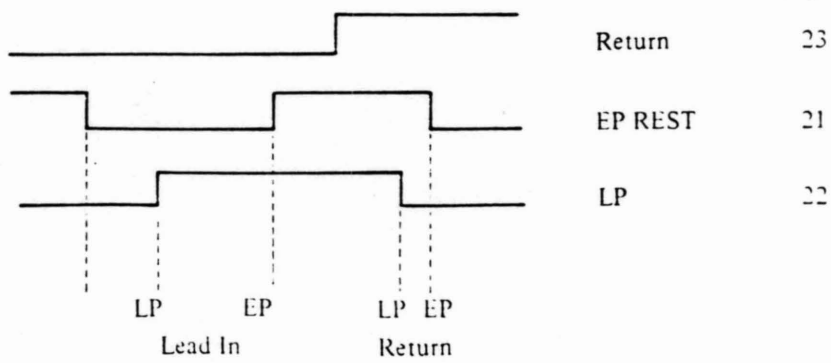
Control Circuit Operation

1. Operation
   This circuit is to control this turntable with judgement and order through the micro computor incorporated upon receipt of SW input and tone-arm positioning signal.

2. Block Diagram



1) Tone-arm Position Detecting Circuit
   is consisting of LED and a photo transistor and to convert tone-arm position to electric signal.



2) Tone-arm Forwarding SW Input
   Detects inside & outside forwarding and first forwarding signal by input through the 2-step SW.

3) Tone-arm Operation Stopping Circuit
In case that the Tone-arm Forwarding Sw is input while in automatic operation, this circuit makes tone-arm positioning signal rested compulsorily and automatic operation stopped.

* No. 11 pin of IC103 is H (+5V) when tone-arm forwarding signal is sent from the micro computor, except for which it is L (-5V).
* No. 3 pin of IC103 is H (+5V) when tone-arm forwarding signal is sent from the forwarding Sw, except for which it is L (-5V).
* When No. 3 pin of IC104 becomes H, tone-arm positioning signal to the micro computor comes to be REST (21-H, 22-L, 23-L) for a few micro seconds.

4) Tone-arm Forwarding Sw Limited Circuit
makes no forwarding signal to be sent until the tone-arm goes up.

* No. 4 pin of IC105 is H (+5V) while the tone-arm is up and L (-5V) while in play.

5) Sw Input Detecting Circuit
Outputs H (+5V) in compliance with Sw input. But in case that the forwarding Sw is used, this forbides input of Play/Cut, Cue and Repeat.

6) Cue Signal Handling Circuit
Makes the tone-arm up in compliance with tone-arm forwarding Sw input during play.

* No. 11 pin of IC108 is L (-5V) while the Forwarding Sw is being used. So, no other Sw input is possible when the Forwarding Sw is used.
* No. 4 pin of IC104 outputs H (+5V) upon forwarding Sw input during play.

7) Repeat Signal Handling Circuit
Makes impossible to accept repeat input during Cut operation.

* No. 10 pin of IC108 is H (+5V) when the tone-arm is kept up and not operated (viz. at the arm-rest), except for which it is L (-5V).
* No. 18 pin of the micro computor (MP1001) is H (+5V) during Play operation, and is L (-5V) during Cut operation
* No. 3 pin of IC108 is H (+5V) only in Cut operation, and is L (-5V) in Repeat operation.

8) Size Selector Circuit
Functions to select disc size according to Sw input and forbides input of disc size change during play.

* IC107 composes T-shape flip-flop and turns over output (No. 3 & 4 pins) whenever input (No. 2 & 6 pins) becomes H (+5V).
* When No. 6 pin of the micro computor is H (+5V), it is judged to be LP (30cm), and EP (17cm) in case of L (-5V).
* No. 10 pin of IC105 follows Size Sw input only when the tone-arm is kept up, but in down position it is L (-5V).
* Pulse input is given to No. 9 & 12 pins of IC107 whenever No. 10 pin of IC105 becomes H (+5V).
* The initial value of flip-flop is set up by R131.

9) LED Indicator Circuit
Changes LED indication depending on output of the micro computor (MP1001).

1. ON/OFF Indication

* When No. 17 pin of the micro computor (MP1001) is H (+5V), X116 becomes ON and LED (D118) lights up.

2. Change Indication

* When No. 20 pin of the micro computor (MP1001) is H (+5V), X112 becomes ON and D119 lights up.
* When No. 20 pin of the micro computor (MP1001) is L (open), X111 becomes OFF and D119 is turned off. In this case D113 becomes ON and D120 lights up.
* No. 20 pin of MP1001 is 45rpm at H (+5V) while 33rpm at L (open).
* Size indicator circuit operates same.

10) Motor Control Circuit for Turntable
In accordance with the output of MP1001 this circuit gives instruction for ON/OFF and rotation speed.

1. ON/OFF Control

* The motor for turntable stops its rotation by grounding of No. 6 terminal.
* MP1001 outputs H (+5V) to No. 16 pin when the motor is ON. (Open when the motor is OFF.)
* When No. 16 pin of MP1001 becomes H (+5V), X109 and X108 come to be ON and OFF respectively. At this time No. 6 terminal of the motor becomes OPEN and the motor rotates.
* When No. 16 pin of MP1001 becomes OPEN, X109 comes to be OFF and X108 to be OFF by R145. Therefore, terminal No. 6 is grounded and the motor stops its rotation.

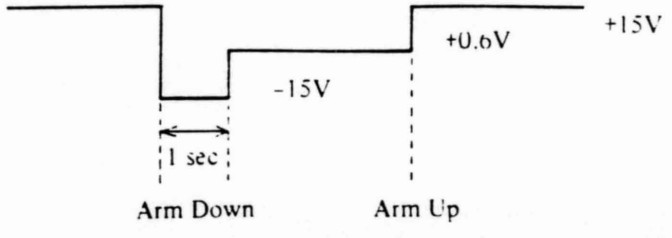
2. Rotation Speed Control

* The motor for turntable rotates at 45rpm with grounding of Terminal No. 5.
* MP1001 outputs H (+5V) to No. 20 pin at 45rpm, while open at 33rpm.
* When No. 20 pin of MP1001 is at H (+5V), X110 comes to be ON and terminal No. 5 of the motor is grounded so that rotation of the motor will be 45rpm.

11) Solenoid Operation Circuit
The circuit which makes the solenoid ON/OFF according to order from MP1001 and the tone-arm UP/DOWN.

* No. 10 pin of MP1001 is H (+5V) when the tone-arm is down and open at up position. No. 11 pin outputs H (+5V) for the first 1 sec. when the tone-arm is down.
* When No. 10 pin of MP1001 comes to be H (+5V), X107 becomes ON and 15V is added to the solenoid.
* The tone-arm goes down when the solenoid is ON.

A. Voltage



12) Tracking Error Detecting Circuit
detects right and left tilting of the tone-arm (tracking error) by a photo-sensor and converts it into voltage. But this prevent output when the tone-arm is kept UP.

* When the tone-arm tilts inside, the sensor receives light and voltage at A point becomes low (-).
* VR101 is for sensitivity adjustment of the photo sensor and when the tone-arm tilts maximum toward inside, it should be adjusted to make voltage at A point almost saturated.
* X118 works as analog Sw and when X122 is ON, gate voltage will be negative and no signal is transferred.
* X122 will be ON when No. 10 pin of MP1001 becomes L (-5V) or No. 11 pin does H (+5V) or Up Sw 2 (Sw by elevation plate) comes to be ON.
* D111 and 112 are for weakening sensitivity of the tracking sensor at around center position.
* IC104 constitutes a turn-over amplifier and its gain is one time.
* D109 and 110 give bias by 0.6V to output of Op. Amp. (IC101).
* It is possible that output is leaked when sensor output varies greatly toward negative even if X122 becomes ON, but it is not abnormal.
* Output at tone-arm Up position is 0V$\pm$0.6V.

13) Sub-motor for Tone-arm Driving Circuit
The circuit which drives the sub-motor for transportation of the tone-arm upon reception of output from, MP1001, Transportation Sw and tracking error detecting circuit.

* Electric potential of TP.4 makes the tone-arm forward and return. Namely, high electric potential is for forwarding and low for returning.
* Quick transportation signal for the tone-arm is H (+5V) only in case of quick transportation operation by the forward or return buttons, except for which it is open.
* No. 1 pin of IC101 (1) is 0V$\pm$0.6V except for play mode.
* When No. 13 pin of MP1001 becomes H (+5V) viz. (forward), TP.5 will be 4.4V and IC101 (2) works as a turn-over amplifier and voltage from -10V to -11V shall be built-up to the sub-motor.
* When No. 4 pin of IC105 becomes H (+5V), TP.5 will be about 1.4V. In this case IC101 (2) works as a gurn-over amplifier and voltage to be built-up to the sub-motor will be about -4V.
* When No. 3 pin of IC105 becomes H (+5V), TP.4 will be about 1.4V. In this case IC101 (2) works as a gurn-over amplifier and voltage to be built-up to the sub-motor will be about 4V.
* When quick transportation signal (+5V) is created, the transistor (X113 or X114) feeding transportation signal will be ON and TP.4 or TP.5 will be 4.4V same as output of MP1001.
* When No. 3 & 11 pins of IC105 simultaneously become H (+5), Electric potential of TP.4 & TP.5 will be same and output to the sub-motor will be 0V with or without quick transportation signal.
* It is also same when No. 12 & 13 pins of MP1001 simultaneously become H (+5V).
* R104 is a protection resistor for X104 & X105.
* When output of IC101 (1) becomes low, TP4 also becomes low and negative voltage is built-up to the sub-motor and the tone-arm gets forwarded. While output of IC101 (1) becomes high, TP4 also becomes high and positive voltage is built-up to the sub-motor and the tone-arm gets returned.

14) Stroboscope Indication Circuit
This makes the stroboscope LED's flicker in accordance with mains frequency.

* Voltage wave form at point A becomes as follows:
* X101 will be ON and makes LED's (D123 & 124) flicker when voltage divided by R106 and R105 becomes higher than 1.2V.
* D101 & C107 are the power source for the stroboscope LED's.

15) Power Source Circuit
This diverts AC mains from the transofrmer to DC mains ±15V and ±5V (stabilized).

16) Micro Computor (MP1001)

1. Pin Position

* All output terminals are open-drain.

2. Function of Each Pin

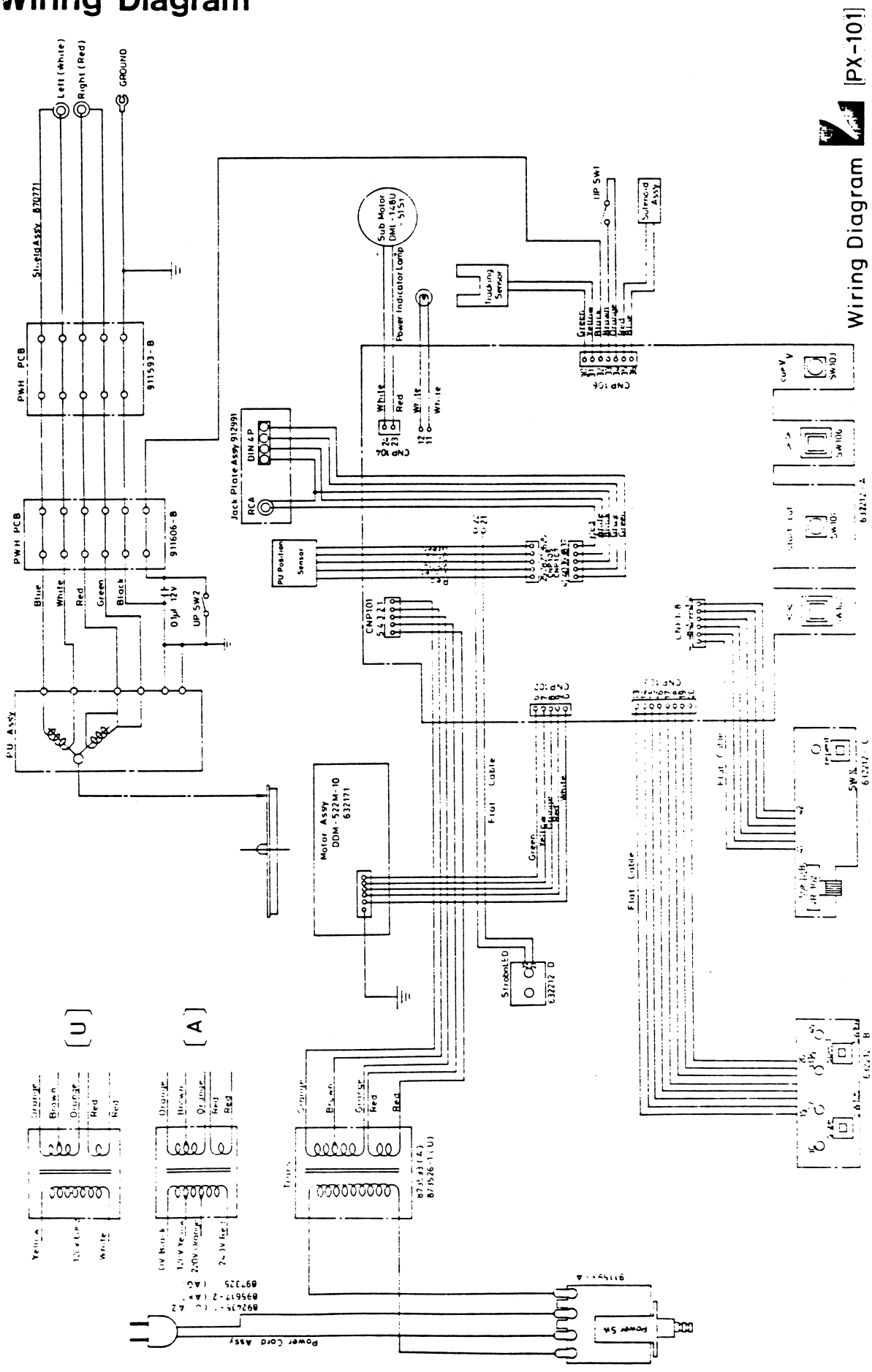
(1) Clock
Input signal of the clock from the micro computor and oscillation frequency is about 400KHz.
(2) Play/Cut Sw Input
(3) Cue Sw Input
Up or Down operation of the tone-arm is switched over upon every input, H (+5V). But no input in accepted either at the rest position or during transportation.
(4) Repeat Sw Input
Repeat ON/OFF is switched over upon every input, H (+5V).
(5) Speed Sw Input
Rotation speed of the turntable is switched over upon every input, H (+5V). Input is always acceptable.
(6) Size Selector Sw Input
It is judged as LP with input H (+5V) and as EP with input L (-5V). But input is acceptable only when the tone-arm leaves the arm-rest upon play input or goes down.
(7) Unused and fixed at H (+5V).
(8) Unused and fixed at H (+5V).
(9) Unused and fixed at H (+5V).
(10) Solenoid Output (1)
H (+5V) is output when the tone-arm goes down. But it is open when the tone-arm goes up.
(11) Solenoid Output (2)
H (+5V) is output for first 1 sec. when the tone-arm is made down, except for which it is always open.
(12) Tone-arm Return Output
H (+5V) is output when the tone-arm is returned at auto mode. Also H (+5V) is output as a brake when the forward transportation is stopped or the tone-arm goes down.
(13) Tone-arm Forward Output
H (+5V) is output at auto mode when the tone-arm is forwarded. Also H (+5V) is output as a brake when the return transportation is stopped or the tone-arm goes down.
(14) Power Sourse (+)
±5V is used as 10V power sourse.
(15) Unused and fixed at H (+5V).
(16) Turntable ON/OFF Output
H (+5V) is output when Play input is made or the tone-arm is not at the arm-rest.

(17) Repeat Signal
H (+5V) is output when Repeat Sw is ON, and it will be open when Repeat Sw is OFF.
(18) Play Signal Output
H (+5V) is output when the tone-arm leaves the arm-rest. But it is open at out mode.
(19) Unused and to be made open.
(20) Turntable Rotation Speed Output
Output is open or H (+5V) respectively at 33rpm or 45 rpm
Initial value is 33rpm (open).
(21) Tone-arm Positioning Signal is judged as per 2 - 1.
(22) Tone-arm Positioning Signal is judged as per 2 - 1.
(23) Tone-arm Positioning Signal is judged as per 2 - 1.
(24) Up Signal Input
It is judged with input, H (+5V) that the tone-arm is completed to be up.
(25) Unused and fixed at L.
(26) Reset Signal Input
Output is brought back to the initial stage upon inpu, H (+5V). Initial stage means that the tone-arm is kept up at the arm-rest and that the turntable rotation speed is 33rpm.
(27) Power Sourse (-)
$\pm$5V is used 10V power sourse.
(28) $\overline{\text{C}}$lock
This is clock input signal of the micro computor and its oscillating frequency is about 400KHz.

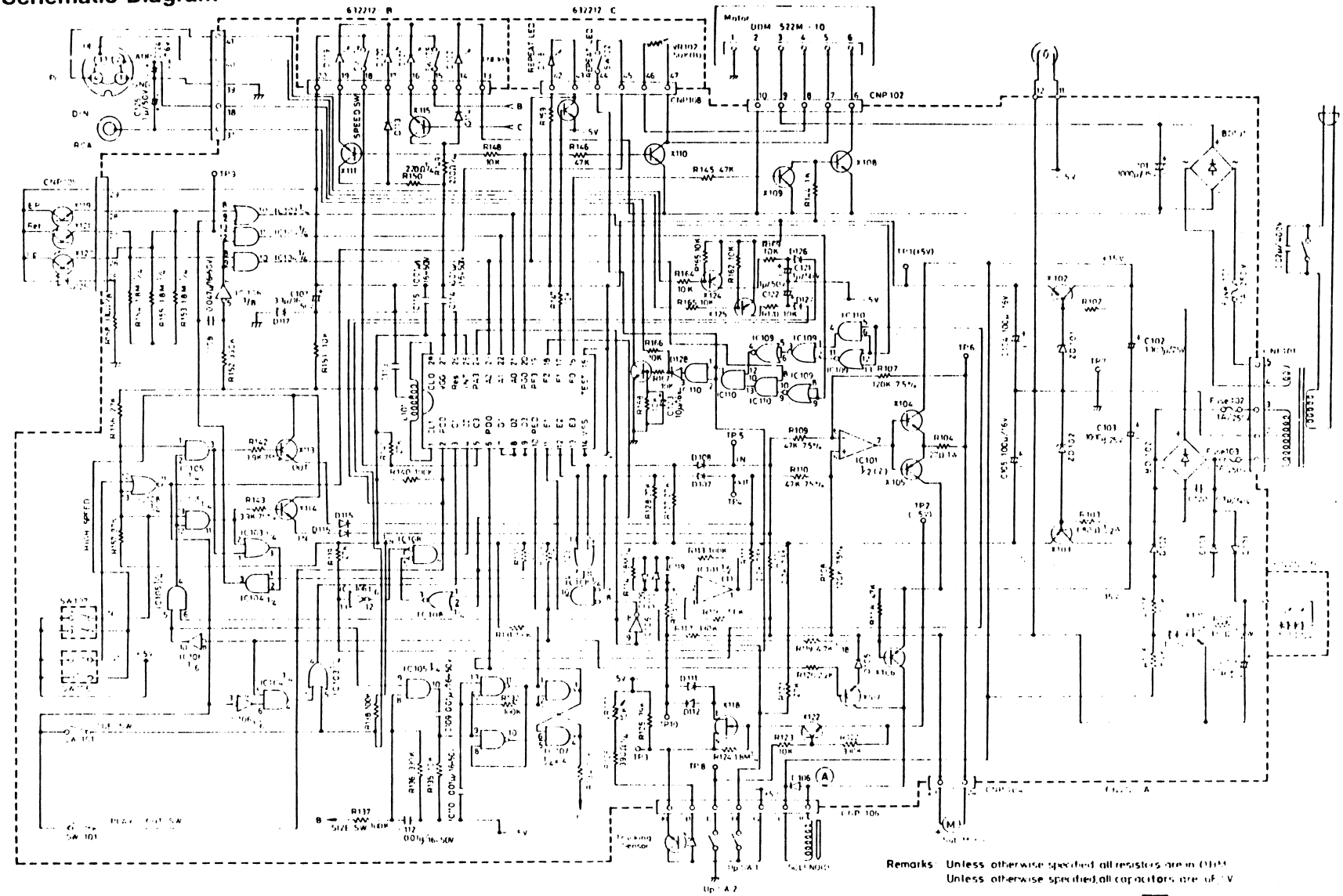
3. Ratings

* Mains Voltage	10V$\pm$10%
* Input Terminals	H over 8V L less than 5.7V
* Output Terminals	all open drain pull down resistors to be outside-fixed at necessary position.

Wiring Diagram

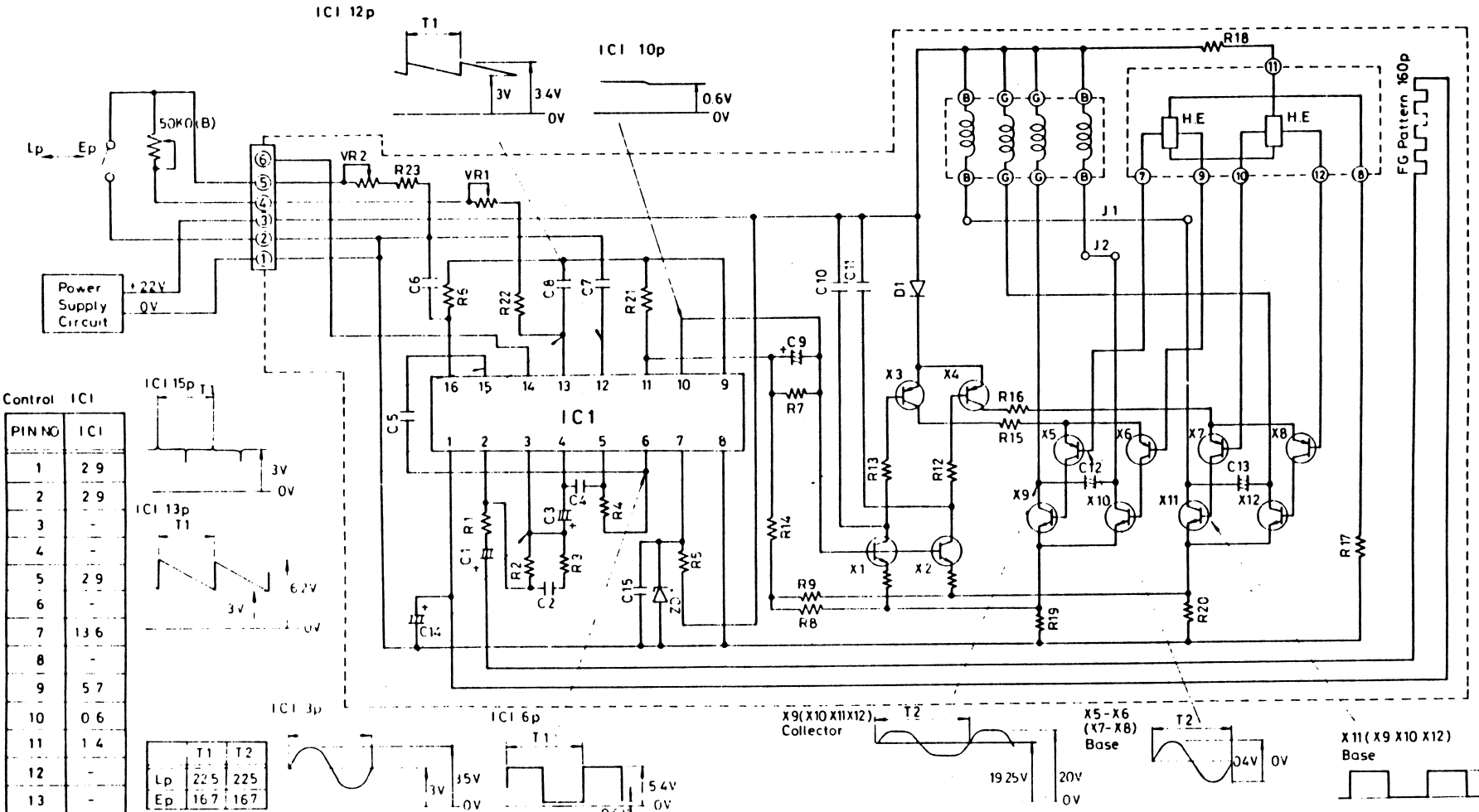


Schematic Diagram



Schematic Diagram 'PX-101'

Motor Circuit



Control IC1

PIN NO	IC1
1	2.9
2	2.9
3	-
4	-
5	2.9
6	-
7	13.6
8	-
9	5.7
10	0.6
11	1.4
12	-
13	-
14	0.6
15	-
16	5.4

UNIT (V)

	T1	T2
Lp	22.5	22.5
Ep	16.7	16.7

UNIT (m/s)

TRANSISTOR

	X1	X2	X3	X4	X5	X6	X7	X8	X9	X10	X11	X12
Base	—	—	—	—	—	—	—	—	—	—	—	—
Collector	—	—	12.86 / 13.22	12.86 / 13.22	—	—	—	—	—	—	—	—
Emitter	0.08 / 0.1	0.08 / 0.1	21.48	21.48	12.40 / 12.78	12.40 / 12.78	12.40 / 12.78	12.40 / 12.78	0.08 / 0.1	0.08 / 0.1	0.08 / 0.1	0.08 / 0.1

UNIT (V)

Remarks 1 Unless otherwise specified, all resistors are $\frac{1}{4}$W.

2 Unless otherwise specified, all capacitors are uF/V.

Motor Circuit PX-101

Specifications

[Phono Motor Section]	
Driving System:	Direct-Drive System
Motor:	Brushless & slotless DC servo motor
Turntable Platter:	29.5cm aluminium die-cast
Rotation:	33-1/3rpm, 45 rpm (2-speed)
Pitch Control:	±3%
S/N Ratio:	better than 70 dB (DIN-B)
Wow & Flutter:	no more than 0.045% W.R.M.S.
[Tonearm Section]	
Tonearm:	Straight Arm of static balance type
Effective Length:	165 mm
Tracking Error:	±0.2
Cartridge Weight:	5.5g-10g
Cartridge Height:	16 mm-19 mm (by use of spacers)
Stylus Pressure:	0-3g (direct reading)
[Additional Features]	
Dust Cover:	Detachable with semi-freestop side hinge
Stroboscope:	Mirror-reflex type
Automatic Function:	Auto-Lead-in (Auto Start) 30 cm, 17 cm Auto-Repeat
Remote Controls:	DIN 4p Terminal RCA type 1P
[General]	
Power Consumption:	17W (CSA rated)
Dimensions:	440(W) x 115(H) x 405(D) mm (17.3" x 4.5" x 15.9")
Weight:	Net 8.5 kgs(18.7 lbs.) Gross 10.5 kgs(23.1 lbs.)

Specifications and appearance design subject to change without notice.

LUXMAN

DIVISION OF ALPINE ELECTRONICS OF AMERICA, INC.

SERVICE BULLETIN

LSP-83-01

TO: ALL AUTHORIZED SERVICE FACILITIES AND DEALERS

FROM: LUXMAN SERVICE DEPARTMENT

DATE: SEPTEMBER 5, 1984 (SUPERCEDES APRIL 18, 1983)

SUBJECT: PX101 "POP" NOISE WHEN ARM IS CUED

CAUSE: IMPROPER CARTRIDGE INSTALLATION/INSUFFICIENT TONE ARM HEIGHT

REMEDY: Because of different cartridge sizes the tone arm height might have to be adjusted by the user. If, when cued, the tone arm travels slightly to the outside causing the stylus to scratch across the disc (3 or 4 grooves) then the cue height must be adjusted. This problem can be eliminated by following the directions in the owners manual (see pg. 2-14) or by turning the tone arm lift adjuster clockwise to raise the height of the tone arm.

NOTE
THIS IS AN EXTERNAL USER ADJUSTMENT AS SUCH, IT IS NOT CONSIDERED A "REPAIR" AND NO WARRANTY CLAIMS WILL BE HONORED FOR THIS ADJUSTMENT.

Ray Blades
National Service Manager

☑ F.Y.I. ☐ SUGGESTED ☐ MANDATORY