

AUTO LIFT UP TURNTABLE

# KD-7010

## SERVICE MANUAL

# KENWOOD

Turntable sheet  
(G16-0355-13)

Dust cover  
(A53-1075-02)

Hinge  
(J50-0314-25) × 2

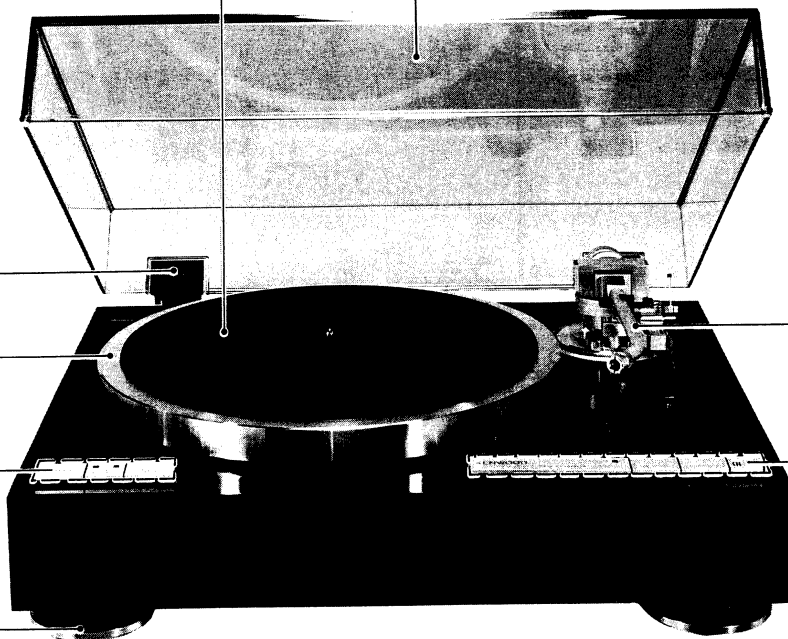
Turntable platter  
(D02-0039-15)

Operational part ass'y  
(D40-0844-03)

Insulator ass'y  
(J02-0346-13) × 4

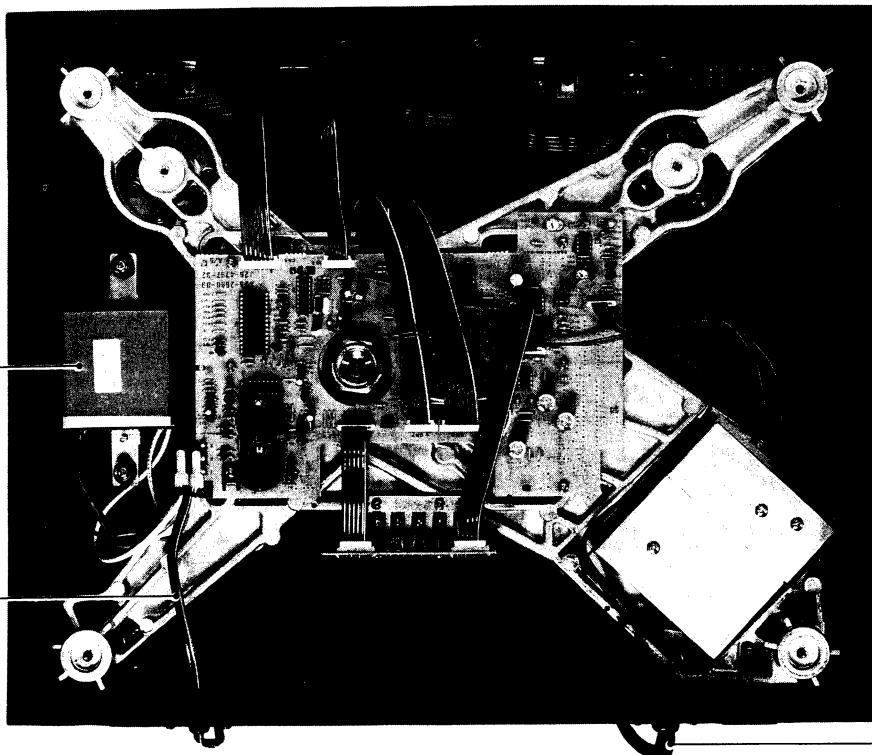
Pickup arm  
(J91-0294-08)

Operational part ass'y  
(D40-0846-03)



Power transformer\*  
(L01-)

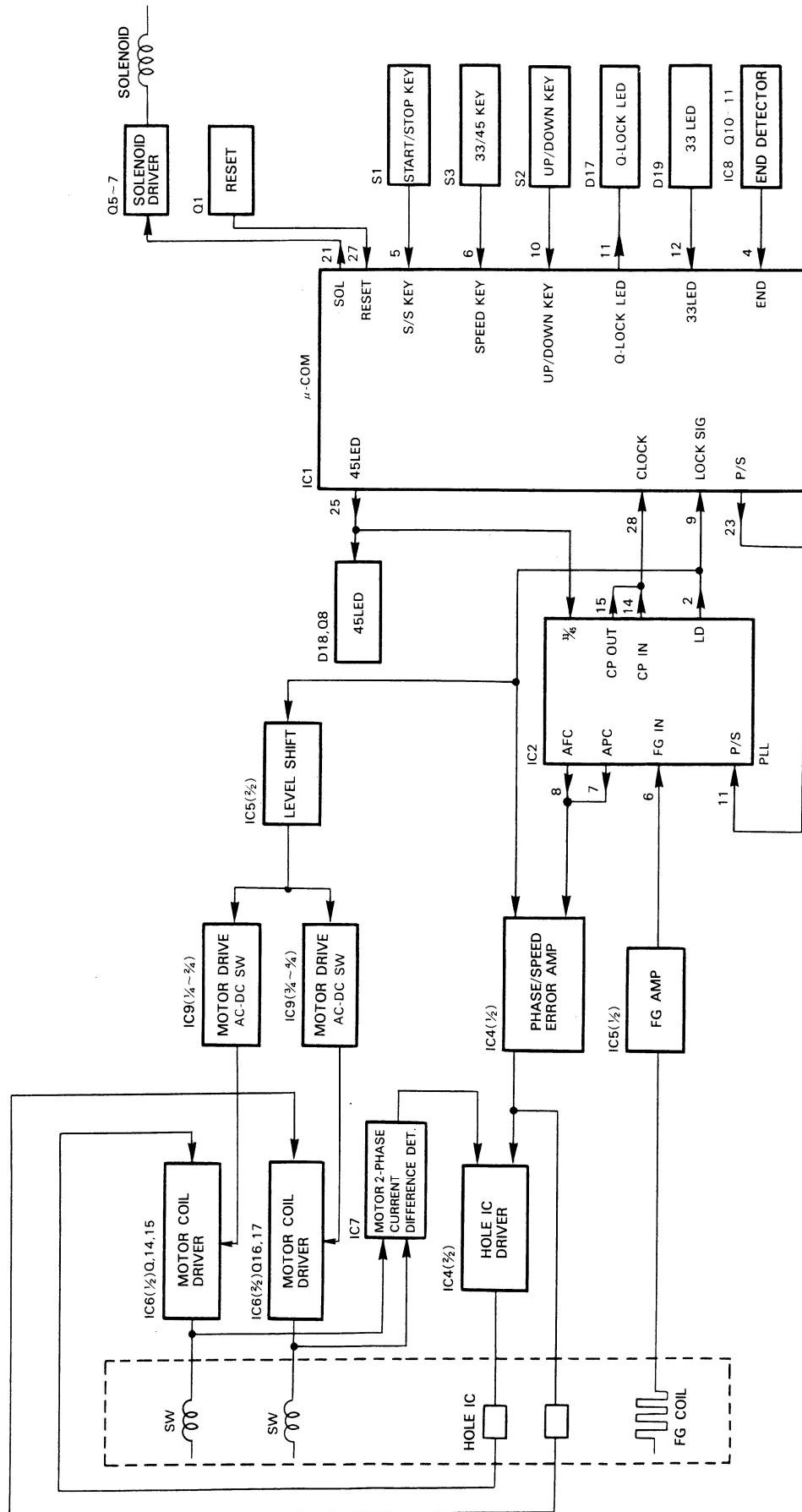
AC power cord\*  
(E30-)



Audio cord  
(E30-0800-05)

# KD-7010

## BLOCK DIAGRAM





## CIRCUIT DESCRIPTION

## 1. Functions of Semiconductors

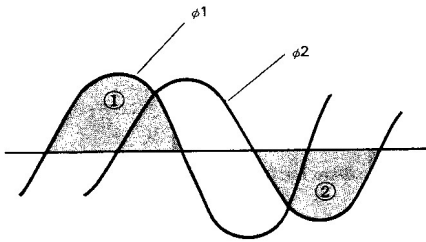
## ELECTRIC UNIT (X25-2580-00)

Element	Function	Operation, Condition & Interchangeability
IC1	Microprocessor	Refer to the description of $\mu$ PD7520.
IC2	PLL controller	For motor speed and phase control. Refer to the description of TC9142P.
IC3	Power ON/OFF	Each time Power SW S4 is pressed, the output from pin 2 switches between H and L, which controls Q5 to turn power ON and OFF.
IC4	Error amplifier, Hole IC driver	Drives the Hole ICs of the motor, based on the speed and phase error signals from IC2.
IC5	FG amplifier Level shifter	Amplifies the motor's FG output. Shifts the level of the IC2's Lock signal from (0 — 8 V) to (+10 — -10 V), and turns IC9 (analog SW) and Q9 ON and OFF.
IC6	Motor driver	Amplifies the motor's Hall IC output to drive the motor coil. Q14 to Q17 are output current boosters.
IC7	Difference detector for 2-phase motor coil current	Detects the difference values of the 2-phase current from the motor coil, and sends the signal to IC4 in order to eliminate the difference.
IC8	End detector	Amplifies the photo-reflector output, detects the tonearm position, differentiate the position detection output for conversion into speed, and compares it in order to detect the guide groove.
IC9	Analog SW, motor driver AC/DC coupling switch	The SW is OFF and the coupling is AC when the motor is quartz-locked, and the coupling is DC in other cases.
Q1	+8 V power supply	Increases the current of Zener diode D8.
Q2	Microprocessor reset	
Q3	Power ON/OFF	Q3 turns ON/OFF depending on the IC3's flip-flop output, controls the voltage at the base of Q1, and turns power ON and OFF.
Q4	IC3 reset	Detects the Zener current from Zener diode D9, and resets IC3. It is initialized so that the Power SW is OFF when the power cord is connected.
Q5	Q6 driver	Turned ON by microprocessor IC1 in solenoid drive operation (with microprocessor output "L").
Q6	Solenoid driver	ON when SOL is ON.
Q7	Solenoid driver	Turns ON for approx. 8 seconds from the solenoid kick operation.
Q8	LED driver	When the speed is set for 45 rpm, Q8 turns ON by "H" output from the microprocessor.
Q9	IC7 output OFF switch	Inhibits the operation of the 2-phase current difference detector circuit while the motor is not quartz-locked.
Q10, 11	End detector	Controls the photo-reflector output used for end detection.
Q12, 13	$\pm 10$ V power supply	Increases the current of Zener diodes D6 and D7.
Q14~17	Motor driver	Drives the motor coil for IC6 output current boost.

# KD-7010

## 2. Two-phase current difference detector circuit

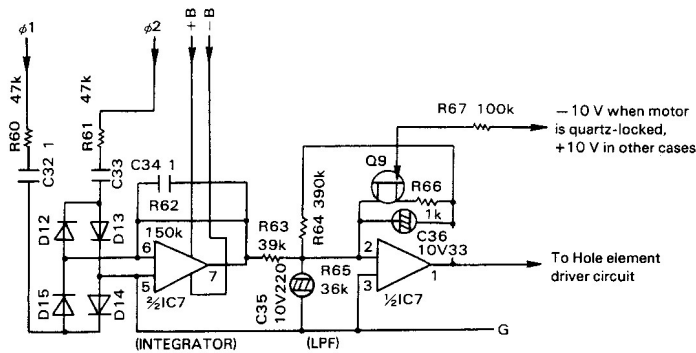
The wow & flutter of a two-phase motor deteriorates when there is a difference between the current values of the two phases,  $\phi 1$  and  $\phi 2$ . With the KP-990, this difference is eliminated by using a circuit which detects the difference between the two phase currents and adjusts the drive current of the Hole ICs.



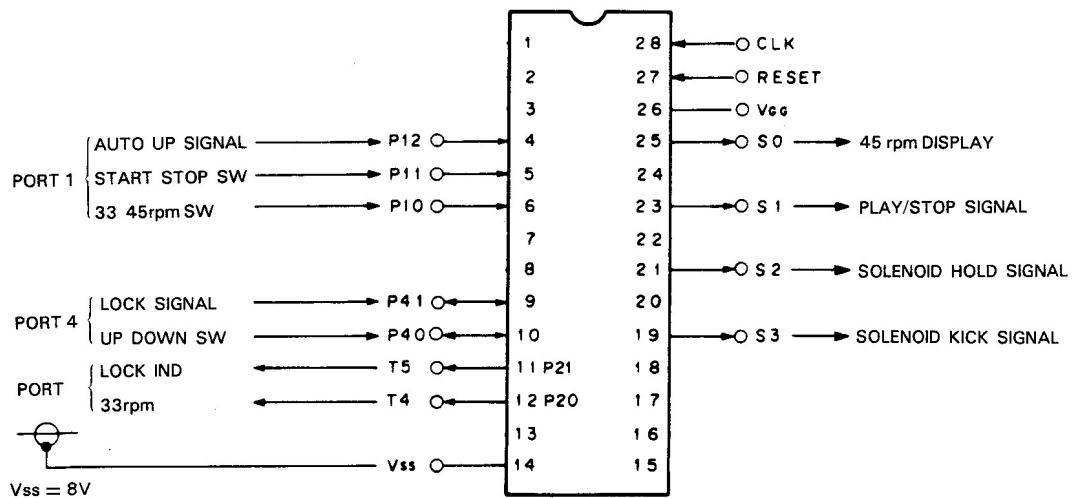
The positive side of  $\phi 1$  and negative side of  $\phi 2$  are input to the integrator, and the difference between  $\phi 1$  and  $\phi 2$  is output from it. (The difference between the ① and ② portions in the diagram on the left) Then, the ripple incorporated in the output is eliminated by the low-pass filter, and its output is recognized as the difference between the two phase currents.

The Hole element drive circuit uses this signal to control the currents of the two Hole ICs so that  $\phi 1$  and  $\phi 2$  current values are equal.

When the motor is not quartz-locked, Q9 is ON, the output is fixed at about 0 V, and this circuit does not operate.

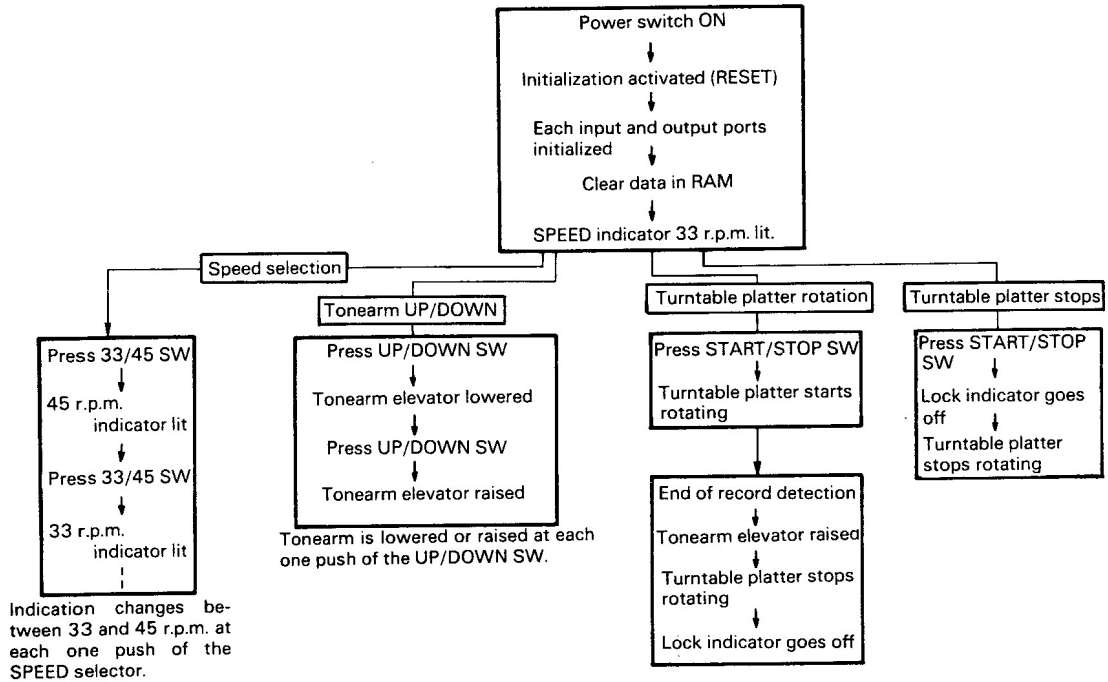


## 3. Microprocessor Operation Description



## ● Operation specifications of $\mu$ PD7520

The following diagram shows the operations of each section which occur at each operating point after power has been turned on.



### Condition of each $\mu$ PD7520C-028 ports

- (1) Initialization (Power ON)
- (2) Speed selection (33/45 rpm)
- (3) Turntable platter starts rotating (START)
- (4) Tonearm auto up
- (5) Turntable platter stops rotating (STOP)

The above mentioned (1) ~ (5) are placed in the order of the functions described in " $\mu$ PD7520C-028 Function description". The conditions shown in the table below are also in that order so that functions can be confirmed while checking the IC's ports.

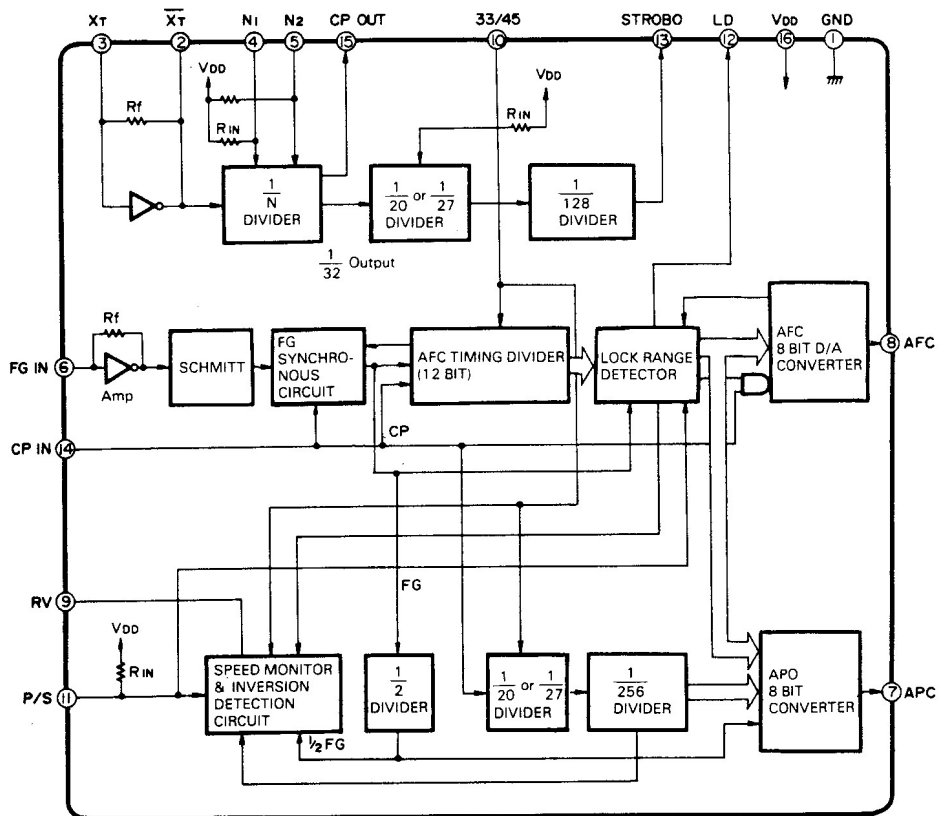
		INPUT PORT					OUTPUT PORT						
PORT NO.		P10	P11	P12	P13	P40	P41	T4	T5	S0	S1	S2	S3
PIN NO.		6	5	4	3	10	9	12	11	25	23	21	19
PORT NAME		33/45 SW	START STOP SW	AUTO UP Signal	Not used	UP DOWN SW	LOCK Signal	33rpm LED	LOCK LED	45rpm LED	START STOP Signal	UP DOWN Signal	Kick Signal
(1)	Power ON RESET												
(2)	33/45 SW ON (45)												
	33/45 SW ON (33)												
(3)	START/STOP SW ON												
(4)	Auto up signal IN												
	START/STOP SW ON												
(5)	START/STOP SW ON												

# KD-7010

## 4. Quartz PLL Motor Controller (C2-MOS LSI)

TC9142P is a motor controller for quartz lock type direct drive turntable motors. This IC employs 8-bit D/A converter for rotational speed control and phase control instead of the conventional capacitor type sampling hold circuit. This method will reduce the numbers of components and also gets free from adjustments.

### • BLOCK DIAGRAM



**ADJUSTMENT/REGLAGES/ABGLEICH**

• **Functions of terminals**

CODE	NAME	FUNCTION DESCRIPTION	REMARKS
1 GND	Ground	Ground terminal for IC	
2 XT, 3 XT	X'tal connection	Connect a crystal between these two pins.	Built-in feed back resistor
4 N1	Reference dividing factor sw.	Dividing factor of 4,32 or 128 can be selected for reference crystal frequency by these ports.	Built-in pull-up resistor
5 N2	FG pulse input	Pulses generated as motor rotates is input to this port for rotational speed detection.	
6 FG-IN	APC output	Automatic phase controller output. (8-bit D/A converter output)	Built-in amp
7 APC	AFC output	F-V converter output for rotational speed control. (8-bit D/A converter output)	
8 AFC	Inversion signal output	Inversion signal output for turntable motor.	
9 RV	Speed selector	Rotational speed selector port. (L: 33 1/3 r.p.m.) (H or NC: 45 r.p.m.)	Built-in pull-up resistor
10 33/45	PLAY/STOP input	Input port to select PLAY or STOP state of the turntable motor.	Built-in pull-up resistor
11 P/S	Lock detection output	Outputs "H" when the rotational speed is in the lock range, otherwise "L".	
12 LD	STROBO output	Reference frequency output for stroboscope with the duty ratio of 1/8.	
13 STROBO	CP-IN input	This port is normally connected oscillator input to this port will fine speed adjustment.	
14 CP-IN	CP-OUT output	Divided frequency output of crystal oscillator for reference, normally connected to CP-IN.	
15 CP-OUT	VDD	Feed power supply voltage of 5-9.5V.	

**ADJUSTMENT**

No.	ITEM	INPUT SETTINGS	OUTPUT SETTINGS	TURNTABLE SETTING	ALIGNMENT POINTS	ALIGN FOR	FIG.
1	END DETECT STARTING POSITION	-	Connect a DC voltmeter to TP1 (Pin 7 of IC8)	Set the stylus tip so that 57.5mm is obtained from the center of the turntable spindle.	VR1	0.9V	(a)
2	THRESHOLD VOLTAGE	-	Connect a DC voltmeter to TP2 (Pin 2 of IC8)	-	VR2	220mV	(b)

**REGLAGES**

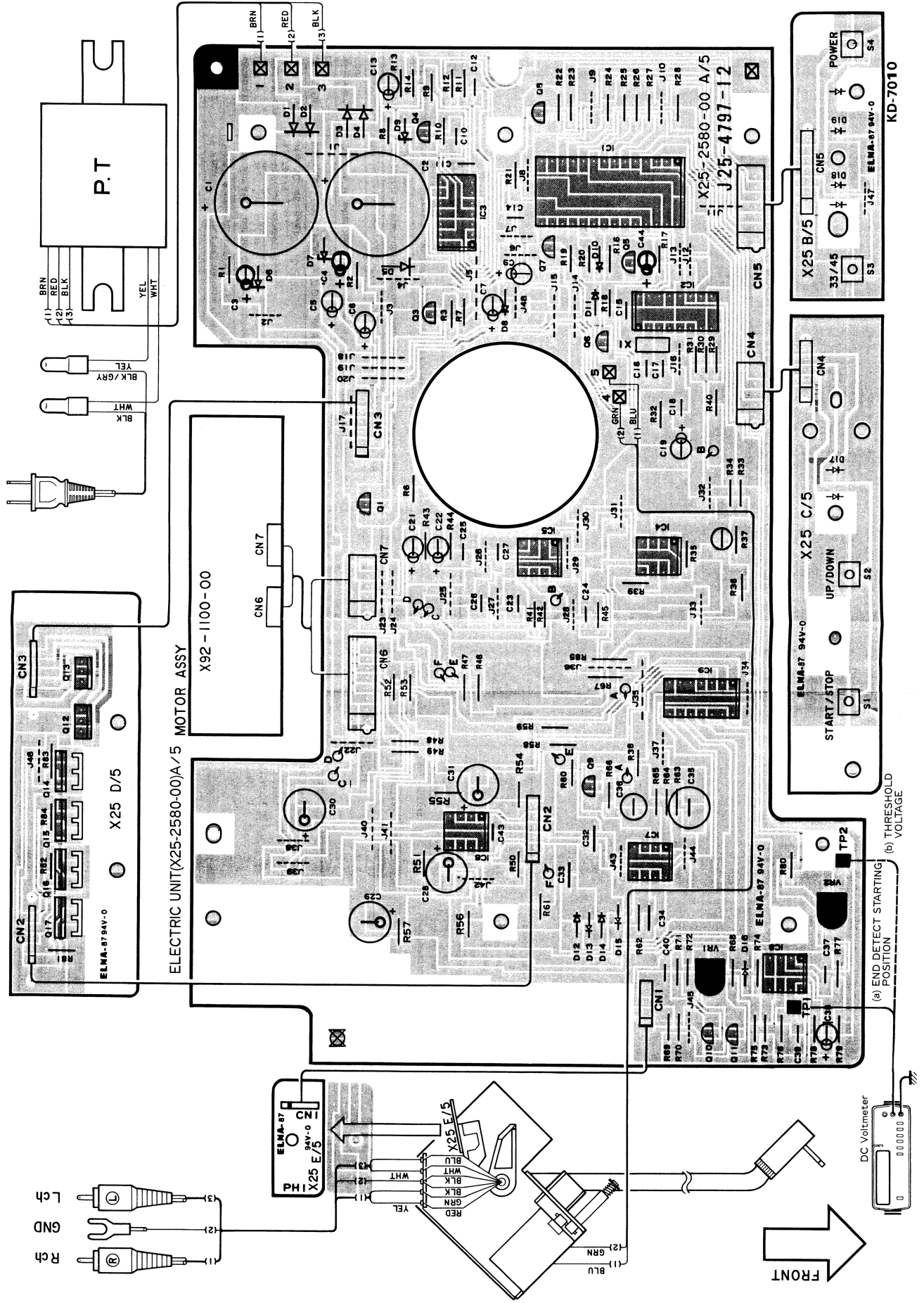
N°	ITEM	REGLAGE DE L'ENTREE	REGLAGE DE LA SORTIE	REGLAGE DE TOURNE-DISQUE	POINTS L'ALIGNMENT	ALIGNER POUR	FIG.
1	POSITION DE DEPART LA TERMINATION DE DETECTEUR	-	Connecteur un voltmètre CC à TP1 (Fiche 7 de IC8)	Régler la crête de aiguille de façon de 57,5mm soit obtenir de centre de plateau à disques.	VR1	0,9V	(a)
2	TENTION DE SEUIL	-	Connecteur un voltmètre CC à TP2 (Fiche 2 de IC8)	-	VR2	220mV	(b)

**ABGLEICH**

NR.	GEGENSTAND	EINGANGS-EINSTELLUNG	AUSGANGS-EINSTELLUNG	PLATTEN SPIELER-EINSTELLUNG	ABGLEICH PUNKTE	ABGLEICHEN FÜR	ABB.
1	ENDE DETEKTS ANFANGS-STELLUNG	-	Einen Gleichspannungs messer zum TP1 (Stift 7 von IC8) anschließen.	Der spitze von Tonabnehmer so einstellen, das ein 57,5mm aus der mitte des Plattentellers erhält wird.	VR1	0,9V	(a)
2	SCHWELLEN-SPANNUNG	-	Einen Gleichspannungs messer zum TP2 (Stift 2 von IC8) anschließen.	-	VR2	220mV	(b)

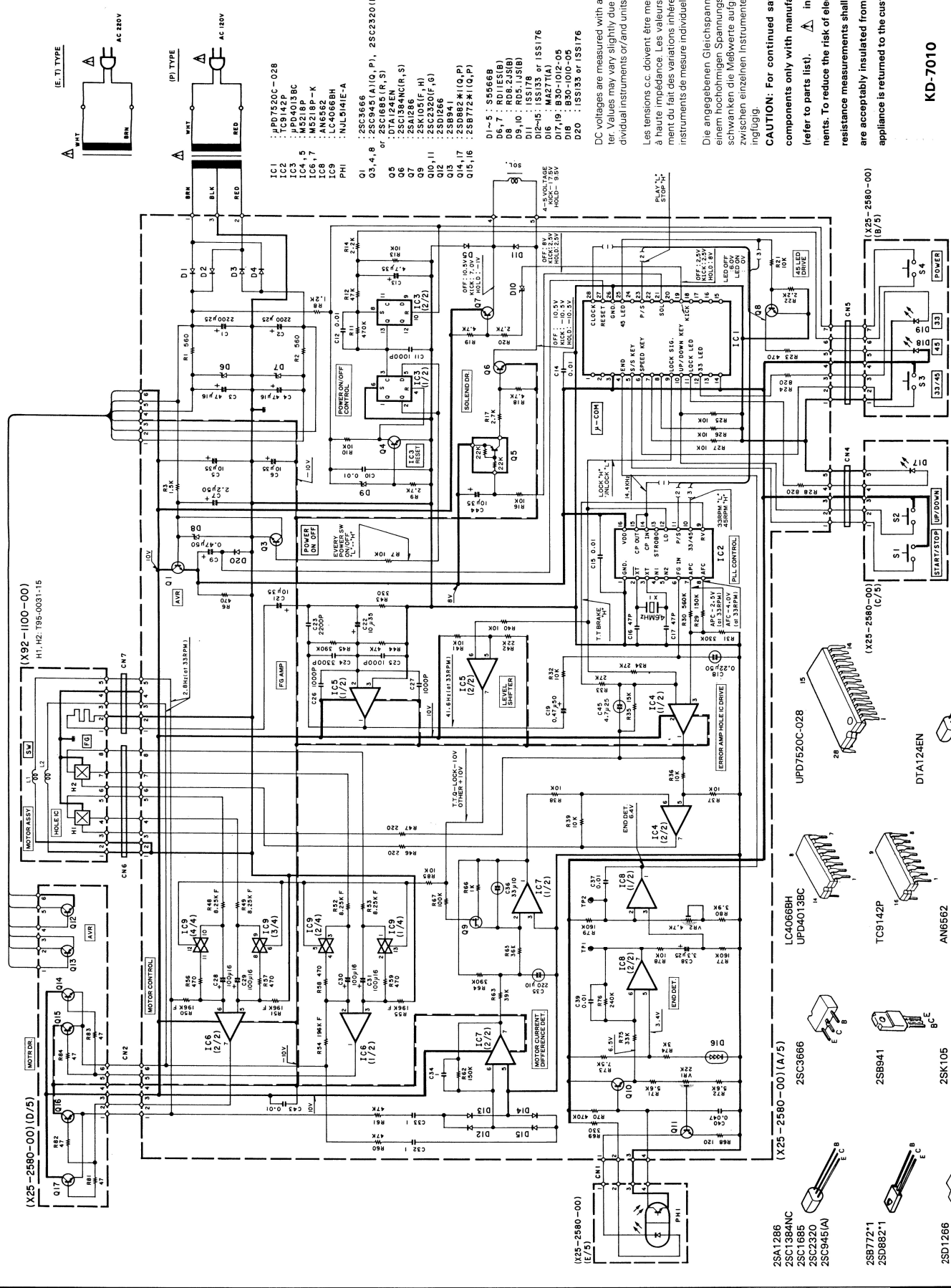
**PC BOARD (COMPONENT SIDE VIEW)**

Refer to the schematic diagram for the values of resistor and capacitors.



KD-7010

Y21-3001-01



(X92-1100-00)  
 H1, H2, T95-0031-15

(X25-2580-00) (D/5)

(X25-2580-00) (A/5)

(X25-2580-00) (C/5)

(X25-2580-00) (B/5)

(X25-2580-00) (C/5)

(X25-2580-00) (B/5)

25A1286  
 25C1384NC  
 25C1685  
 25C2320  
 25C945(A)

25B941  
 25D882-1

25D1266

25C3666

25B941

25K105

LC4066BH  
 UPD4013BC

TC9142P

AN6562  
 M5218P  
 M5218P-K

UPD7520C-Q28

DTA124EN

CHD  
 INPUT  
 OUTPUT

S1  
 S2

S3  
 S4

POWER

LED ON  
 LED OFF





PARTS LIST

\* New Parts
Parts without Parts No. are not supplied.
Les articles non mentionnés dans le Parts No. ne sont pas fournis.
Teile ohne Parts No. werden nicht geliefert.

Table with columns: Ref. No., Address, New Parts, Parts No., Description, Destination, Remarks. Includes items like DUST COVER, CAP, MIRROR, WARRANTY CARD, INSTRUCTION MANUAL, CAUTION CARD, TURNABLE PLATTER, ARM, SHAFT ASSY, ANTI-SKATING DEVICE ASSY, OPERATIONAL PART ASSY, OPERATIONAL PART ASSY, AUTO-UP MECHANISM ASSY, MAIN WEIGHT, WIPE CONNECTION CAP, AC POWER CORD, AUDIO CORD, COVER, TORSTON COIL SPRING, CUSHION, TURNABLE SHEET, COMPRESSION SPRING, ITEM CARTON CASE, POLYSTYRENE FOAMED FIXTURE (T, T), POLYSTYRENE FOAMED FIXTURE (L), POLYSTYRENE FOAMED FIXTURE (R), CARTON BOARD, PROTECTION COVER, PROTECTION BAG (60X110), PROTECTION BAG (235X350X0.03), INSULATOR ASSY, HOLDER, TONEARM BASE ASSY, TONEARM REST, SPACER (38X15X1.6), COLLAR, POWER CORD BUSHING, POWER CORD BUSHING.

E: Scandinavia & Europe K: USA P: Canada
U: PX(Far East, Hawaii) T: England M: Other Areas
UE: AAFES(Europe) X: Australia
indicates safety critical components.

PARTS LIST

\* New Parts
Parts without Parts No. are not supplied.
Les articles non mentionnés dans le Parts No. ne sont pas fournis.
Teile ohne Parts No. werden nicht geliefert.

Table with columns: Ref. No., Address, New Parts, Parts No., Description, Destination, Remarks. Includes items like BUSHING, HINGE, HINGE PLATE, RING, PICKUP ARM, SHELL, TONEARM LIFTER, HOLDER, LIFTER BASE, WIRE BAND, WIRE BAND, POWER TRANSFORMER, POWER TRANSFORMER, CARTRIDGE MOUNTING SCREW(M2.6X), CARTRIDGE MOUNTING SCREW(M2.6X), HEXAGON NUT, CIRCULAR NUT, FLAT WASHER, FLAT WASHER, RETAINING RING, M TYPE WASHER, MACHINE SCREW (M3X8), SET SCREW, SET SCREW, MACHINE SCREW (M6X25), E TYPE RETAINING RING, SET SCREW, TAPITITE SCREW (3X12), MACHINE SCREW (M3X35), STEPPED SCREW, MACHINE SCREW (M6X22.2), HEXAGON WRENCH KEY, EP ADAPTER, LED (QUARTZ LOCK), LED (45), LED (33), ELECTRO, 250UF, ELECTRO, 10UF, ELECTRO, 500UF, ELECTRO, 0.47UF, CERAMIC, 0.010UF, CERAMIC, 1000PF, CERAMIC, 0.010UF, CERAMIC, 4.7UF, CERAMIC, 0.010UF, CERAMIC, 47PF, CERAMIC, 0.22UF, NP-ELEC, 500W, ELECTRO, 0.47UF, 500W.

E: Scandinavia & Europe K: USA P: Canada
U: PX(Far East, Hawaii) T: England M: Other Areas
UE: AAFES(Europe) X: Australia
indicates safety critical components.

PARTS LIST

\* New Parts  
Parts without Parts No. are not supplied.  
Les articles non mentionnés dans le Parts No. ne sont pas fournis.  
Telle ohne Parts No. werden nicht geliefert.

Ref. No. 参照番号	Address 位置	Parts No. 部品番号	Description 部品名 / 規格	Desti- nation 仕	Re- marks 備考
54	1A	J42-0317-08	BUSHING		
55	1A	J50-0314-25	HINGE PLATE		
56	1A	J50-0322-04	HINGE PLATE		
57	2A	J69-0035-05	RING		
58	2A	J69-0035-05	PICKUP ARM		
59	1A	J91-0294-08			
61	1A	J92-0053-15	SHELL		
62	1A	J99-0020-08	SOLEARM LIFTER		
63	2A	J21-2302-05	HOLDER		
64	2A	J19-2656-08	LIFTER BASE		
-		J61-0054-05	WIRE BAND		
-		J61-0307-05	WIRE BAND		
66	2B	L01-7121-05	POWER TRANSFORMER	P	
66	2B	L01-7122-05	POWER TRANSFORMER	E	
66	2B	L01-7127-05	POWER TRANSFORMER	T	
70	3A	N09-0850-04	CARTRIDGE MOUNTING SCREW(M2.6X)		
71	3A	N09-0851-04	CARTRIDGE MOUNTING SCREW(M2.6X)		
72	3A	N09-0852-04	CARTRIDGE MOUNTING SCREW(M2.6X)		
82	1B	N14-0164-05	HEXAGON NUT		
83	3A	N14-0412-04	CIRCULAR NUT		
84	3A	N19-0175-09	FLAT WASHER		
85	2B	N19-0945-05	FLAT WASHER		
87	2A	N19-0985-05	FLAT WASHER		
88	1B	N29-0219-05	RETAINING RING		
89	1B	N19-0966-05	M TYPE WASHER		
A	1B	N09-1648-05	MACHINE SCREW (M3X8)		
D	1A	N09-1375-08	SET SCREW		
E	1A	N09-1374-08	SET SCREW		
F	2B	N09-1565-05	MACHINE SCREW (M6X25)		
F	1B	N24-3050-41	E TYPE RETAINING RING		
P	1A	N09-1376-08	SET SCREW		
S	1A	N09-1238-05	TAPTITE SCREW (3X12)		
T	2A	N09-1645-05	MACHINE SCREW (M3X35)		
V	1A,1B	N09-1311-08	STEPPED SCREW		
Z	2A	N09-1597-05	MACHINE SCREW (M6X22.2)		
92	3A	W01-0302-08	HEXAGON WRENCH KEY		
93	3A	W01-0329-04	EP ADAPTER		
<b>ELECTRIC UNIT (X25-2580-00; P, X25-2582-71; E, T)</b>					
D17	2A	B30-1012-05	LED (QUARTZ LOCK)		
D18	2A	B30-1010-05	LED (45)		
D19	2A	B30-1012-05	LED (33)		
C1	*2	C90-1358-05	ELECTRØ		250W
C3	*4	CE04KM1C470M	ELECTRØ		47UF 160V
C5	*6	CE04KM1V100M	ELECTRØ		10UF 350V
C7		CE04KM1H2R2M	ELECTRØ		2.2UF 500V
C9		CE04KM1HR47M	ELECTRØ		0.47UF 500V
C10		CK45FF1H103Z	CERAMIC		0.010UF Z
C11		CK45FB1H102K	CERAMIC		100PF K
C12		CK45FF1H103Z	CERAMIC		0.010UF Z
C13		CE04KM1V4R7M	ELECTRØ		4.7UF 350V
C14	*15	CK45FF1H103Z	CERAMIC		0.010UF Z
C16	*17	CC45FSL1H470J	NP-ELEC		47PF J
C18		C90-1456-05	NP-ELEC		0.22UF 500V
C19		CE04KM1HR47M	ELECTRØ		0.47UF 500V

E: Scandinavia & Europe K: USA P: Canada  
U: PK(Far East, Hawaii) T: England M: Other Areas  
UE: AAFES(Europe) X: Australia

▲ indicates safety critical components.

PARTS LIST

\* New Parts  
Parts without Parts No. are not supplied.  
Les articles non mentionnés dans le Parts No. ne sont pas fournis.  
Telle ohne Parts No. werden nicht geliefert.

Ref. No. 参照番号	Address 位置	Parts No. 部品番号	Description 部品名 / 規格	Desti- nation 仕	Re- marks 備考
C21, *22		CE04KM1V100M	ELECTRØ		350W
C23		CF92FV1H222J	MF		J
C24		CF92FV1H332J	MF		J
C25	-27	CK45FB1H102K	CERAMIC		K
C28	-31	CE04GM1C101M	LL-ELEC		1.60V
C32	-34	CF92V1H105J	MF		J
C35		C90-1395-05	NP-ELEC		100W
C36		C90-1396-05	NP-ELEC		100W
C37		CK45FF1H103Z	CERAMIC		0.010UF Z
C38		C90-1285-05	ELECTRØ		3.3UF 250V
C39		CK45FF1H103Z	CERAMIC		0.010UF Z
C40		CK45FF1H473Z	CERAMIC		0.047UF Z
C43		CK45FF1H103Z	CERAMIC		0.010UF Z
C44		CE04KM1V100M	ELECTRØ		350W
C45		C90-1352-05	NP-ELEC		4.7UF 250V
95	1B	E23-0125-05	TERMINAL		
X1		L77-0580-05	CRYSTAL RESONATOR(4.6MHZ)		
R48	*9	RN14BK2C8251F	FN		B.25K F 1/6W
R50	*1	RN14BK2C1963F	FN		196K F 1/6W
R52	*3	RN14BK2C8251F	FN		B.25K F 1/6W
R54	*5	RN14BK2C1963F	FN		196K F 1/6W
UR1		R12-3097-05	TRIMMING PØT. (22K)		
UR2		R12-1069-05	TRIMMING PØT. (4.7K)		
S1	-4	S40-1064-05	PUSH SWITCH		
D1	-5	S55666B	DIØDE		
D6	*7	RD11ES(B)	ZENER DIØDE		
D8		RØB.2J5(B)	ZENER DIØDE		
D9	*10	RØS.1J5(B)	ZENER DIØDE		
D11		1S5178	DIØDE		
D12	-15	1S5133	DIØDE		
D12	-15	1S5176	DIØDE		
D16		MAZ7T(A)	VARIABLE		
D20		1S5133	DIØDE		
D20		1S5176	DIØDE		
IC1		UPØ7520C-028	IC(MICROPROCESSOR)		
IC2		TC9142P	IC(QUARTZ PLL MOTOR CONTRØL)		
IC3		UPØ40138C	IC(D FLIP-FLOP X2)		
IC4	*5	M5218P	IC(OP AMP X2)		
IC6	*7	M5218P-K	IC(OP AMP X2)		
IC8		AN6562	IC(OP AMP X2)		
IC9		LC4066BH	IC(BILATERAL SWITCH X4)		
PH1		NJL5141E-A	PHOTO TRANSISTØR		
Ø1		25C3666	TRANSISTØR		
Ø3	*4	25C1685(R,S)	TRANSISTØR		
Ø3	*4	25C2320(E,F)	TRANSISTØR		
Ø3	*4	25C945(A)(G,P)	TRANSISTØR		
Ø5		DTA124EN	DIGITAL TRANSISTØR		
Ø6		25C1364NC(R,S)	TRANSISTØR		
Ø7		25A1286	TRANSISTØR		
Ø8		25C1685(R,S)	TRANSISTØR		
Ø8		25C2320(E,F)	TRANSISTØR		
Ø8		25C945(A)(G,P)	TRANSISTØR		

E: Scandinavia & Europe K: USA P: Canada  
U: PK(Far East, Hawaii) T: England M: Other Areas  
UE: AAFES(Europe) X: Australia

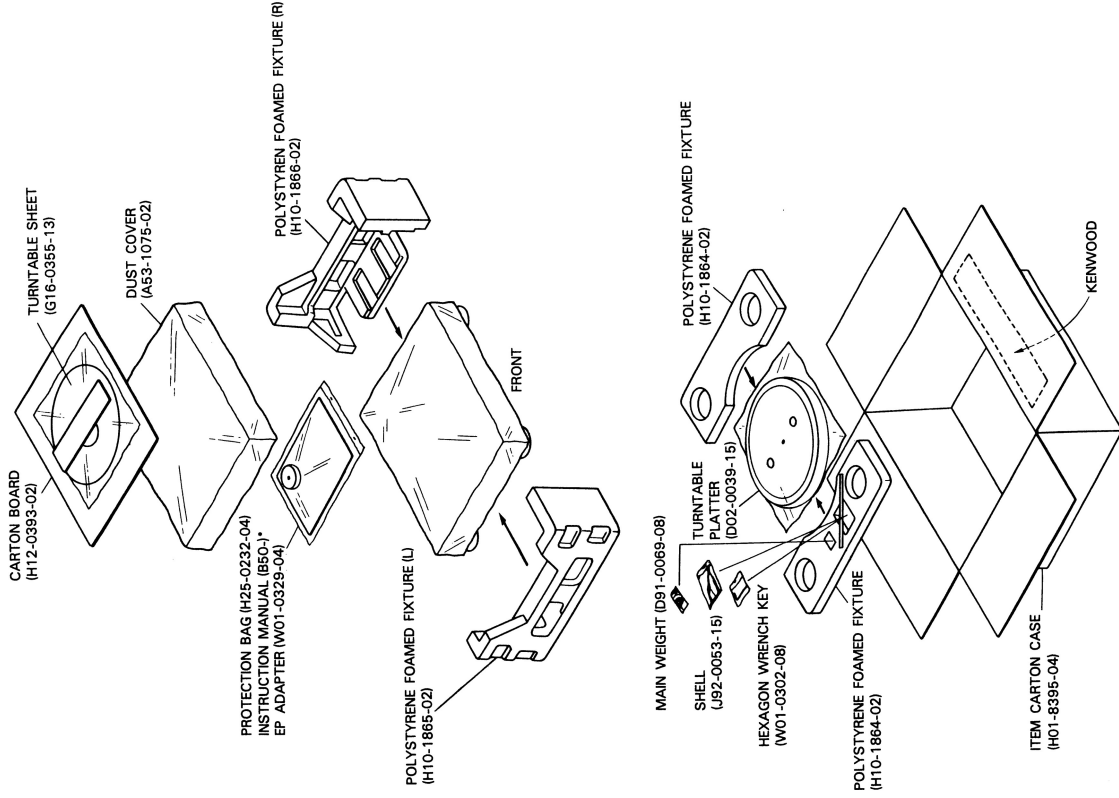
▲ indicates safety critical components.

**PARTS LIST**

\* New Parts  
 Parts without Parts No. are not supplied.  
 Les articles non mentionnés dans le Parts No. ne sont pas fournis.  
 Teile ohne Parts No. werden nicht geliefert.

Ref. No. 参照番号	Address 位 置	Parts No. 部 品 番 号	Description 部 品 名 / 規 格	Desti- nation 向 標	Re- marks 備 考
09		25K105(F,H)	FET		
010	.11	25C2320(F,G)	TRANSISTOR		
012		25D1266	TRANSISTOR		
013		25B941	TRANSISTOR		
014		25D882*1(O,P)	TRANSISTOR		
015	.16	25B772*1(O,P)	TRANSISTOR		
017		25D882*1(O,P)	TRANSISTOR		
<b>MOTOR ASSY (X92-1100-00)</b>					
-		H25-0232-04	PROTECTION BAG (235X350XD.03)		
142	3B	N29-0085-05	RETAINING RING		
121	3B	T50-1011-03	Y8KE		
123	3B	T50-1031-04	R8TOR ASSY		
<b>ELECTRIC CIRCUIT MODULE (W02-0660-03)</b>					
L1	.2	L39-0127-05	DRIVE COIL		
H1	.2	T95-0031-15	HALL ELEMENT		

**PACKING**



E: Scandinavia & Europe K: USA P: Canada  
 U: PX(Far East, Hawaii) T: England M: Other Areas  
 UE: AAFES(Europe) X: Australia

△ indicates safety critical components.

\*Refer to Parts List on page 14.

## SPECIFICATIONS

### Motor and turntable

<b>Drive System</b> .....	Direct-drive system
<b>Motor</b> .....	Quartz PLL coreless & slotless DC servo motor
<b>Turntable Platter</b> .....	33 cm (13") diameter Aluminum alloy, Die-cast
<b>Speeds</b> .....	2 speeds: 33-1/3 and 45 rpm
<b>Wow &amp; Flutter</b> .....	Less than 0.02% (WRMS)
<b>Rumble</b> .....	Less than 0.03% (DIN)
	DIN weighted better than
	-80 dB
	DIN unweighted better than
	-55 dB

### Tonearm

<b>Type</b> .....	Static-balance type, J-shape tonearm
<b>Effective Tonearm Length</b> .....	245 mm (9-5/8")
<b>Overhang</b> .....	15 mm (9/16")
<b>Tracking Error</b> .....	+1.8° to -1.0°
<b>Tracking Force Range</b> .....	0 to 3 grams (0.1 g Step)
<b>Usable Cartridge Weight</b> .....	2.0 to 12 grams (with supplied head-shell)

### Miscellaneous

<b>Power Consumption</b> .....	25 watts
<b>Dimensions</b> .....	W: 490 mm (19-5/16")
	H: 182 mm (7-3/16")
	D: 410 mm (16-5/32")
<b>Weight (Net)</b> .....	13.7 kg (30.14 lb)

### Note:

We follow a policy of continuous advancements in development. For this reason specifications may be changed without notice.

### Note

Component and circuitry are subject to modification to insure best operation under differing local conditions. This manual is based on the CANADA (P) standard, and provides information on regional circuit modification through use of alternate schematic diagrams, and information on regional component variations through use of parts list.

## KENWOOD CORPORATION

Shinogi Shibuya Building, 17-5, 2-chome Shibuya, Shibuya-ku, Tokyo 150, Japan

**KENWOOD U.S.A. CORPORATION**  
2201 East Dominguez Street, Long Beach, CA 90810;  
550 Clark Drive, Mount Olive, NJ 07928, U.S.A.

**KENWOOD ELECTRONICS CANADA INC.**  
P.O. Box 1075 959 Gana Court, Mississauga, Ontario, Canada L4T 4C2

**KENWOOD ELECTRONICS BENELUX N.V.**  
Mechelsesteenweg 418 B-1930 Zaventem, Belgium

**KENWOOD ELECTRONICS DEUTSCHLAND GMBH**  
Rembucker-Str. 15, 60566 Heusenstamm, West Germany

**TRIO-KENWOOD FRANCE S.A.**  
Hi-Fi-VIDEO-CAR Hi-Fi  
13, Boulevard Ney, 75018 Paris, France

**TRIO-KENWOOD U.K. LTD.**  
17, Bricol Road, The Metropolitan Centre, Greenford, Middx UB6 8LP, England

**KENWOOD ELECTRONICS AUSTRALIA PTY. LTD.**  
4E Woodcock Place, Lane Cove, N.S.W. 2086, Australia

**KENWOOD & LEE ELECTRONICS, LTD.**  
Wang Kee Building, 4th Floor, 34-37, Connaught Road, Central, Hong Kong