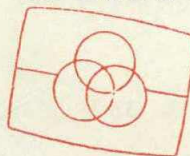


# FULL AUTOMATIC DIRECT DRIVE TURNTABLE SYSTEM

## MODEL NO. AP-D80E, K

# AIWA®

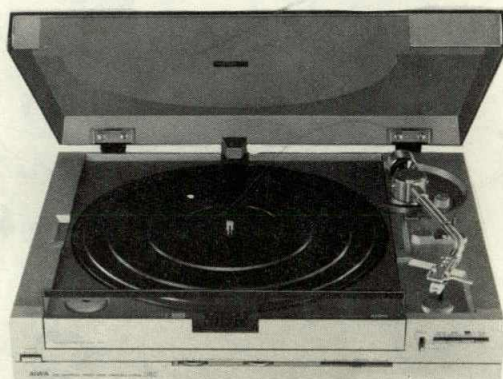
## (SERVICE MANUAL)



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Code No. 07-800-000-18

DATE OF ISSUE 9/1981

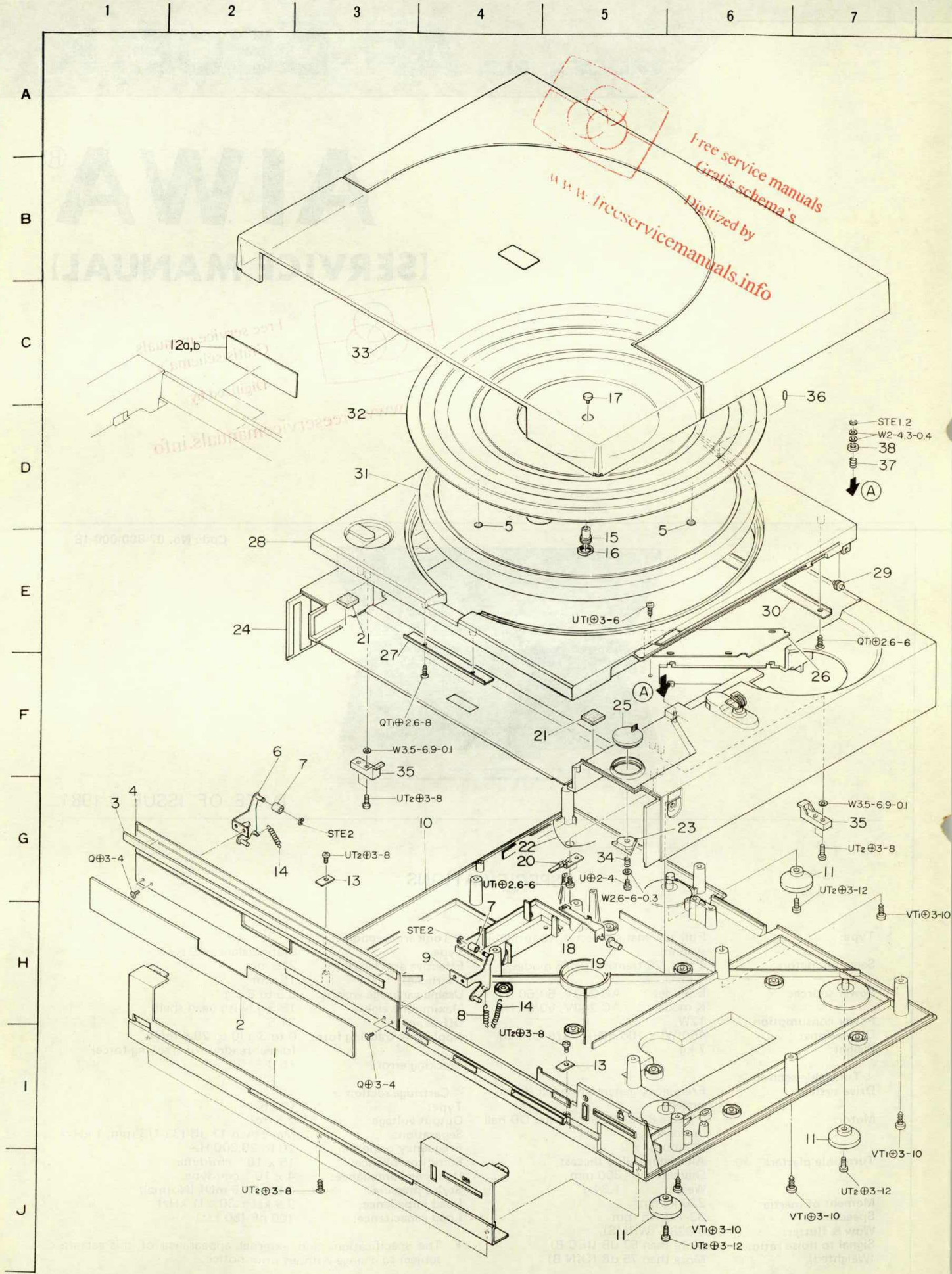
### SPECIFICATIONS

<b>Type:</b>	Full automatic direct drive turntable system	<b>&lt; Tone arm section &gt;</b>	
<b>Semiconductors:</b>	1 IC's, 26 transistors, 16 diodes, 4 LED's	<b>Type:</b>	Static-balanced S type
<b>Power source:</b>	E model AC 220V, 50/60 Hz K model AC 240V, 50/60 Hz	<b>Effective arm length:</b>	215 mm
<b>Power consumption:</b>	12W	<b>Overhang:</b>	15 mm
<b>Dimensions:</b>	450(W) x 106.5(H) x 375(D) mm	<b>Usable cartiridge weight:</b>	3.5 to 8.5 g
<b>Weight:</b>	7 kg	<b>Maximum weight:</b>	18.5 g (with head shell)
<b>&lt; Turntable section &gt;</b>		<b>Offset angle:</b>	21.5°
<b>Drive system:</b>	Frequency generated direct drive system	<b>Applicable tracking force:</b>	0 to 3 g (0 to 29.4 mN) (direct readout of tracking force)
<b>Motor:</b>	4 phase 8-pole linear torque DD hall motor x 1 DC motor x 2	<b>Tracking error:</b>	+5.8°, +0.1°
<b>Turntable platter:</b>	Aluminum alloy diecast Diameter 300 mm Weight 1.3 kg	<b>&lt; Cartridge section &gt;</b>	
<b>Moment of inertia:</b>	220 kg/cm <sup>2</sup>	<b>Type:</b>	VM type
<b>Speeds:</b>	33-1/3, 45 rpm	<b>Output voltage:</b>	2.5 mV
<b>Wow &amp; flutter:</b>	0.028% (WRMS)	<b>Separation:</b>	More than 17 dB (33-1/3 rpm, 1 kHz)
<b>Signal to noise ratio:</b>	More than 57 dB (IEC B) (Weighted)	<b>Frequency response:</b>	20 to 20,000 Hz
	More than 75 dB (DIN B)	<b>Static compliance:</b>	15 x 10 <sup>-6</sup> cm/dyne.
		<b>Dynamic compliance:</b>	4 x 10 <sup>-6</sup> cm/dyne.
		<b>Stylus pressure:</b>	2.5g (24.5 mN) (Normal)
		<b>Load impedance:</b>	2.8 kΩ ± 30% (1 kHz)
		<b>Load capacitance:</b>	100 pF (50 kΩ)

- The specifications and external appearance of this set are subject to change without prior notice.

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# EXPLODED VIEW-1



### ELECTRICAL MAIN PARTS LIST

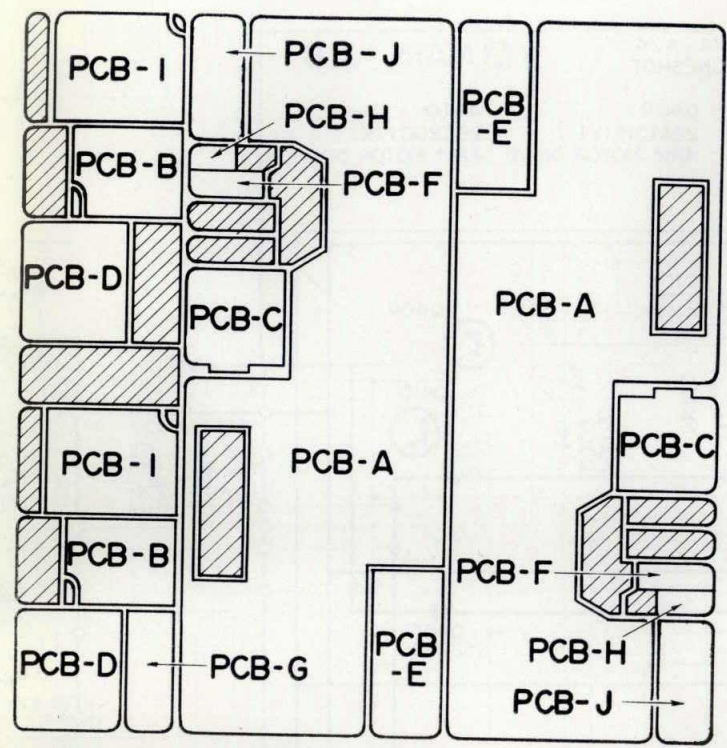
Symbol No.	Part No.	Description
<b>« MAIN CIRCUIT BOARD SECTION »</b>		
PCB-A	*	Main circuit board
IC101	87-027-564-01	IC, CMOS TC4011BP
Q101,102,103	89-318-154-01	Transistor, 2SC1815(Y)
201,402,404,406,407,408,412,502		
Q104,401,410	89-320-011-01	Transistor, 2SC200 1K
Q403,409,411,501	89-110-154-01	Transistor, 2SA1015(Y)
Q405	89-109-521-01	Transistor, 2SA952(K)
Q503,504	89-408-804-51	Transistor, 2SD880Y(GR)
D101,301,302,303,403,404,406,407,408	87-027-219-01	Diode, MA150
D401,503	87-027-606-01	Zener diode, HZ7C2L
D402,405,501,502	87-027-365-01	Diode S5277B
D504	87-027-402-01	Zener diode, HZ242L
D505	87-027-470-01	Zener diode, HZ163
SCR401	87-026-185-01	SCR, DRA03A
F1	87-035-233-01	Fuse, F800mA
F2	87-098-194-01	Fuse label, "F" 800 mA
	87-035-145-01	Fuse, BS "T" 250mA
	87-098-010-01	Fuse label, "T" 250 mA
PIN-2	87-049-034-01	Pin, 4P
PIN-1	87-049-065-01	Pin, 5P
PIN-3	87-049-050-01	Pin, 6P
<b>&lt; Capacitors &gt;</b>		
C501	87-015-651-01	1000µF 63V Electrolytic
C500	87-019-112-01	0,01µF Spark killer
<b>« SWITCH-1 CIRCUIT BOARD SECTION »</b>		
PCB-B	*	Switch-1 Circuit board
S7,8,9,10	87-031-673-01	Push-switch (REPEAT, LOAD IN/LOAD OUT, PLAY/CUT, SPEED SELECTOR)
<b>« END SENSOR CIRCUIT BOARD SECTION »</b>		
PCB-C	*	END SENSOR circuit board
Q2,3	84-195-639-01	Photo transistor, PN150
D2,3	84-195-638-01	LED, LN-55
<b>« STROBO CIRCUIT BOARD SECTION »</b>		
PCB-D	*	Strobo circuit board
NLI	84-199-607-01	Neon lamp A
<b>&lt; Resistor &gt;</b>		
R6	84-184-621-01	10kΩ 2W Nonflammable
<b>« SUB CIRCUIT BOARD SECTION »</b>		
PCB-E	*	Sub circuit board
Q1,2	89-320-011-01	Transistor, 2SC2001(K)
D1	87-027-365-01	Diode, S5277B
L1,2	87-005-121-01	Choke coil, 2.2µH
M2	84-122-619-01	DC motor (LOADING MOTOR)
<b>&lt; Resistor &gt;</b>		
R3	87-029-102-01	47Ω ¼ W Fuse resistor
<b>&lt; Capacitor &gt;</b>		
CI	87-015-455-01	10µF 25V Electrolytic BP

Symbol No.	Part No.	Description
<b>« LED-1 CIRCUIT BOARD SECTION »</b>		
PCB-F	*	LED-1 circuit board
D1	87-027-542-01	LED, LN217RP
<b>« PHOTO TRANSISTOR CIRCUIT BOARD SECTION »</b>		
PCB-G	*	Photo transistor circuit board
Q1	87-026-184-01	Photo transistor, TPS-603B
<b>« LED-2 CIRCUIT BOARD SECTION »</b>		
PCB-H	*	LED-2 circuit board
D1	87-027-817-01	LED, TLN-103
<b>« RELAY CIRCUIT BOARD SECTION »</b>		
PCB-I	*	Relay circuit board
<b>« SWITCH-2 CIRCUIT BOARD SECTION »</b>		
PCB-J	*	Switch-2 circuit board
S6	87-031-537-01	Micro switch (LOADING-2)
<b>« MISCELLANEOUS »</b>		
TI	84-122-603-01	Power transformer (E model only)
TI	84-122-604-01	Power transformer (K model only)
PL 1	84-122-624-01	Lamp ass'y
VR1,2	87-021-704-01	Volume, 12.5φ 50kΩ-B (33 1/3, 45)
S1	87-031-568-01	Push-switch (POWER)
S2	84-190-612-01	Micro switch (REC SYNC)
S3,5	84-118-621-01	Micro switch (LOADING-1, ARM)
S4	87-031-494-01	Micro switch (MAIN GEAR)
S6	87-031-537-01	Micro switch (LOADING-2)
S11	87-031-491-01	Micro switch (REPEAT)
M1	84-122-618-01	DC motor (PHONO) (with/PCB-K)
M3	84-122-619-01	DC motor (ARM MOTOR)
SOL1	84-122-625-01	Solenoid, SIZE
J1,2	87-049-060-01	Jack, 2.5φ (REMOTE, REC SYNCRATE)
L3,4	87-005-121-01	Choke coil, 2.2µH
	87-034-877-01	AC power cord (E model only)
	87-034-872-01	AC power cord (K model only)
	87-057-672-01	Label, Caution
	87-085-166-01	Holder, AC power cord
	87-085-182-01	Cord bushing, B
	87-033-101-01	Lug terminal plate, 2P
	84-122-623-01	Heat sink, 25BS051B-L25A
	84-199-606-01	Pin cord
CON-2	84-122-622-01	Connector ass'y, 4P
CON-1	84-122-621-01	Connector ass'y, 5P
CON-3	84-122-620-01	Connector ass'y, ESNS, 6P
<b>&lt; Capacitor &gt;</b>		
C2	87-015-455-01	10µF 25V Electrolytic BP.

**⚠ Safety component symbol**  
 This symbol is given to important parts which serve to maintain the safety of the product, and which are made to conform to special safety specifications. Therefore, when replacing a component with this symbol, make absolutely sure that you use a designated part.

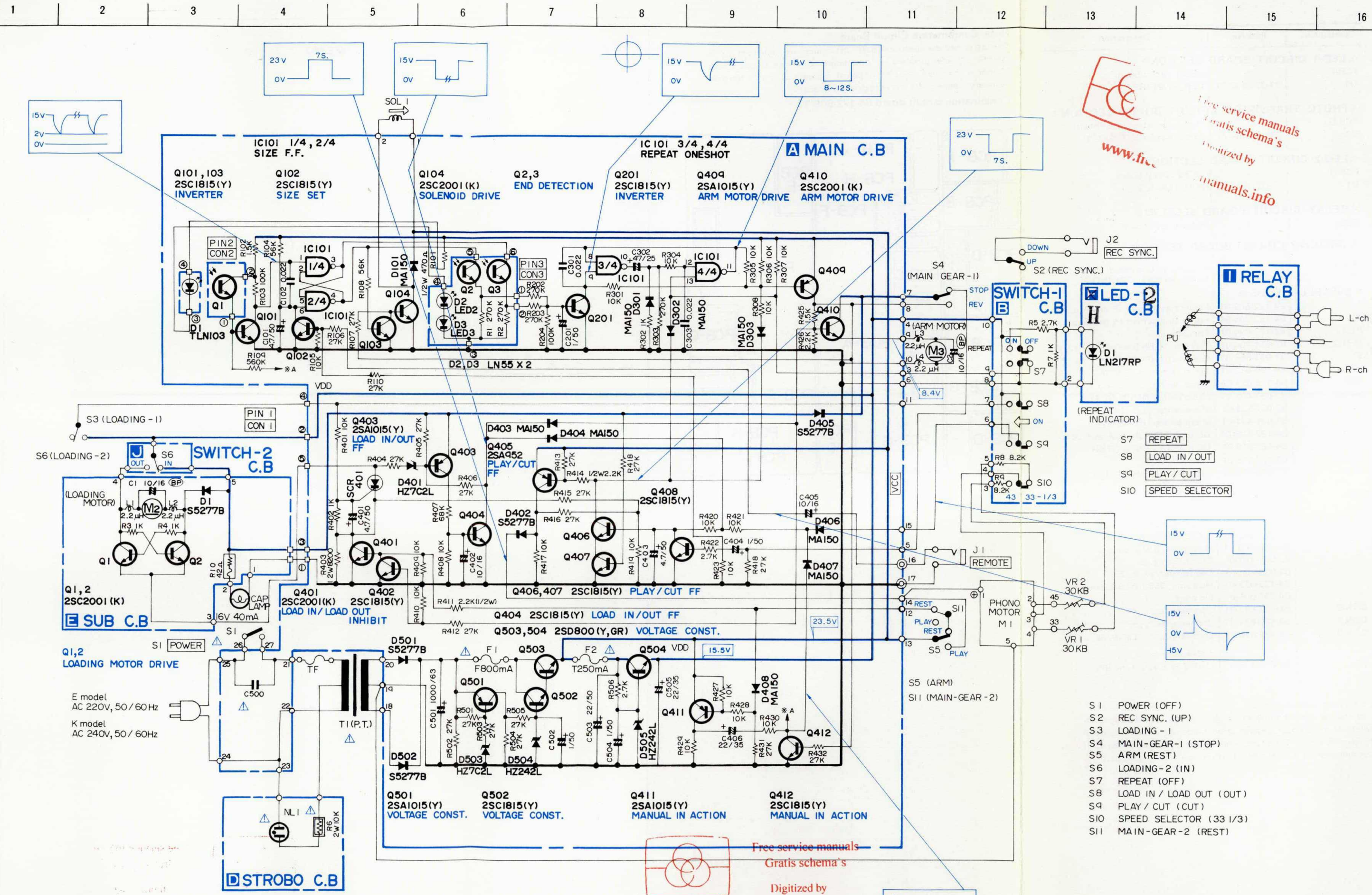
**Note; Combination Circuit Board**  
 The parts on the electrical parts list which are indicated by an asterisk (\*) are supplied as one single combined circuit board. Therefore, they will not be supplied separately. If this becomes necessary, please order the entire circuit board.

Combination circuit board 84-122-606-11



☆☆☆☆☆☆☆☆☆☆☆☆☆☆☆☆ MEMO ☆☆☆☆☆☆☆☆☆☆☆☆☆☆☆

SCHEMATIC DIAGRAM

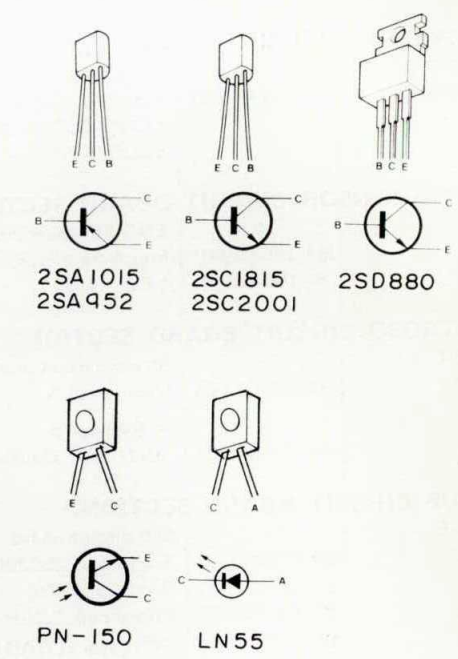


- NOTES:**
- 1) B (+) power supply
  - 2) Signal path
  - 3) The voltage is the reference value measured with a tester (20 k-ohms/V DC) when there are no signals.
  - 4) Resistors with no designation have a rated power of 1/4W and a tolerance of ±5%.
  - 5) Capacitors with no designation have a dielectric strength of less than 50VV.
  - 6) The only capacitor tolerance indicated are ±5% (J) and ±10% (K).
  - 7) Ceramic capacitor symbols:
    - SL For temperature compensation (SL)
    - YY High dielectric constant system (YY)
    - YW, YP, YZ High dielectric constant system (YW, YP, YZ)
    - SC Semiconducting ceramic
  - 8) Explanation of symbols:
    - M Mylar capacitor
    - PP Polypropylene film capacitor
    - BP Bi-polarized capacitor
    - FR Fuse resistor
    - NR Nonflammable resistor
- ⚠ Safety component symbol  
This symbol is given to important parts which serve to maintain the safety of the product, and which are made to conform to special safety specifications. Therefore, when replacing a component with this symbol, make absolutely sure that you use a designated part.
- This schematic diagram is subject to change without notice in the interests of improved performance.

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- S7 REPEAT
- S8 LOAD IN / OUT
- S9 PLAY / CUT
- S10 SPEED SELECTOR

- S1 POWER (OFF)
- S2 REC SYNC. (UP)
- S3 LOADING - 1
- S4 MAIN-GEAR-1 (STOP)
- S5 ARM (REST)
- S6 LOADING-2 (IN)
- S7 REPEAT (OFF)
- S8 LOAD IN / LOAD OUT (OUT)
- S9 PLAY / CUT (CUT)
- S10 SPEED SELECTOR (33 1/3)
- S11 MAIN-GEAR-2 (REST)

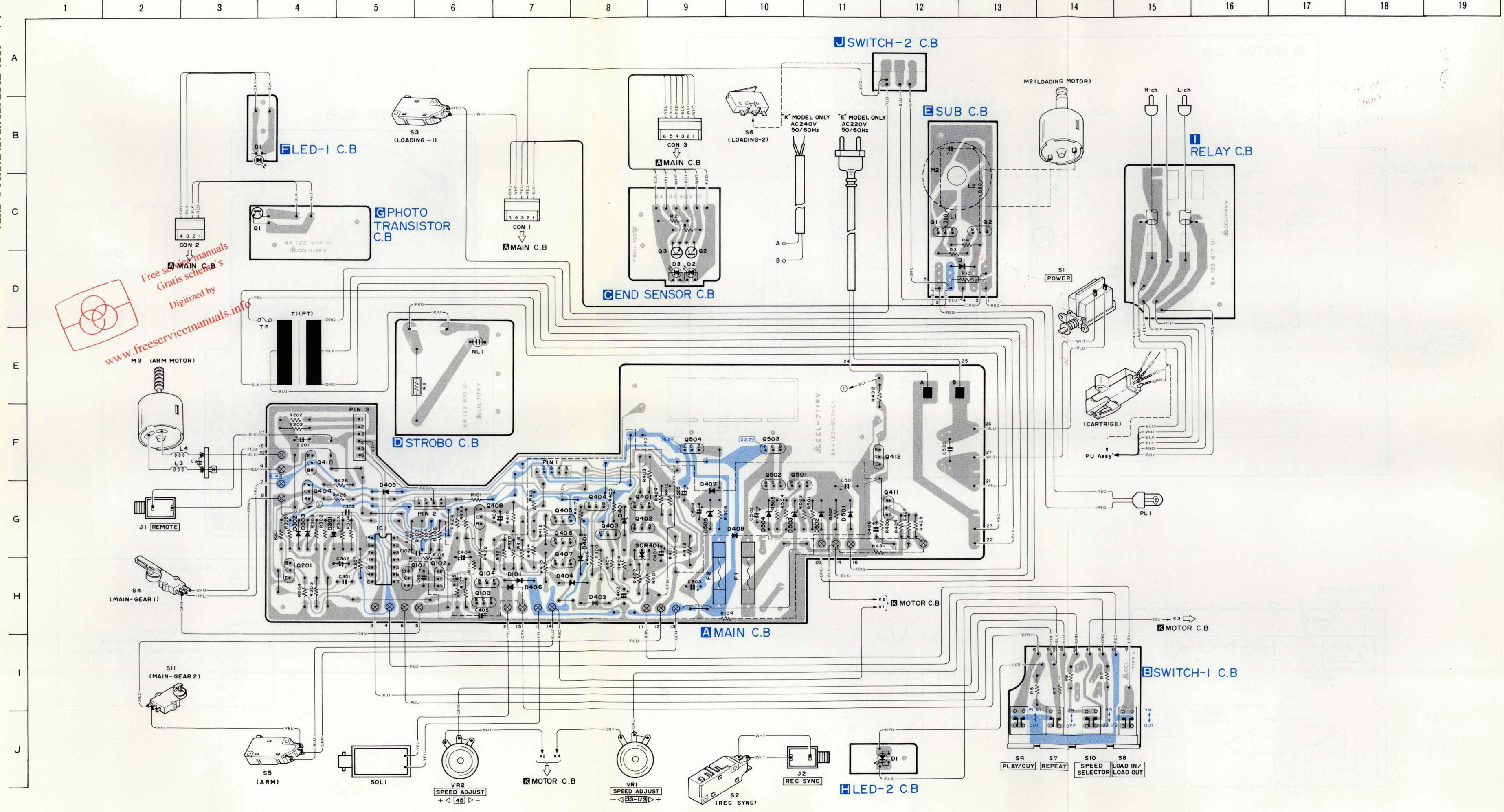


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WIRING-1

NOTES (1) B(+) Pattern Others pattern (2) The voltage is the reference value measured with a tester (20 K ohms/V DC) when there are no signals.



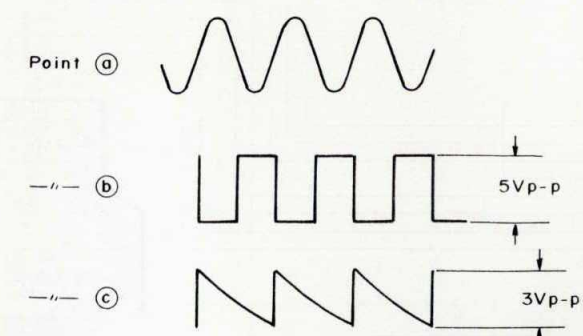
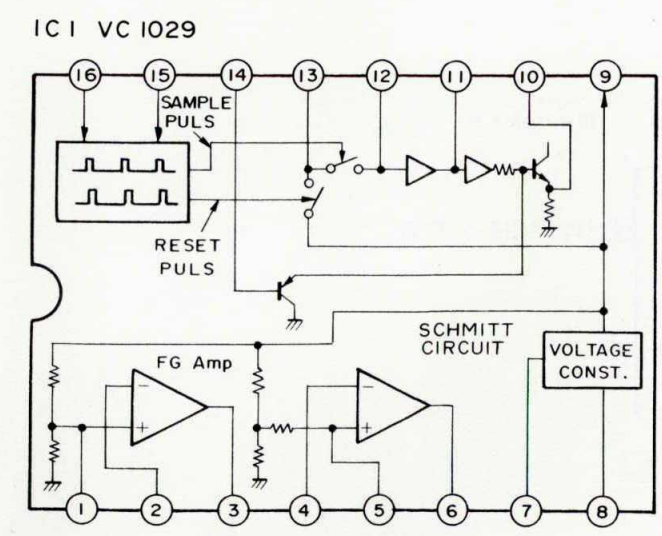
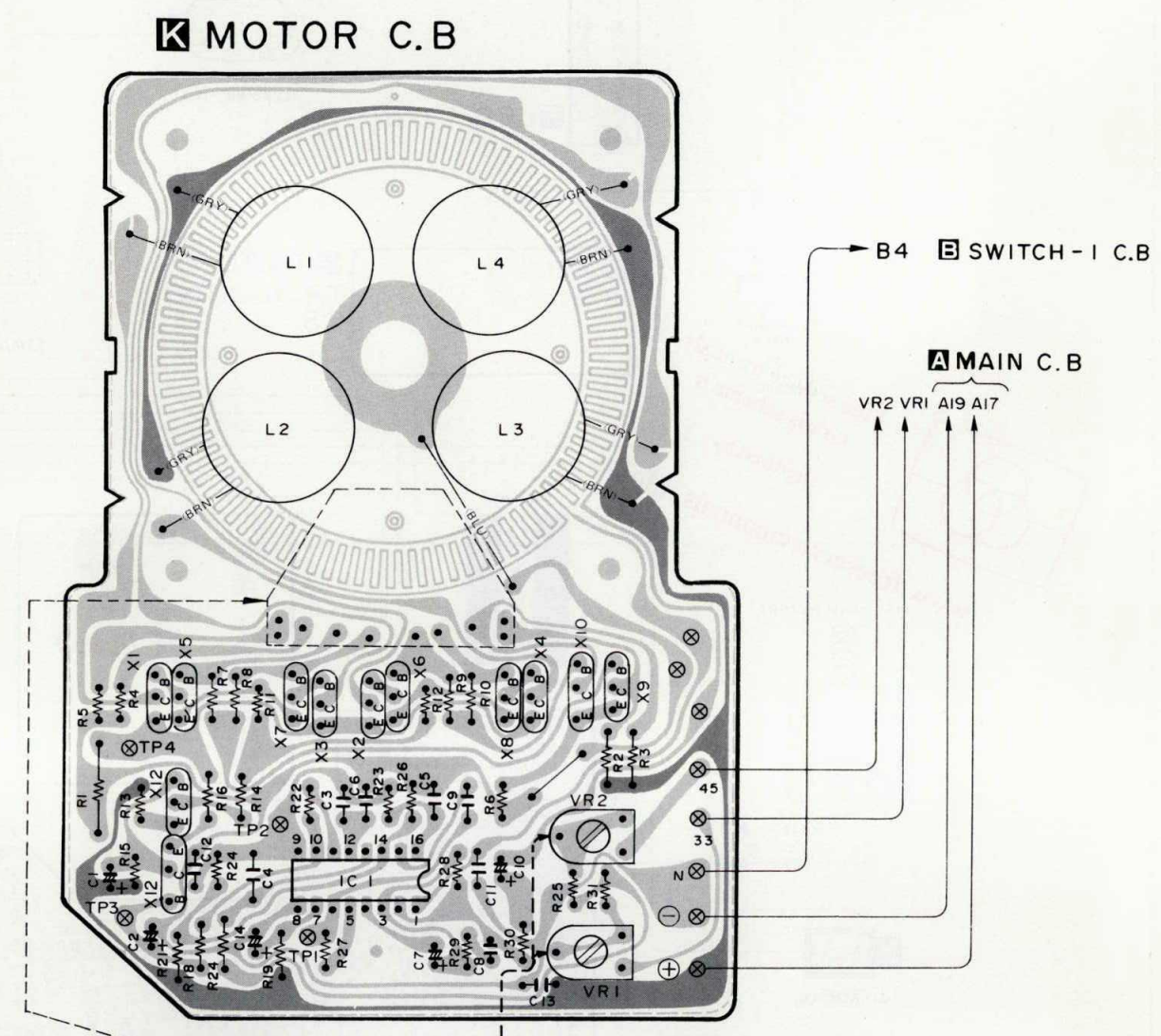
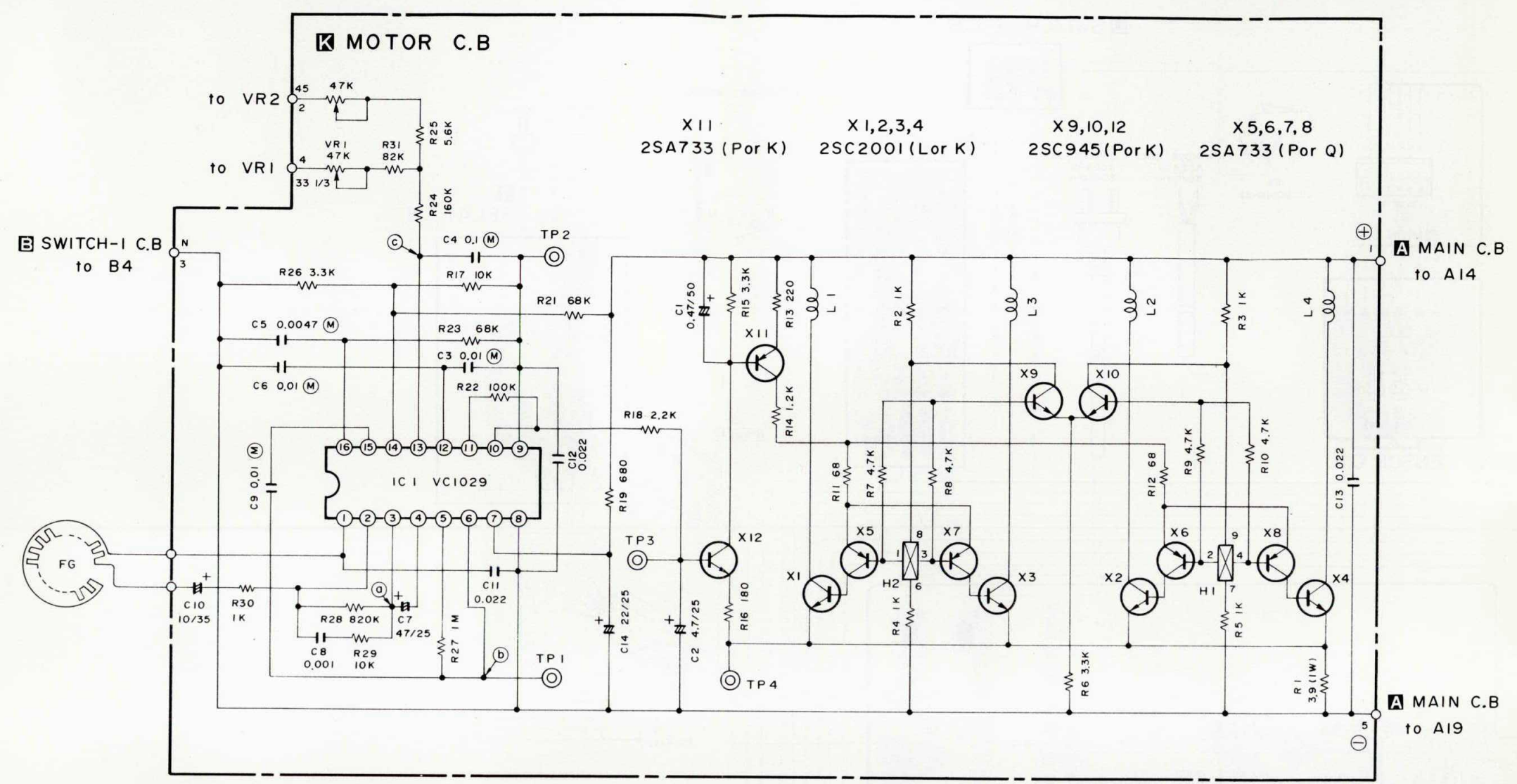
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WIRING-2

NOTES (1)  B(+) Pattern  Others pattern  
(2) The voltage is the reference value measured with a tester (20 K ohms/V DC) when there are no signals.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
---	---	---	---	---	---	---	---	---	----	----	----	----	----	----	----	----	----	----

A  
B  
C  
D  
E  
F  
G  
H  
I  
J



**1. Speed Variable Range Adjustment**

**Settings:**

- SPEED selector: 33-1/3, 45 rpm
- Adjustment locations: VR1 (33-1/3 rpm)  
VR2 (45 rpm)

**Method:**

Set the speed control to the center.  
Connected with the frequency counter of TP1.  
Set the speed selector switch to 33-1/3 rpm and adjust VR1 so that the frequency become 50.00 Hz (20 msec).  
Next, set the speed selector switch to 45 rpm and adjust VR2 so that the frequency become 67.52 Hz (14.81 msec).

## PARTS LIST

## MECHANICAL PARTS

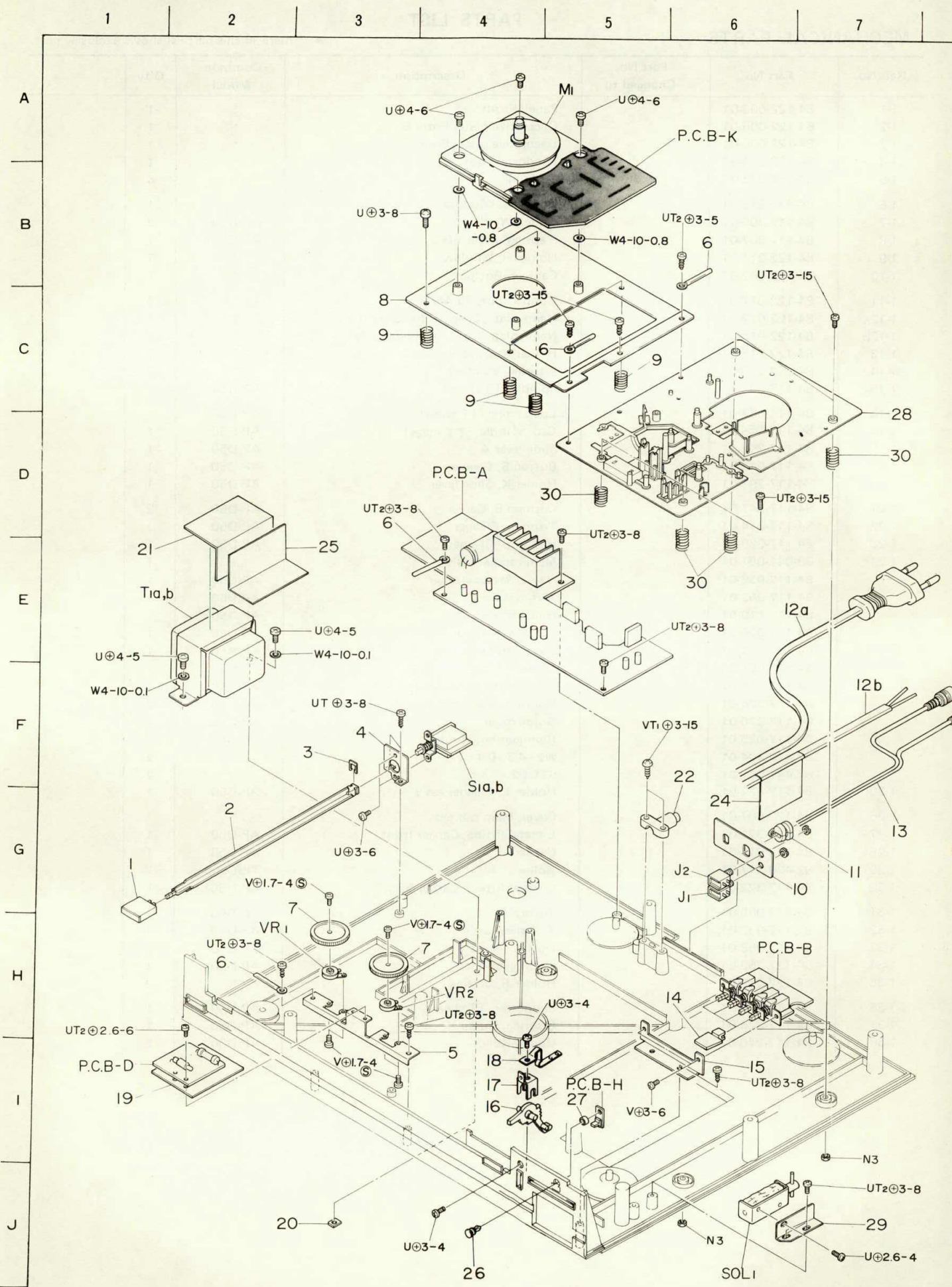
\* mark in this part list shows exclusive part.

Ref. No.	Part No.	Part No. Changed to	Description	Common Model	Q'ty
1-1	84-122-003-01		Panel, Front	*	1
1-2	84-122-006-01		Decorative plate, Front B	*	1
1-3	84-122-005-01		Decorative plate, Front	*	1
1-4	84-122-004-01		Window, Front	*	1
1-5	84-184-373-01		Cushion		4
1-6	84-122-215-01		Holder L, Window	*	1
1-7	84-117-305-01		Roller, Window	AP-D50	2
1-8	84-117-307-01		E-spring, Lever FG	AP-D50	1
1-9	84-122-214-01		Holder R, Window	*	1
1-10	84-122-002-01		Cabinet, Bottom	*	1
1-11	84-122-017-01		Rubber foot, 70 Ass'y	*	4
1-12a	84-122-012-01		Name plate, Spec. (E model only)	*	1
1-12b	84-122-014-01		Name plate, Spec. (K model only)	*	1
1-13	84-122-216-01		Holder B, Window	*	2
1-14	84-122-229-01		E-spring, Window	*	2
1-15	84-117-031-11		Spindle (TT sheet)	AP-D50	1
1-16	84-117-037-01		Lock screw (TT sheet)	AP-D50	1
1-17	84-117-054-01		Cap Spindle (TT sheet)	AP-D50	1
1-18	84-117-292-01		Slide lever A	AP-D50	1
1-19	84-117-043-01		Button B, Cleaner	AP-D50	1
1-20	84-117-291-01		Holder K, Slide lever	AP-D50	1
1-21	84-117-347-01		Cushion B, Career	AP-D50	2
1-22	84-117-314-01		T-spring, Cleaner	AP-D50	1
1-23	84-117-290-01		Holder B, Cleaner	AP-D50	1
1-24	09-041-061-01		Main cabinet ass'y		1
	84-117-036-01		Name, Stylus cleaner	AP-D50	1
	84-117-062-01		Arm rest ass'y	AP-D50	1
	84-117-070-01		Himeron rest	AP-D50	1
	84-117-020-01		Window, Strobo	AP-D50	1
	84-117-051-01		Label, Stylus change	AP-D50	1
	84-122-001-01		Cabinet, Main	*	1
	84-117-015-01		Guide roller holder ass'y	AP-D50	1
	84-117-326-01		C-spring, Guide roller	AP-D50	2
	84-117-270-01		Guide roller	AP-D50	2
	84-117-025-01		Illumination, Window	AP-D50	1
	87-410-304-01		W2-4.3-0.4		2
	87-441-001-01		STE 1.2		2
1-25	84-117-022-01		Holder L, Cleaner ass'y	AP-D50	1
1-26	84-122-007-01		Cover, Main cabinet	*	1
1-27	84-117-321-01		L-metal fitting, Carrier front	AP-D50	1
1-28	84-117-014-01		Carrier	AP-D50	1
1-29	82-439-317-01		Roller	TPR-300	2
1-30	84-117-322-01		L-metal fitting, Carrier back	AP-D50	1
1-31	84-117-005-01		Turntable	AP-D50	1
1-32	84-117-032-01		T, T sheet ass'y	AP-D50	1
1-33	84-117-055-01		Dust cover ass'y	AP-D50	1
1-34	84-117-363-01		C-spring cleaner	AP-D50	1
1-35	84-122-205-01		Holder B, Carrier	*	2
1-36	84-117-349-01		Supporter, TT sheet	AP-D50	1
1-37	84-117-326-01		C-spring, Guide	AP-D50	1
1-38	84-117-270-01		Guide, Roller	AP-D50	2

AP-D80E,K

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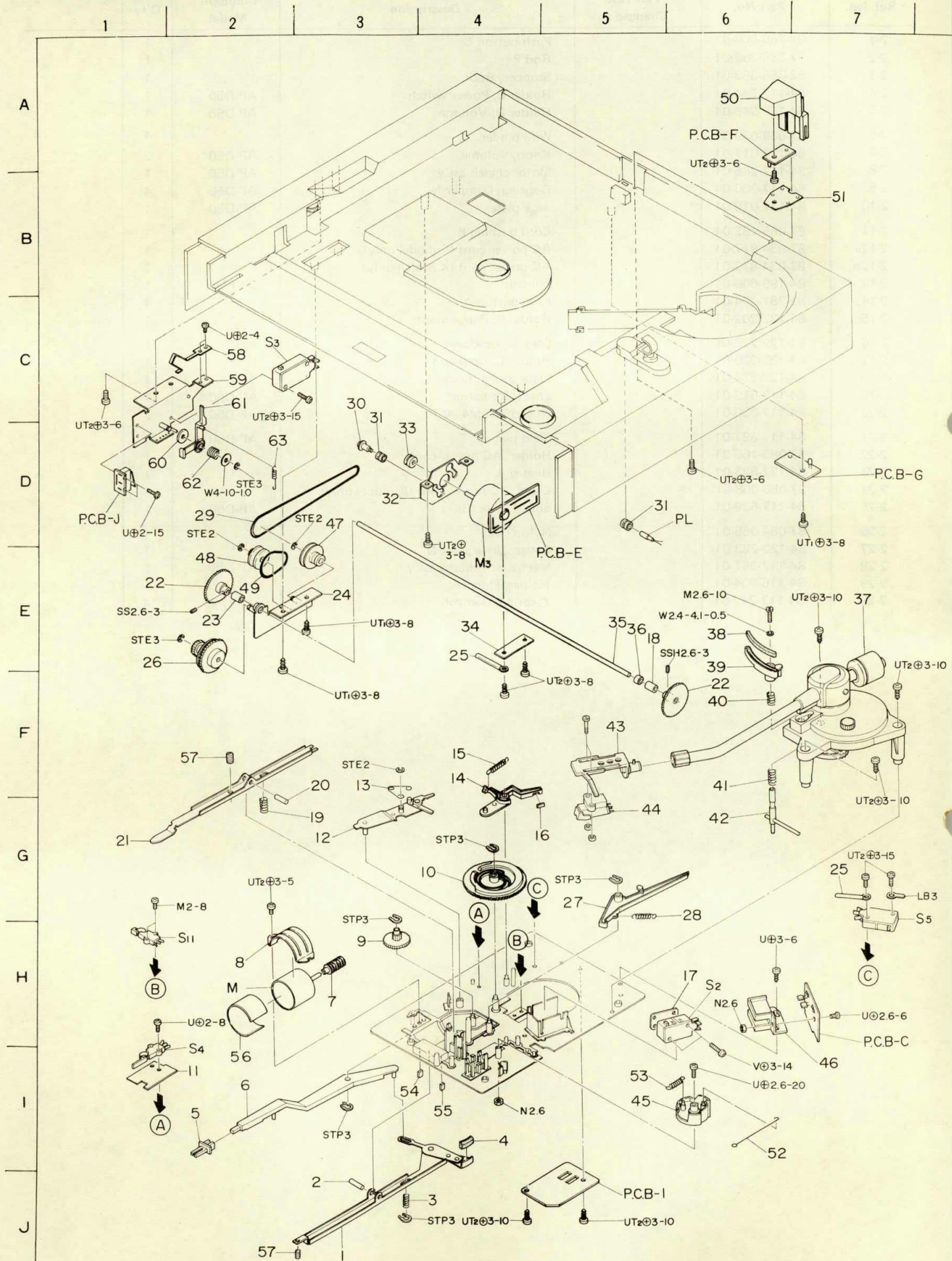




Ref. No.	Part No.	Part No. Changed to	Description	Common Model	Q'ty
2-1	82-780-008-01		Push-button C		1
2-2	82-385-382-01		Rod P		1
2-3	82-385-383-01		Stopper, Rod		1
2-4	84-117-244-01		Holder C, Power switch	AP-D50	1
2-5	84-117-245-01		Holder D, Volume	AP-D50	1
2-6	87-038-039-01		Wire binder		4
2-7	84-117-011-01		Knob, Volume	AP-D50	2
2-8	84-117-246-01		Motor chassis ass'y	AP-D50	1
2-9	84-117-350-01		C-spring, Damper N	AP-D50	4
2-10	84-117-018-01		Jack plate	AP-D50	1
2-11	87-085-182-01		Cord bushing B		1
2-12a	87-034-877-01		AC power cord (E model only)		1
2-12b	87-034-872-01		AC power cord (K model only)		1
2-13	84-199-606-01		Pin cord	SA-P80	1
2-14	82-781-004-01		Push-button A		4
2-15	84-122-202-01		Holder B, Push-switch	*	1
2-16	84-122-225-01		Cam A, Up-down	*	1
2-17	84-122-220-01		Holder C, Up-down	*	1
2-18	84-122-232-01		Plate spring, Lock	*	1
2-19	84-117-619-01		Sheet, Insulation	AP-D50	1
2-20	84-117-330-01		Holder nut M4-0.7	AP-D50	2
2-21	84-117-637-01		Shield plate P, T	AP-D50	1
2-22	87-085-166-01		Holder, AC power cord		1
2-23	84-122-623-01		Heat sink	*	1
2-24	87-056-008-01		Label, AC power cord (K model only)		1
2-25	84-117-639-01		Shield plate (B)	AP-D50	1
2-26	87-084-066-01		Nylon rivet		1
2-27	84-122-223-01		Collar, Drive shaft N	*	1
2-28	84-117-367-01		Mechanism chassis ass'y	AP-D50	1
2-29	84-116-204-01		Holder, Plunger		1
2-30	84-117-247-01		C-spring, Damper	AP-D50	4

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### EXPLODED VIEW-3



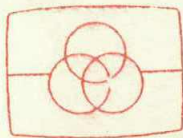
### CAUTION

This model is based on AP-D50 please refer to the AP-D50 in case of disassembly and how to operation.

Ref. No.	Part No.	Part No. Changed to	Description	Common Model	Q'ty
3-1	84-117-234-01		Lever A, Manual ass'y	AP-D50	1
3-2	84-117-229-01		Shaft A	AP-D50	1
3-3	84-117-327-01		C-spring, Manual	AP-D50	1
3-4	84-117-315-01		Rubber B, Friction	AP-D50	1
3-5	84-117-010-01		Knob B, Arm carrier	AP-D50	1
3-6	84-117-240-01		Lever C, Manual	AP-D50	1
3-7	84-112-210-01		Worm gear, A	*	1
3-8	84-117-356-01		Holder C, Motor	AP-D50	1
3-9	84-117-204-01		Gear A, Relay	AP-D50	1
3-10	84-117-205-01		Gear B, Drive	AP-D50	1
3-11	84-117-320-01		Switch plate B	AP-D50	1
3-12	84-117-207-01		Arm carrier lever ass'y	AP-D50	1
3-13	84-117-213-01		T-spring	AP-D50	1
3-14	84-117-214-01		Lever, Friction	AP-D50	1
3-15	84-117-328-01		E-spring, Friction	AP-D50	1
3-16	84-117-215-01		Felt, Friction	AP-D50	1
3-17	84-117-239-01		Plate A, Switch	AP-D50	1
3-18	84-117-325-01		Collar, Drive shaft N	AP-D50	1
3-19	84-117-228-01		C-spring, Up	AP-D50	1
3-20	84-117-323-01		Shaft A, Up-down	AP-D50	1
3-21	84-117-231-01		Lever, Up-down	AP-D50	1
3-22	84-117-253-01		Gear, Drive	*	2
3-23	84-122-223-01		Collar, Drive shaft	AP-D50	1
3-24	84-117-299-01		Holder E ass'y	AP-D50	1
3-25	87-038-039-01		Wire binder		2
3-26	84-122-209-01		Drive gear B	*	1
3-27	84-117-334-01		Arm stopper B ass'y	AP-D50	1
3-28	84-117-307-01		E-spring, FG	AP-D50	1
3-29	82-439-232-01		Belt, Counter		1
3-30	87-081-483-01		Motor screw, M2.6		3
3-31	87-087-029-01		Rubber cushion		3
3-32	84-122-201-01		Holder B, Motor	*	1
3-33	84-117-361-01		Pulley, Motor	AP-D50	1
3-34	84-117-300-01		Plate D, Holder	AP-D50	1
3-35	84-117-251-01		Shaft, Drive	AP-D50	1
3-36	84-195-257-01		Holder, Screw		1
3-37	09-041-054-01		Tone arm ass'y		1
	84-117-101-01		Tone arm	AP-D50	1
	82-285-236-01		Washer, Carrying handle		1
	82-416-341-01		Wave washer		1
	84-117-219-01		Arm plate ass'y	AP-D50	1
	84-117-223-01		Cam B, eccentricity	AP-D50	1
	84-117-313-01		E-spring, Cam B	AP-D50	1
	87-410-213-01		W3-6-0.5		1
	87-341-095-01		UT <sub>1</sub> + 3-8		1
	87-364-070-01		SSH2.6-3		2
3-38	84-117-029-01		Rubber, Elevation	AP-D50	1
3-39	84-117-042-01		Elevation plate	AP-D50	1
3-40	84-117-340-01		C-spring, Elevation	AP-D50	1
3-41	84-117-226-01		C-spring, Down	AP-D50	1
3-42	84-117-365-01		Lifter shaft ass'y	AP-D50	1
3-43	84-117-951-01		Head shell	AP-D50	1
3-44	84-117-952-01		Cartridge ass'y	AP-D50	1
3-45	84-122-226-01		Cam B, Size select	*	1
3-46	84-117-218-01		Holder A, End	AP-D50	1
3-47	84-117-358-01		Pulley A	AP-D50	1
3-48	84-117-359-01		Pulley B	AP-D50	1
3-49	84-117-362-01		Belt	AP-D50	1
3-50	84-122-008-01		Cover, B sensor	*	1
3-51	84-122-009-01		Holder, D sensor	*	1
3-52	84-122-227-01		T-spring, Solenoid	*	1
3-53	84-122-231-01		T-spring, Solenoid	*	1
3-54	84-117-337-01		Spacer A, Shaft A	AP-D50	1
3-55	84-117-338-01		Spacer B, Shaft A	AP-D50	1
3-56	84-117-357-01		Motor plate	AP-D50	1
3-57	82-385-311-01		Thrust screw		2
3-58	82-122-211-01		Leaf lever A, Switch	*	1
3-59	84-122-218-01		Holder C, Slide switch	*	1
3-60	84-122-239-01		Felt 12 4-1	*	1
3-61	84-122-212-01		Lever A, Slide switch	*	1
3-62	84-122-235-01		C spring, Lever A	*	1
3-63	84-122-236-01		E spring, Lever A	*	1

## ACCESSORIES/PACKAGE

Ref. No.	Part No.	Part No. Chabged to	Description	Common Model	Q'ty
1	84-122-852-01		Printed indiv., Packing	*	1
2	84-117-852-11		Cushion front, Printed indiv.	AP-D50	1
3	84-117-853-01		Cushion R, Printed indiv	AP-D50	1
4	84-117-854-01		Cushion A, Auxiliary	AP-D50	1
5	84-117-855-01		Sheet, Auxiliary	AP-D50	1
6	84-117-861-01		Bag, Foamed mat	AP-D50	1
7	84-184-860-01		Foamed mat		1
8	84-196-858-01		Foamed mat		1
9	87-051-132-11		Poly-vinyl sack		3
10	87-051-171-11		poly-vinyl sack		1
11	87-056-604-01		Poly-vinyl sack		1
12	87-056-608-01		Poly-vinyl sack		1
13a	84-122-901-01		Instructions booklet (E model only)	*	1
13b	84-122-902-01		Instructions booklet (K model only)	*	1
14	87-056-009-41		Distributors list		1
15	87-056-008-11		Label, AC power cord (K model only)		1
16	84-190-965-01		Adapter, 45		1
17	85-439-002-01		Syncrate cord CW-150K		1
18	84-117-951-01		Head shell	AP-D50	1
19	84-117-952-21		Cartridge ass'y	AP-D50	1



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