

CDP-K1

SERVICE MANUAL

US Model
Canadian Model
AEP Model
UK Model
E Model



SPECIFICATIONS

Compact disc player

Frequency response	2 Hz – 20 kHz \pm 0.5 dB
Signal to noise ratio	More than 98 dB
Dynamic range	More than 92 dB
Harmonic distortion	Less than 0.008 %
Channel separation	More than 95 dB
LINE OUT (phono jacks)	Output level 1.5 V (at 50 kilohms) Load impedance over 10 kilohms
PHONES (stereo phone jack)	Output level max. 10 mW Load impedance 32 ohms

Input

MIC1/MIC2 jack	Standard jack 1 mV (Impedance blow 1 kilohms)
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General

Power requirements	UK model 240V AC, 50/60Hz AEP model 220–230V AC, 50/60Hz US, Canadian model 120V AC, 60Hz E, Saudi Arabia model 110–120, 220–240 V AC adjustable, 50/60Hz
Power consumption	16 W
Dimensions (approx., including projections)	355 × 95 × 310 mm (w/h/d) (14 × 3 ³ / ₄ × 12 ¹ / ₄ inches)
Weight (approx.)	3.2 kg (7 lbs 1 oz)

Model Name Using Similar Mechanism	CDP-391
CD Mechanism Type	CDM14-5BD1
Optical Pick-Up Block Type	BU-5BD1

Supplied accessories

	CDP-K1
Audio cord	1 (2 phono plugs – 2 phono plugs)
Remote commander	RM-DK11
R6 (size AA) batteries	2

Design and specifications subject to change without notice.

SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY MARK \triangle OR DOTTED LINE WITH MARK \triangle ON THE SCHEMATIC DIAGRAMS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

ATTENTION AU COMPOSANT AYANT RAPPORT À LA SÉCURITÉ!

LES COMPOSANTS IDENTIFIÉS PAR UNE MARQUE \triangle SUR LES DIAGRAMMES SCHÉMATIQUES ET LA LISTE DES PIÈCES SONT CRITIQUES POUR LA SÉCURITÉ DE FONCTIONNEMENT. NE REMPLACER CES COMPOSANTS QUE PAR DES PIÈCES SONY DONT LES NUMÉROS SONT DONNÉS DANS CE MANUEL OU DANS LES SUPPLÉMENTS PUBLIÉS PAR SONY.

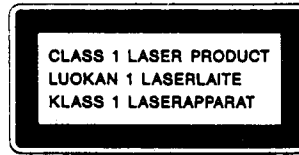
COMPACT DISC PLAYER
SONY®



TABLE OF CONTENTS

<u>Section</u>	<u>Title</u>	<u>Page</u>
1. GENERAL		
	• Location of Controls	5
2. ELECTRICAL BLOCK CHECKING		6
3. DIAGRAMS		
3-1. Circuit Boards Location		8
3-2. Semiconductor Lead Layout		9
3-3. Printed Wiring Boards		10
3-4. Schematic Diagram—Main Section—		13
3-5. Schematic Diagram—MD Section—		17
4. EXPLODED VIEWS		
4-1. Cabinet Section		21
4-2. Front Panel Section		22
4-3. MD Block (CDM14-5BD1) Section		23
4-4. Optical Pick-Up Block (BU-5BD1) Assembly ..		24
5. ELECTRICAL PARTS LIST		25

For the united Kingdom and European countries



This Compact Disc player is classified as a CLASS 1 LASER product. The CLASS 1 LASER PRODUCT label is located on the rear exterior.

NOTES ON HANDLING THE OPTICAL PICK-UP BLOCK OR BASE UNIT

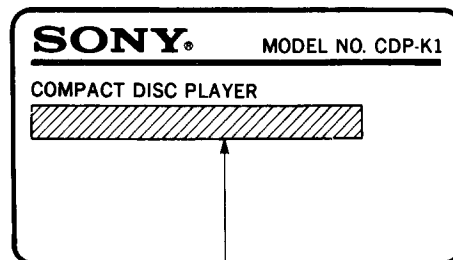
The laser diode in the optical pick-up block may suffer electrostatic breakdown because of the potential difference generated by the charged electrostatic load, etc. on clothing and the human body. During repair, pay attention to electrostatic breakdown and also use the procedure in the printed matter which is included in the repair parts. The flexible board is easily damaged and should be handled with care.

NOTES ON LASER DIODE EMISSION CHECK

The laser beam on this model is concentrated so as to be focused on the disc reflective surface by the objective lens in the optical pick-up block. Therefore, when checking the laser diode emission, observe from more than 30cm away from the objective lens.

MODEL IDENTIFICATION

—Specification Label—



US, Canadian model:
 AC: 120V 60Hz 16W
 AEP model: AC: 220-230V~50/60Hz
 UK model: 240V~50/60Hz
 E, Saudi Arabia model:
 AC: 110-120, 220-240~50/60Hz 16W

SAFETY CHECK-OUT

After correcting the original service problem, perform the following safety check before releasing the set to the customer:

Check the antenna terminals, metal trim, "metallized" knobs, screws, and all other exposed metal parts for AC leakage. Check leakage as described below.

LEAKAGE TEST

The AC leakage from any exposed metal part to earth ground and from all exposed metal parts to any exposed metal part having a return to chassis, must not exceed 0.5 mA (500 microamps). Leakage current can be measured by any one of three methods.

1. A commercial leakage tester, such as the Simpson 229 or RCA WT-540A. Follow the manufacturers' instructions to use these instruments.
2. A battery-operated AC milliammeter. The Data Precision 245 digital multimeter is suitable for this job.

3. Measuring the voltage drop across a resistor by means of a VOM or battery-operated AC voltmeter. The "limit" indication is 0.75 V, so analog meters must have an accurate low-voltage scale. The Simpson 250 and Sanwa SH-63Trd are examples of a passive VOM that is suitable. Nearly all battery operated digital multimeters that have a 2 V AC range are suitable. (See Fig. A)

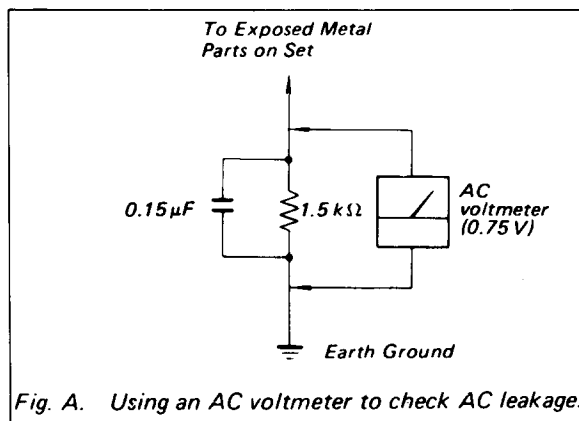


Fig. A. Using an AC voltmeter to check AC leakage.

PROTECTION OF EYES FROM LASER BEAM DURING SERVICING

This set employs a laser. Therefore, be sure to follow carefully the instructions below when servicing.

CAUTION

Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.

1. Laser Diode Properties

- Material: GaAlAs
- Wavelength: 780 nm
- Emission Duration: continuous
- Laser Output Power: less than 44.6 μ W*

* This output is the value measured at a distance of 200 mm from the objective lens surface on the Optical Pick-up Block.

2. During service, do not take the Optical Pick-up Block apart, and do not adjust the APC circuit. If there is a breakdown in the APC circuit (including laser diode), replace the entire Optical Pick-up Block (including APC board).

BESKYTTELSE AF ØJNE MOD LASERSTRÅLING UNDER SERVICE

I dette apparat anvendes laserlys. Derfor skal nedenstående instruktioner nøje følges under service.

Følg iverigt instruktionerne i servicemanualen.

ADVARSEL!!

Under service må øjnene ikke komme nær objektiv-linsen på den optiske pick-up enhed. I tilfælde af at det er nødvendigt at kontrollere udsendelsen af laserlys, skal det ske i en afstand af mere end 25 cm fra den optiske pick-up.

1. Laser-dioe data

- Materiale: GaAlAs
- Bølgelængde: 780 nm
- Udstråling: Kontinuerlig
- Laseroutput: Max. 0,4 mW*

* Målt i 1,6 mm afstand fra overfladen af objektiv-linsen på den optiske pick-up enhed.

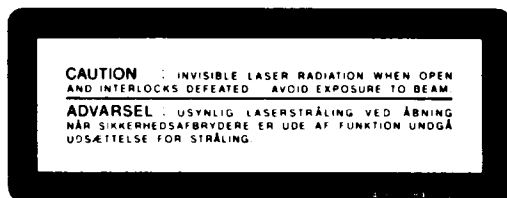
- Klassifikation: Klasse III b.

2. Adskil aldrig den optiske pick-up enhed under service, og juster ikke APC kredsløbet (Automatic Power Control). Hvis APC kredsløbet (incl. laser-dioden) bryder ned, skal hele den optiske pick-up enhed (incl. APC printkortet) udskiftes.

LASER ADVARSEL MÆRKNING

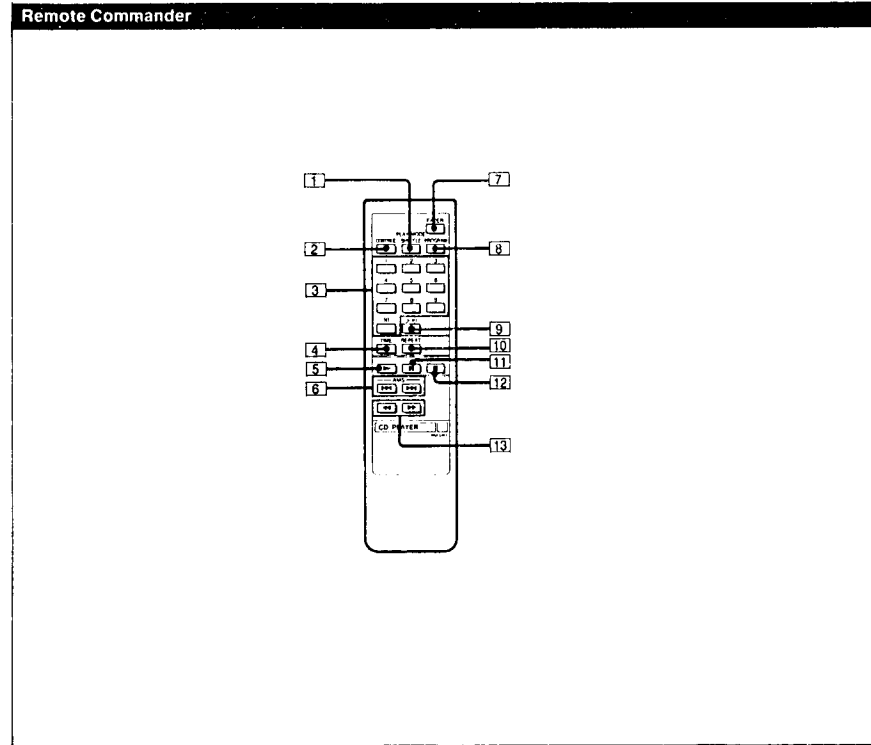
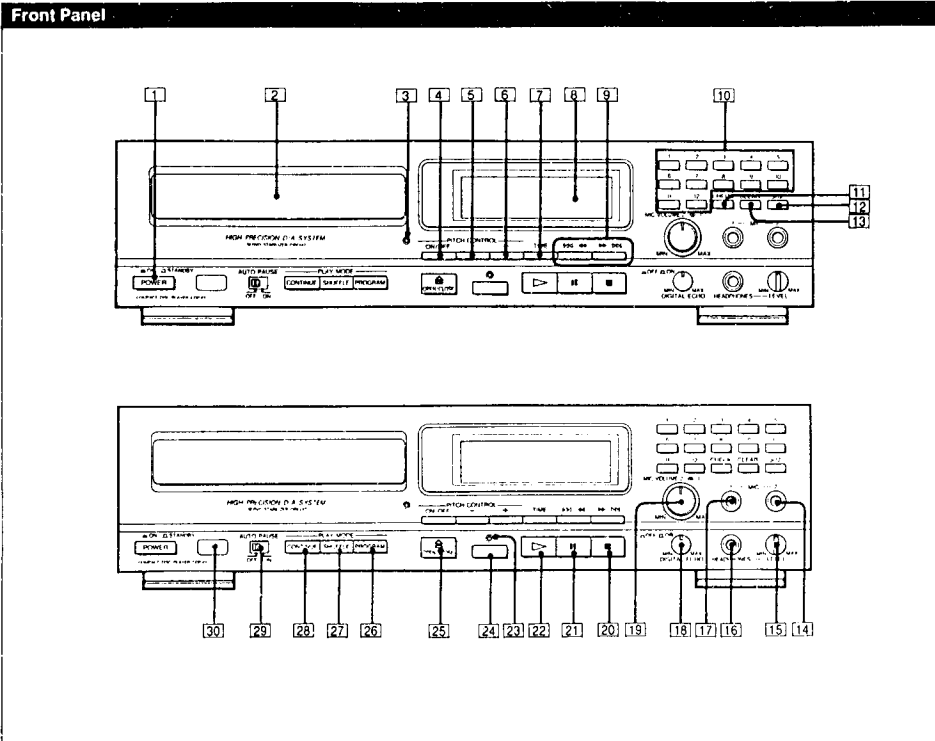
Følgende mærkning findes indvendig i apparatet:

1. Advarsel Mærkning



VAROITUS: Laite sisältää, laserdiodin, joka lähettää (näkyvätöntä) silmille vaarallista lasersäteilyä.

Location of Controls



Refer to the pages indicated in ● for details.

- 1 Power switch ●
- 2 Disc tray ●
- 3 PITCH CONTROL indicator ●
- 4 PITCH CONTROL ON/OFF button ●
- 5 PITCH CONTROL - button ●
- 6 PITCH CONTROL + button ●
- 7 TIME button ●
- 8 Display window
- 9 ◀▶ (AMS*/RMS**/manual search) buttons ●
- 10 Numeric buttons ●
- 11 CHECK (program check) button ● ●
- 12 > 12 button ●
- 13 CLEAR (program clear) button ● ●
- 14 MIC jack2 ●
- 15 PHONES LEVEL control
- 16 PHONES jack
- 17 MIC jack1 ●
- 18 DIGITAL ECHO button/level control ●

- 19 MIC volume control ●
- 20 ■ (stop) button ●
- 21 || (pause) button ●
- 22 ▶ play button ●
- 23 KARAOKE PON/VOCAL REDUCTION indicator ●
- 24 KARAOKE PON/VOCAL REDUCTION button ●
- 25 = (open/close) button ●
- 26 PROGRAM button ●
- 27 SHUFFLE button ●
- 28 CONTINUE button ● ●
- 29 AUTO PAUSE Switch ●
- 30 Remote sensor ●

* AMS is the abbreviation of Automatic Music Sensor.
 ** RMS is the abbreviation of Random Music Sensor.

Refer to the pages indicated in ● for details.

- 1 SHUFFLE button ●
- 2 CONTINUE button ● ●
- 3 Numeric buttons ●
- 4 TIME button ●
- 5 ▶ (play) button ●
- 6 ◀▶ AMS buttons ● ● ● ●
- 7 FADER button ●
- 8 PGM (program) button ●
- 9 > 10 (over 10) button ●
- 10 REPEAT button ●
- 11 || (pause) button ●
- 12 ■ (stop) button ●
- 13 ◀▶▶ (manual search) buttons ● ●

SECTION 1 GENERAL

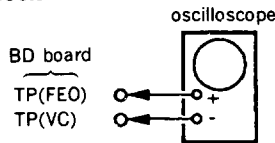
This section is extracted from instruction manual.

SECTION 2 ELECTRICAL BLOCK CHECKING

Note :

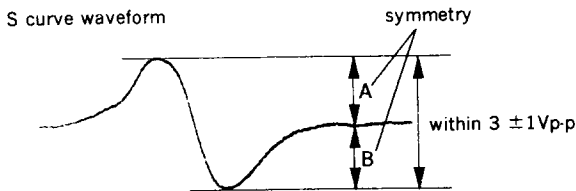
1. CD Block basically constructed to operate without adjustment. Therefore, check each item in order given.
2. Use YEDS-18 disc (3-702-101-01) unless otherwise indicated.
3. Use the oscilloscope with more than 10MΩ impedance.
4. Clean an object lens by an applicator with neutral detergent when the signal level is low than specified value with the following checks.

S Curve Check



Procedure :

1. Connect oscilloscope to test point TP (FEO) on BD board.
2. Connect between test point TP (FES) and TP (VC) by lead wire.
3. Turned Power switch on and actuate the focus serch. (actuate the focus serch when disc table is moving in and out.)
4. Check the oscilloscope waveform (S curve) is symmetrical between A and B. And confirm peak to peak level within $3 \pm 1V_{p-p}$.

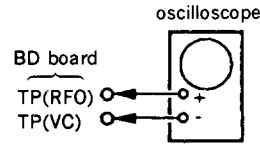


5. After check, remove the lead wire connected in step 2.

Note : • Try to mesure several times to make sure that the ratio of A : B or B : A is more than 10 : 7.

- Take sweep time as long as possible and light up the brightness to obtain best waveform.

RF Level Check

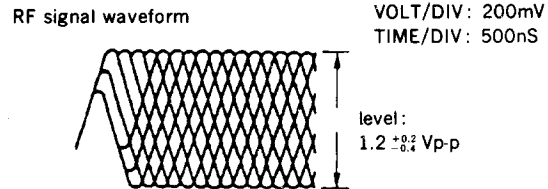


Procedure :

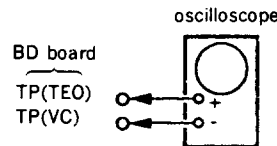
1. Connect oscilloscope to test point TP (RFO) on BD board.
2. Turn Power switch on.
3. Put disc (YEDS-18) in and playback.
4. Confirm that oscilloscope waveform is clear and check RF signal level is correct or not.

Note :

Clear RF signal waveform means that the shape "◇" can be clearly distinguished at the center of the waveform.

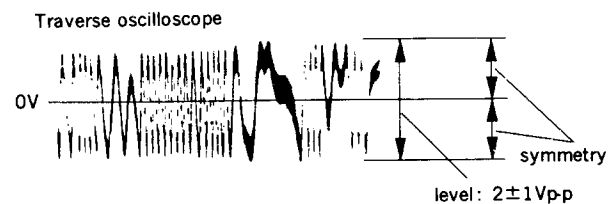


E-F Balance Check



Procedure :

1. Connect test point TP (ADJ) to ground and TP (TES) to TP (VC) with lead wire.
2. Connect oscilloscope to test point TP (TEO) on BD board.
3. Turn Power switch on.
4. Put disc (YEDS-18) in and playback.
5. Confirm that the osilloscope waveform is symmetrical on the top and bottom in relation to 0V, and check this level.

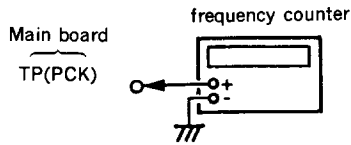


6. Remove the lead wire connected in step 1.

RF PLL Free-run Frequency Check

Procedure :

1. Connect frequency counter to test point (PCK) with lead wire.



2. Turn Power switch on.
3. Confirm that reading on frequency counter is 4.3218MHz.

Focus/Tracking Gain

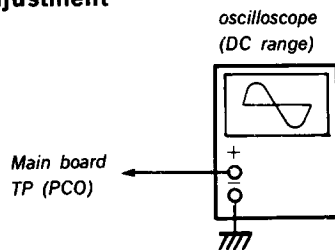
This gain has a margin, so even if it is slightly off.

There is no problem.

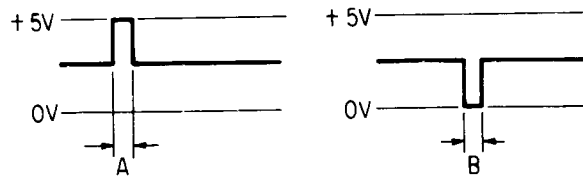
Therefore, do not perform, this adjustment.

Please note that it should be fixed to mechanical center position when you moved and do not know original position.

VCO Adjustment

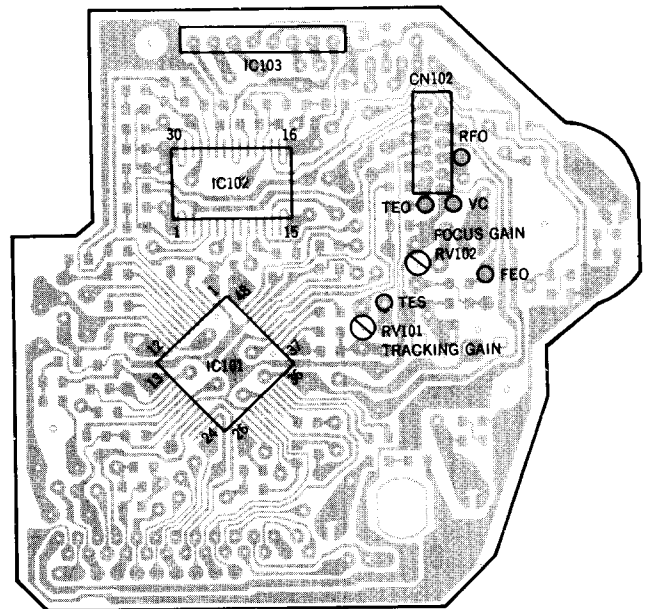


1. Connect oscilloscope to test point TP (RFO) on Main board.
2. Turn POWER switch on.
3. Adjust CT301 so that pulse width A or B are 0.5msec.

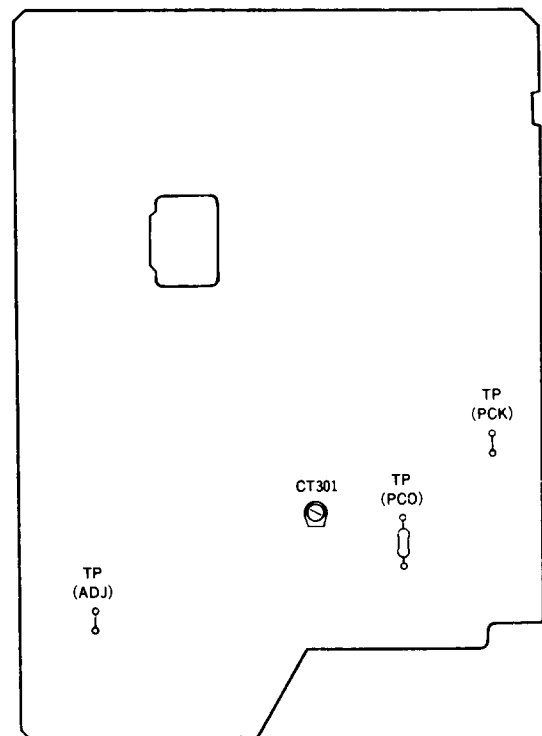


Adjustment Location :

BD board (Conductor Side)

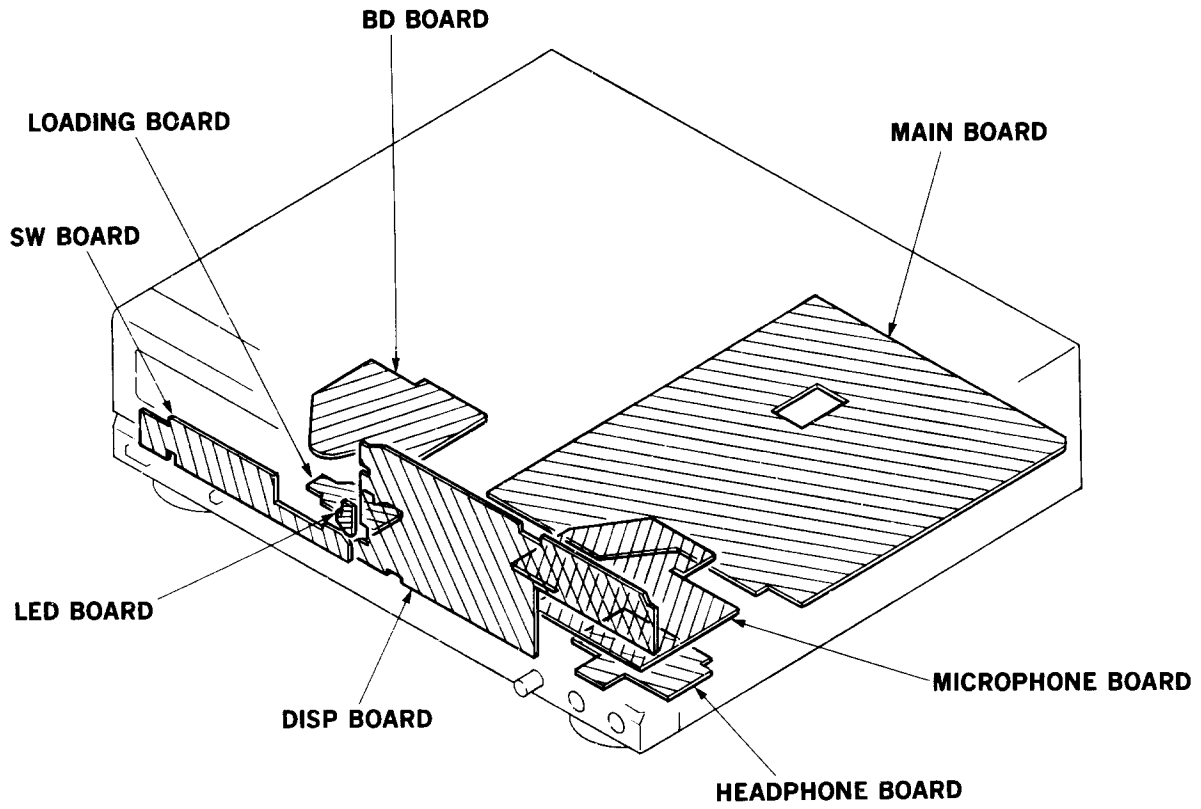


Main board (Componet Side)



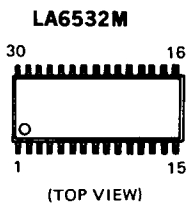
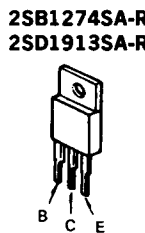
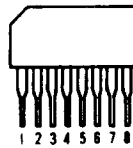
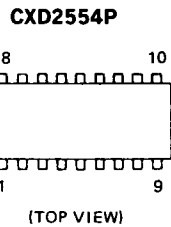
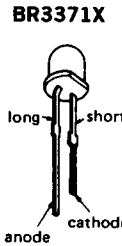
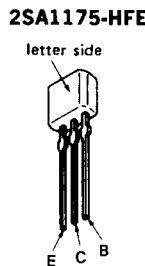
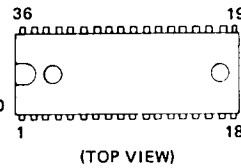
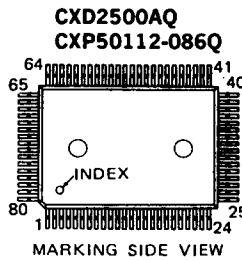
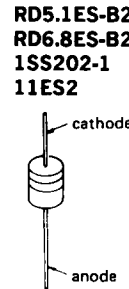
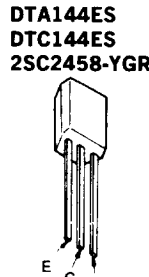
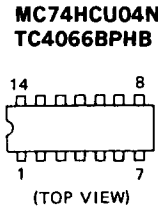
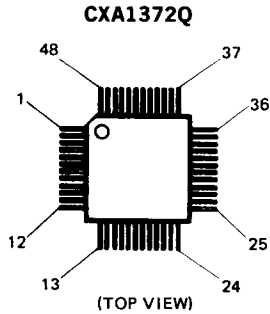
SECTION 3 DIAGRAMS

3-1. CIRCUIT BOARDS LOCATION

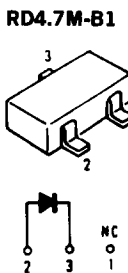
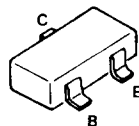
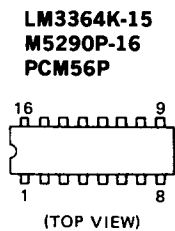
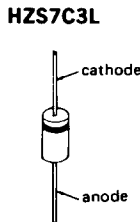
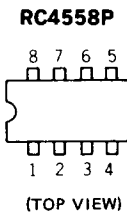
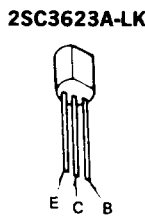
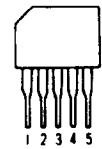


3-2. SEMICONDUCTOR LEAD LAYOUTS

• Semiconductor Locat.



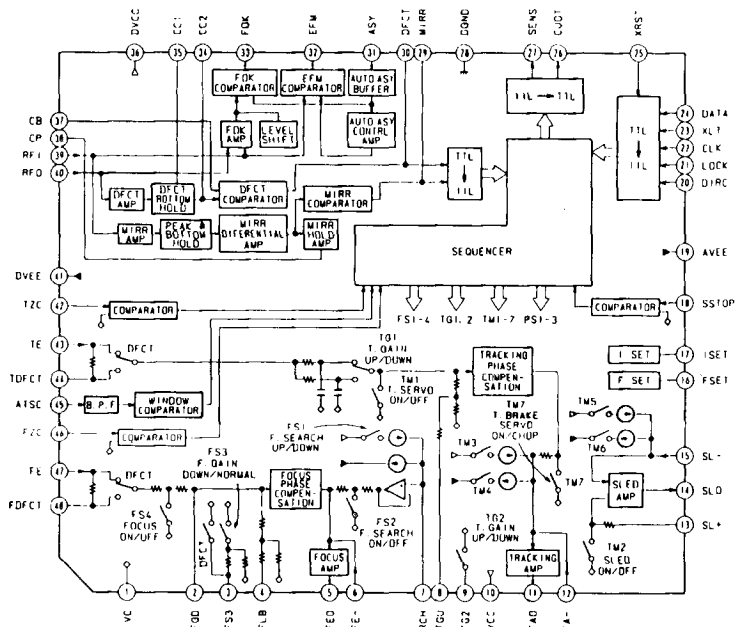
M5293L



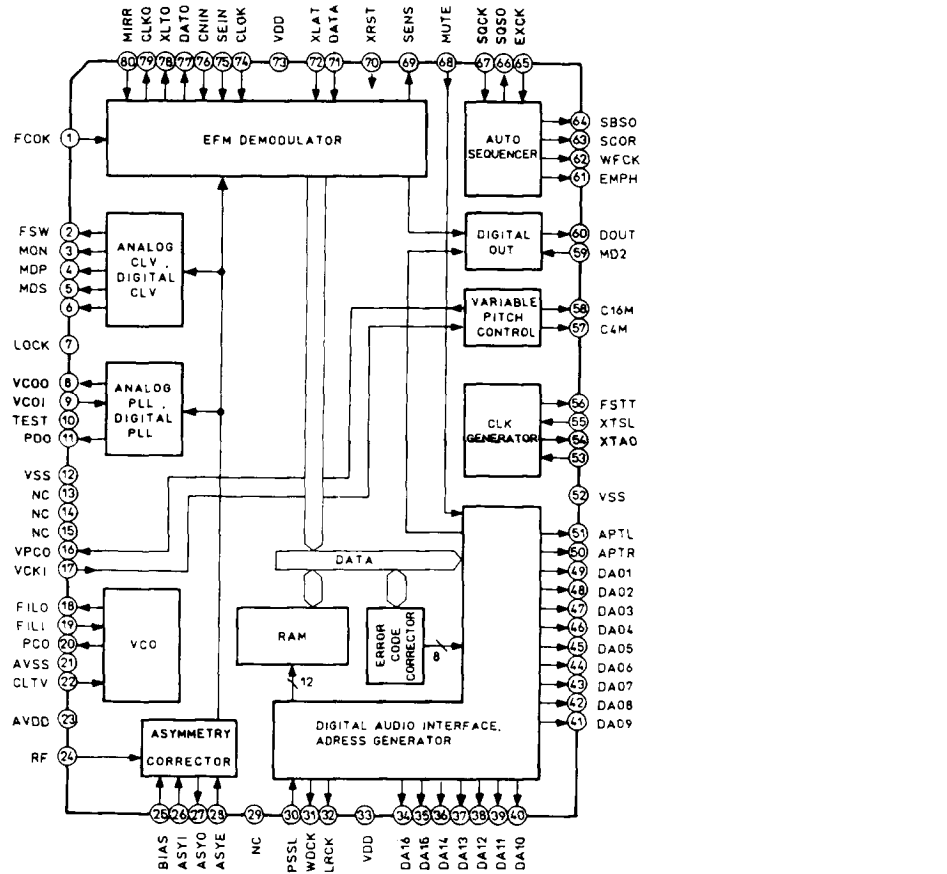
Ref. No.	Location	Re-
D101	A-11	Q31
D201	E-7	Q31
D202	E-6	Q31
D203	E-6	Q31
D204	E-6	Q31
D205	E-6	Q31
D206	F-5	Q50
D207	E-5	Q50
D208	G-7	Q50
D209	J-7	Q50
D301	F-3	
D401	H-17	
D402	H-14	
D501	D-20	
D502	D-19	
D503	B-18	
IC101	D-10	
IC102	B-10	
IC103	A-10	
IC201	G-6	
IC202	F-7	
IC301	G-2	
IC302	F-2	
IC303	F-3	
IC304	E-1	
IC305	E-3	
IC306	H-3	
IC307	H-4	
IC308	D-3	
IC309	D-1	
IC310	C-1	
IC311	D-4	
IC312	D-4	
IC313	B-4	
IC314	B-3	
IC401	I-17	
IC402	I-10	
IC501	D-24	
IC502	D-20	
IC503	D-19	
IC504	C-18	
IC505	C-19	
IC506	D-17	
Q101	D-11	
Q201	F-6	
Q202	G-6	
Q203	F-7	
Q204	G-7	
Q205	G-5	
Q206	F-7	
Q207	G-6	
Q301	F-4	
Q302	F-4	
Q303	F-4	
Q305	C-2	
Q306	C-3	
Q307	C-2	
Q308	C-3	
Q309	B-2	
Q310	B-4	

3-6. IC BLOCK DIAGRAMS

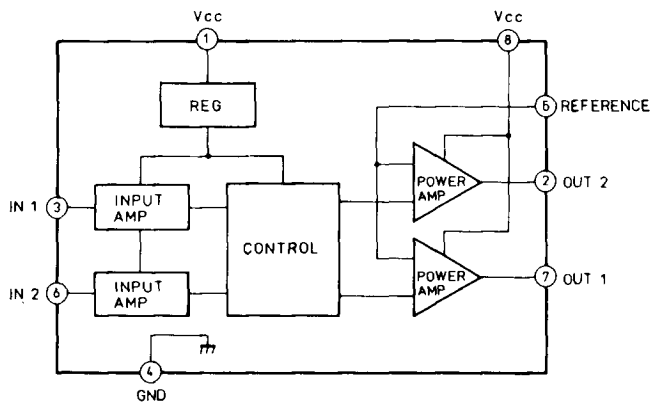
IC101 CXA1372Q



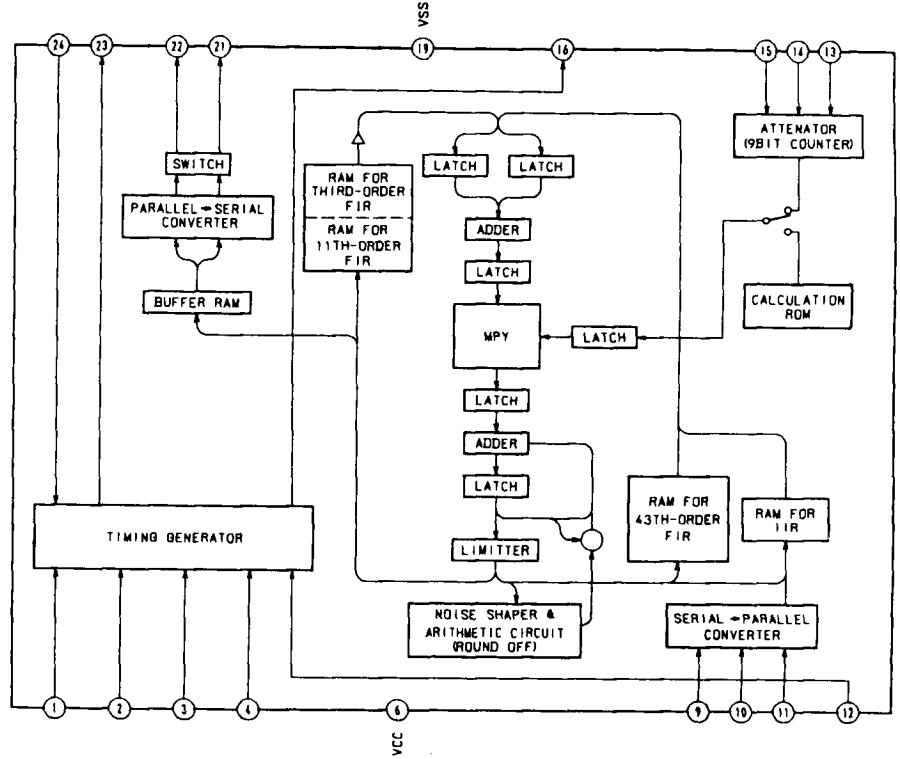
IC301 CXD2500AQ



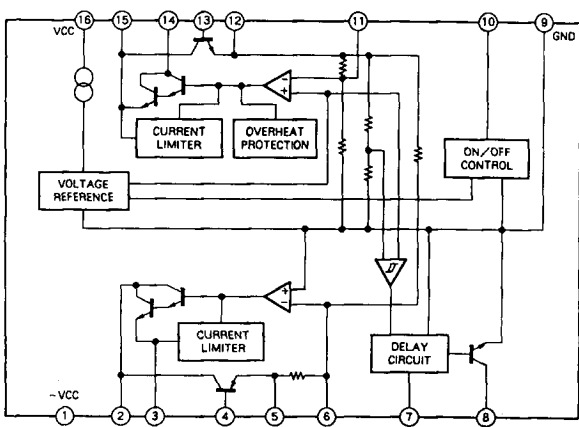
IC103 M54641L



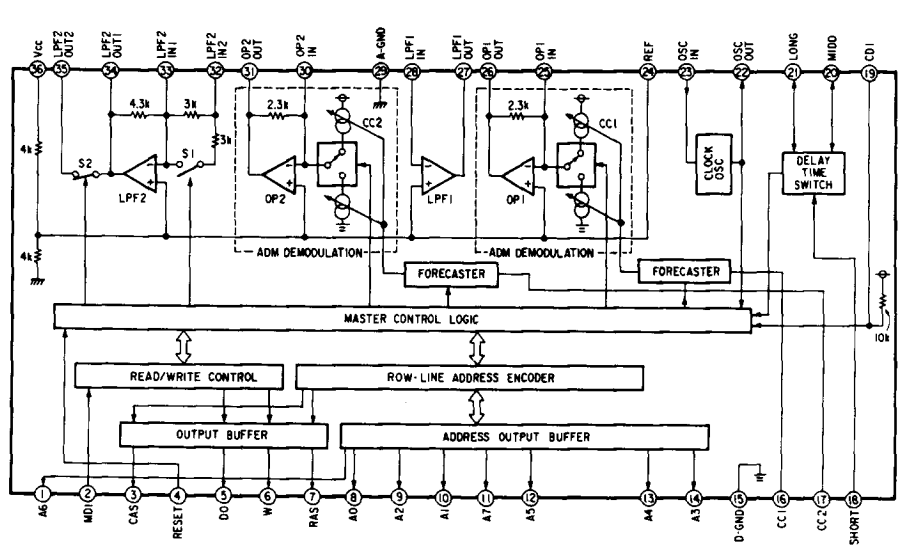
IC302 CXD2554



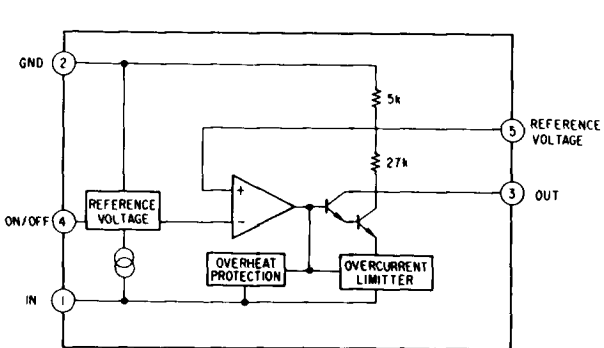
IC201 M5290P



IC504 M50195P



IC202 M5293L

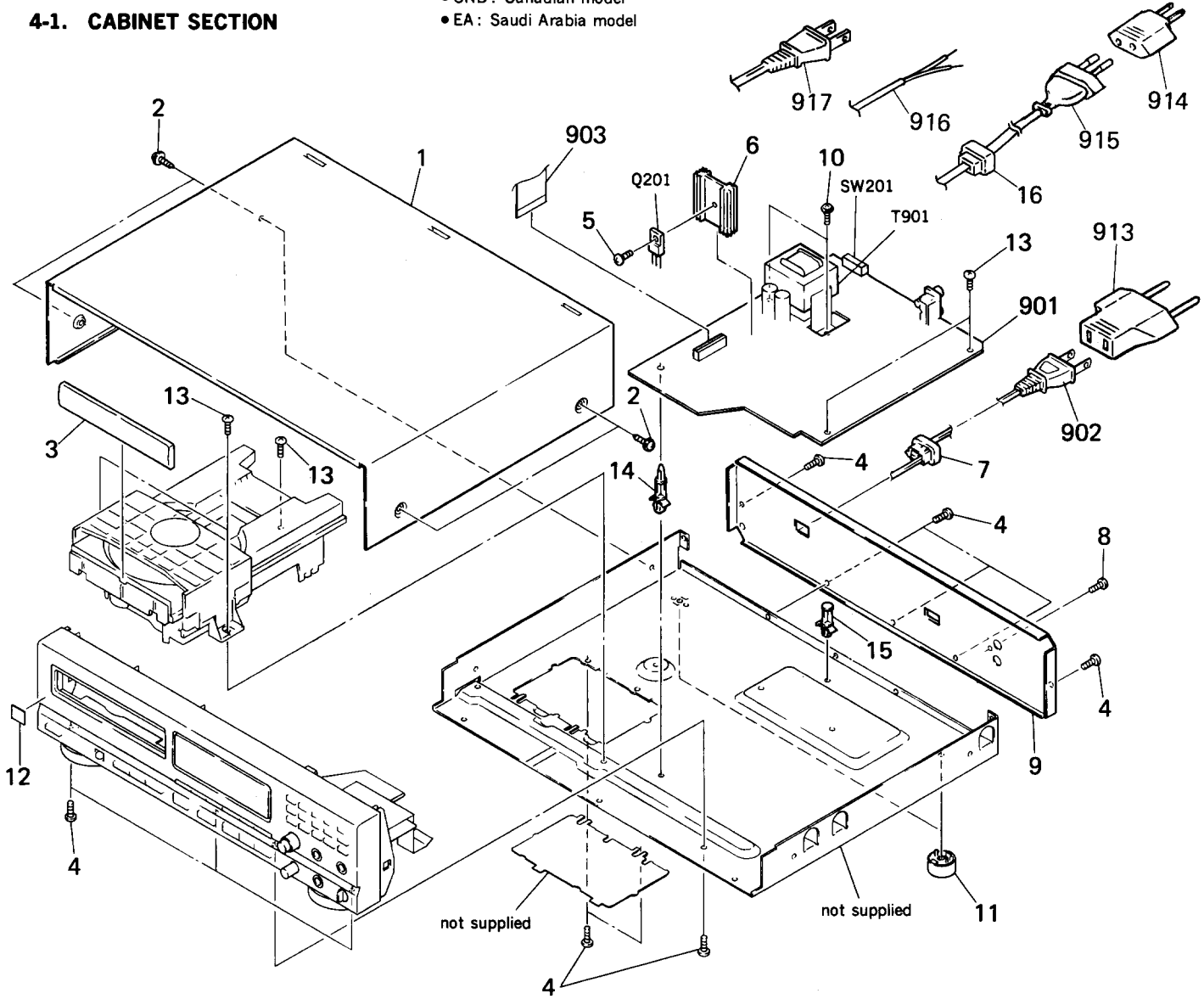


dated when ordering these items.

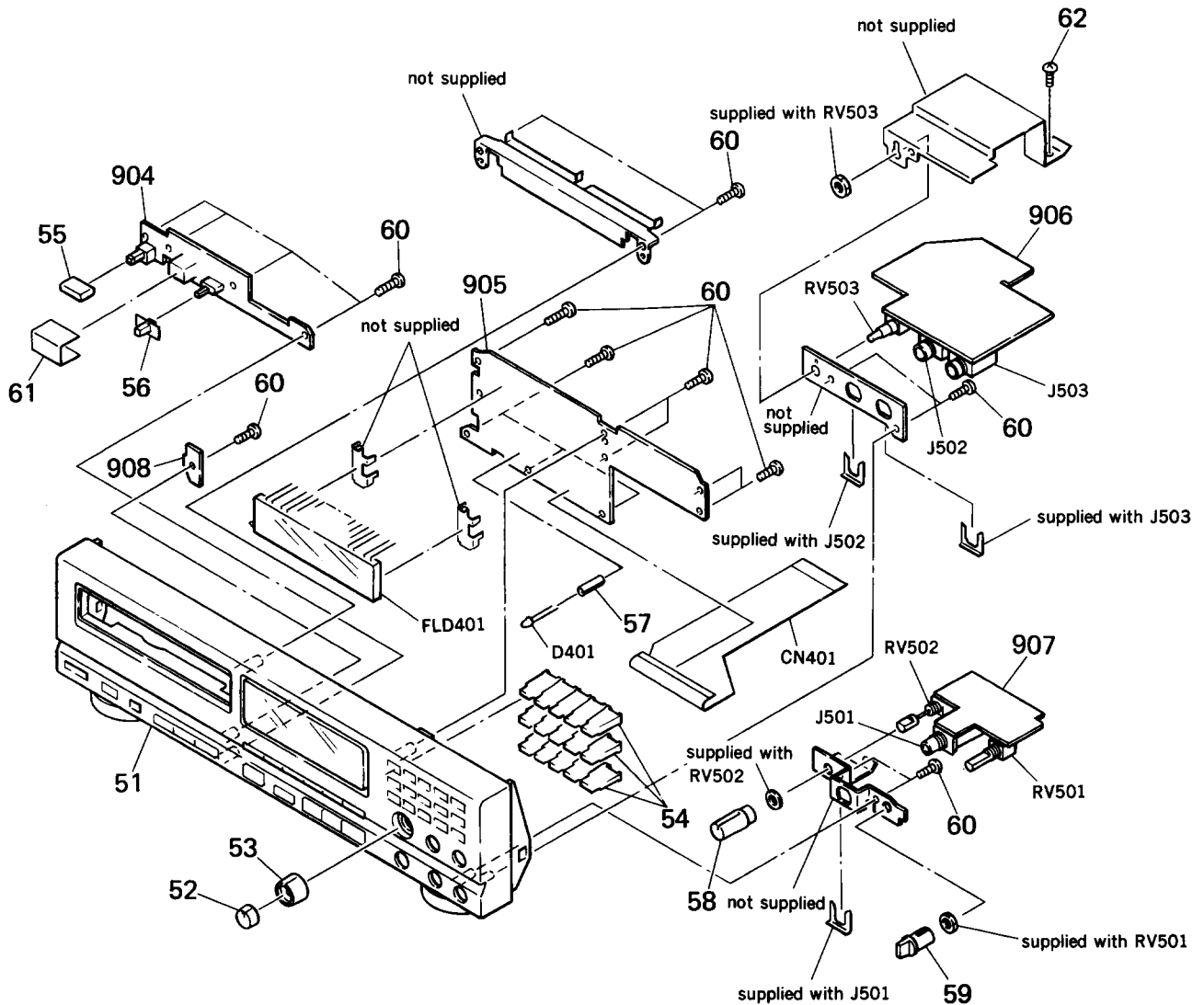
- CND: Canadian model
- EA: Saudi Arabia model

pièce pour l'avis le numéro spécifié.

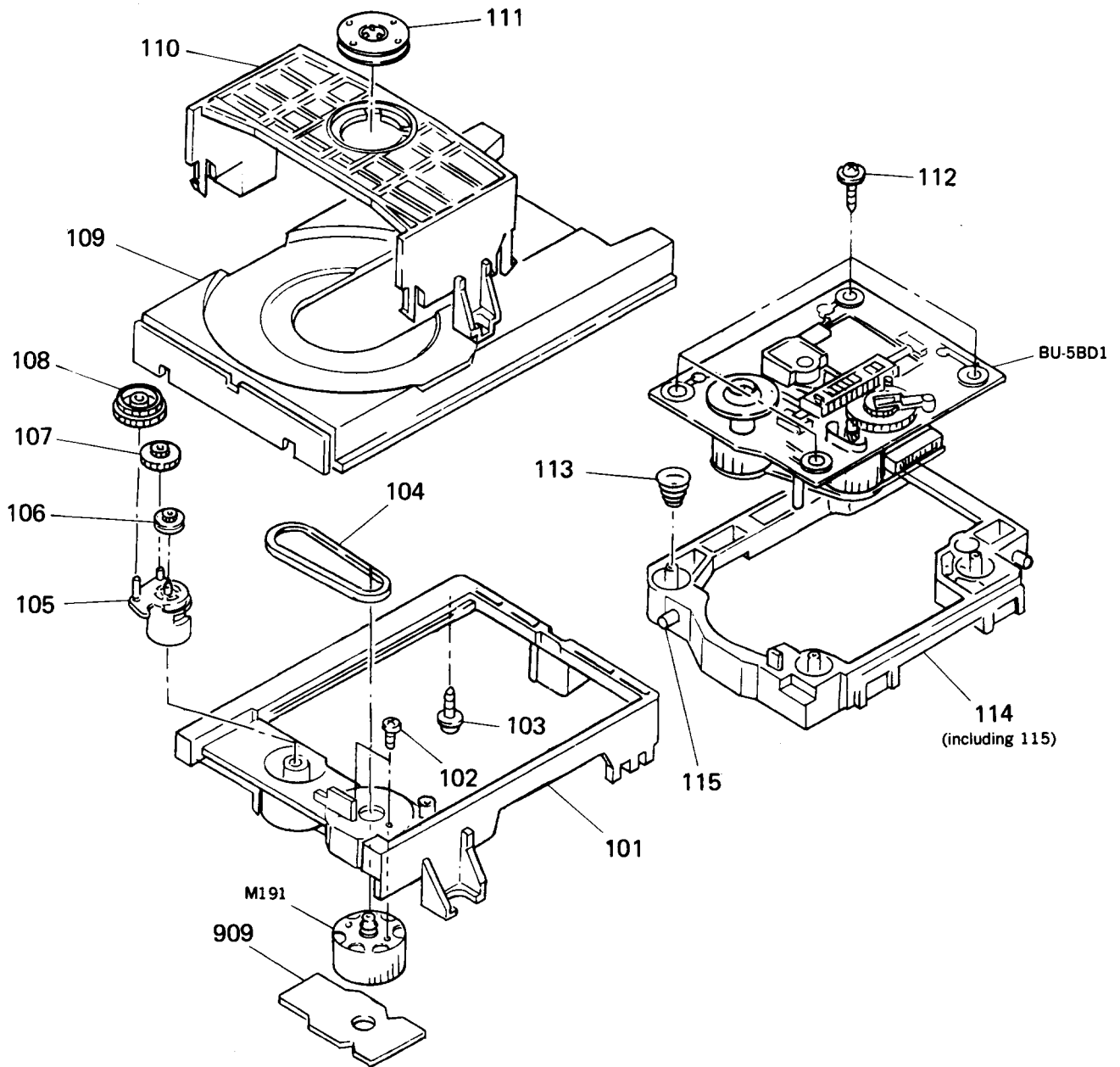
4-1. CABINET SECTION



4-2. FRONT PANEL SECTION



4-3. MD BLOCK (CDM14-5BD1) SECTION



4-4. OPTICAL PICK-UP BLOCK (BU-5BD1) ASSEMBLY

