

MICRO COMPONENT SYSTEM RDX-E600

DVD-E600

SERVICE MANUAL

The RDX-E600 is composed of the RX-E600, NX-E400 and the DVD-E600.
This service manual is for the DVD-E600.
For the RX-E600 and the NX-E400 service manual, please refer to the following publication number:

RX-E600/NX-E400 100923

RDX-E600はRX-E600、NX-E400及びDVD-E600で構成されています。
このサービスマニュアルはDVD-E600用です。
RX-E600及びNX-E400のサービスマニュアルは下記を参照してください。

RX-E600/NX-E400 100923

IMPORTANT NOTICE

This manual has been provided for the use of authorized YAMAHA Retailers and their service personnel.
It has been assumed that basic service procedures inherent to the industry, and more specifically YAMAHA Products, are already known and understood by the users, and have therefore not been restated.

WARNING: Failure to follow appropriate service and safety procedures when servicing this product may result in personal injury, destruction of expensive components, and failure of the product to perform as specified. For these reasons, we advise all YAMAHA product owners that any service required should be performed by an authorized YAMAHA Retailer or the appointed service representative.

IMPORTANT: The presentation or sale of this manual to any individual or firm does not constitute authorization, certification or recognition of any applicable technical capabilities, or establish a principle-agent relationship of any form.

The data provided is believed to be accurate and applicable to the unit(s) indicated on the cover. The research, engineering, and service departments of YAMAHA are continually striving to improve YAMAHA products. Modifications are, therefore, inevitable and specifications are subject to change without notice or obligation to retrofit. Should any discrepancy appear to exist, please contact the distributor's Service Division.

WARNING: Static discharges can destroy expensive components. Discharge any static electricity your body may have accumulated by grounding yourself to the ground buss in the unit (heavy gauge black wires connect to this buss).

IMPORTANT: Turn the unit OFF during disassembly and part replacement. Recheck all work before you apply power to the unit.

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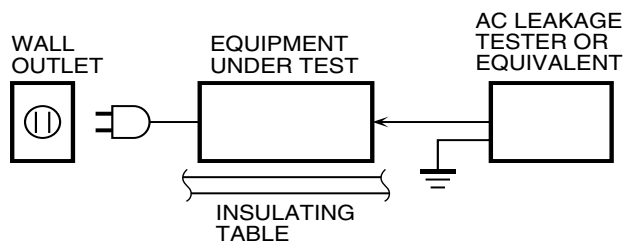


このサービスマニュアルは、エコマーク認定の再生紙を使用しています。
This Service Manual uses recycled paper.



■ TO SERVICE PERSONNEL

1. Critical Components Information
Components having special characteristics are marked $\triangle$ and must be replaced with parts having specifications equal to those originally installed.
 2. Leakage Current Measurement (For 120V Models Only)
When service has been completed, it is imperative to verify that all exposed conductive surfaces are properly insulated from supply circuits.
- Meter impedance should be equivalent to 1500 ohms shunted by 0.15 μ F.



- Leakage current must not exceed 0.5mA.
- Be sure to test for leakage with the AC plug in both polarities.

WARNING: CHEMICAL CONTENT NOTICE!

The solder used in the production of this product contains LEAD. In addition, other electrical/electronic and/or plastic (where applicable) components may also contain traces of chemicals found by the California Health and Welfare Agency (and possibly other entities) to cause cancer and/or birth defects or other reproductive harm.

DO NOT PLACE SOLDER, ELECTRICAL/ELECTRONIC OR PLASTIC COMPONENTS IN YOUR MOUTH FOR ANY REASON WHATSOEVER!

Avoid prolonged, unprotected contact between solder and your skin! When soldering, do not inhale solder fumes or expose eyes to solder/flux vapor!

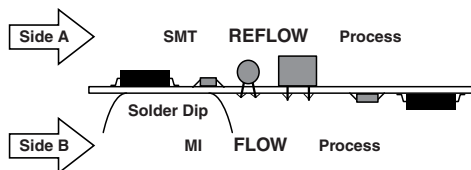
If you come in contact with solder or components located inside the enclosure of this product, wash your hands before handling food.

About Lead Free Solder / 無鉛ハンダについて

The P.C.B.s installed in this unit are soldered using the following solder.

本機に搭載されている基板のハンダ付けに使用されているハンダは下記の通りです。

	SIDE A / A面	SIDE B / B面
OPERATION P.C.B	-	Lead Free Solder / 無鉛ハンダ



Among some types of lead free solder currently available, it is recommended to use one of the following types for the repair work.

- Sn + Ag + Cu (tin + silver + copper)
- Sn + Cu (tin + copper)
- Sn + Zn + Bi (tin + zinc + bismuth)

Caution:

1. As the melting point temperature of the lead free solder is about 30°C to 40°C (50°F to 70°F) higher than that of the lead solder, be sure to use a soldering iron suitable to each solder.
2. If lead solder must be used, be sure to remove lead free solder from each terminal section of the parts to be replaced and from the area around it completely before soldering, or make sure that the lead free solder and lead solder melt together fully.

無鉛ハンダにはいくつかの種類がありますが、修理時には下記のような無鉛ハンダの使用を推奨します。

- Sn+Ag+Cu (錫+銀+銅)
- Sn+Cu (錫+銅)
- Sn+Zn+Bi (錫+亜鉛+ビスマス)

注意:

1. 無鉛ハンダの融点温度は通常の鉛入りハンダに比べ30～40℃程度高くなっていますので、それぞれのハンダに合ったハンダごてをご使用ください。
2. 鉛入りハンダを使わざるを得ない場合は、あらかじめ交換する部品端子部やその周辺部の無鉛ハンダをすべて取り除くか、あるいは無鉛ハンダと鉛入りハンダが十分に溶けた状態となるようにハンダ付けしてください。

WARNING: Laser Safety

This product contains a laser beam component. This component may emit invisible, as well as visible radiation, which may cause eye damage. To protect your eyes and skin from laser radiation, the following precautions must be used during servicing of the unit.

- 1) When testing and/or repairing any component within the product, keep your eyes and skin more than 30 cm away from the laser pick-up unit at all times. Do not stare at the laser beam at any time.
- 2) Do not attempt to readjust, disassemble or repair the laser pick-up, unless noted elsewhere in this manual.
- 3) CAUTION : Use of controls, adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.

Laser Emitting conditions:

- 1) When the Top Cover is removed, and the STANDBY/ON SW is turned to the "ON" position, the laser component will emit a beam for several seconds to detect if a disc is present. During this time (5-10 sec.) the laser may radiate through the lens of the laser pick-up unit. Do not attempt any servicing during this period! If no disc is detected, the laser will stop emitting the beam. When a disc is loaded, you will not be exposed to any laser emissions.
- 2) The laser power level can be adjusted with the VR on the pick-up PWB, however, this level has been set by the factory prior to shipping from the factory. Do not adjust this laser level control unless instruction is provided elsewhere in this manual. Adjustment of this control can increase the laser emission level from the device.

Laser Diode Properties

Type:	Semiconductor laser GaAlAs
Wave length:	650 nm (DVD) 780 nm (VCD/CD)
Output Power:	7 mW (DVD) 10 mW (VCD/CD)
Beam divergence:	60 degree

警告：レーザーの安全対策

本機はレーザー光線を放射する部品を搭載しています。この部品が放射するレーザー光線は目に損傷を起こします。このレーザー光線から目及び肌を保護するために、本機の修理作業中は下記の注意を厳守してください。

- 1) テスト時または修理時、目及び肌を光ピックアップから30cm以上離してください。いかなる場合もレーザー光線を見つめないでください。
- 2) 光ピックアップの再調整及び分解はしないでください。
- 3) このマニュアル上で指定されている以外の制御、調整、手順はレーザー光線を照射される結果を招く恐れがあります。

レーザー放射条件

- 1) トップカバーを取り外しSTANDBY/ONスイッチをONにすると、ディスク検知のため5～10秒間、光ピックアップからレーザー光線が放射されます。この間、修理はしないでください。
ディスクが検知されなければ、レーザー光線の放射は停止します。ディスクがセットされている場合、ディスクで遮られるのでレーザー光線は修理担当者に届きません。
- 2) レーザーパワーレベルは光ピックアップ基板上のVRにより調整可能ですが、工場出荷前に調整セット済みなので、このVRは廻さないでください。このVRを廻すと装置からのレーザー光線の放射レベルが上がる恐れがあります。

レーザー

タイプ	半導体レーザー GaAlAs
波長	650 nm (DVD) 780 nm (VCD/CD)
出力	7 mW (DVD) 10 mW (VCD/CD)
ビーム広がり	60 度

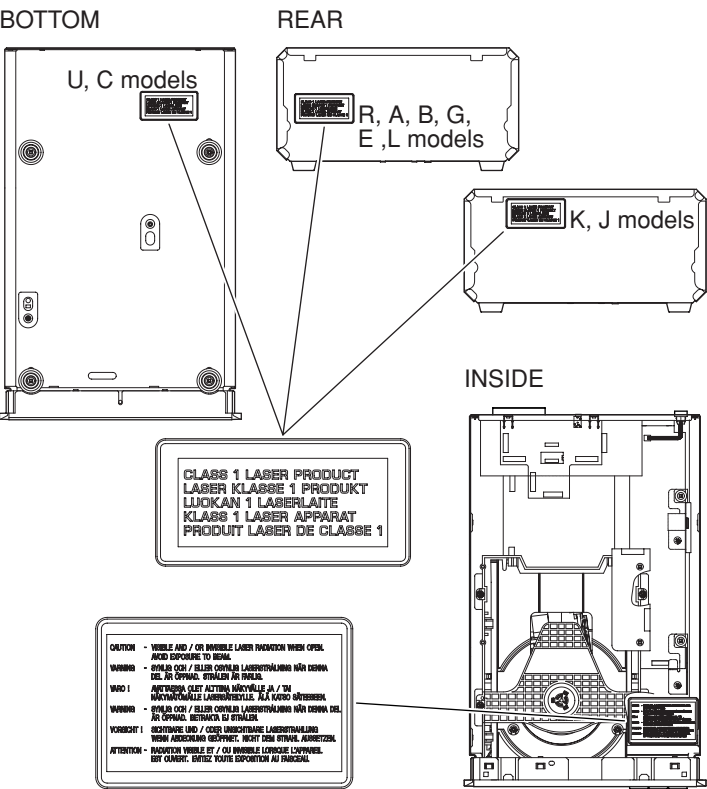
VARO! : AVATTAESSA JA SUOJALUKITUS OHITETTAESSA OLET ALTTIINA NÄKYMÄTTÖMÄLLE LASER-SÄTEILYLLE. ÄLÄ KATSO SÄTEESEEN.

VARNING! : OSYNLIG LASERSTRÅLNING NÄR DENNA DEL ÄR ÖPPNAD OCH SPÄRREN ÄR URKOPPLAD. BETRAKTA EJ STRÅLEN.

WARNING

CAUTION Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.
ATTENTION L'emploi de commandes, de réglages ou un choix de procédures différents des spécifications de cette brochure peut entraîner une exposition à d'éventuelles radiations pouvant être dangereuses.
ACHTUNG Die Verwendung von Bedienungselementen oder Einstellungen oder die Durchführung von Bedienungsvorgängen, die nicht in dieser Anleitung aufgeführt sind, kann zu einem Kontakt mit gefährlichen Laserstrahlen führen.
OBSERVERA Användning av kontroller och justeringar eller genomförande av procedurer andra än de som specificeras i denna bok kan resultera i att du utsätter dig för farlig strålning.
ATTENZIONE Uso di controlli o regolazioni o procedure non specificamente descritte può causare l'esposizione a radiazioni di livello pericoloso.
PRECAUCIÓN El uso de los controles o los procedimientos de ajuste o utilización diferentes de los especificados en este manual pueden causar una exposición peligrosa a la radiación.
VOORZICHTIG Gebruik van bedieningsorganen of instellingen, of uitvoeren van handelingen anders dan staan beschreven in deze handleiding kunnen leiden tot blootstelling aan gevaarlijke stralen.

The unit is not disconnected from the AC power source as long as it is connected to the wall outlet,even if this unit itself is turned off.This state is called the standby mode.In this state,this unit is designed to consume a very small quantity of power.
L 'appareil n 'est pas isolé de la source d 'alimentation aussi longtemps qu 'il reste branché sur une prise murale,même lorsqu 'il est éteint.Il est alors dit en mode «Veille ».Dans ce mode, l 'appareil consomme très peu de courant.
Das Gerät ist nicht vom Netz getrennt, solange der Netzstecker noch mit der Wandsteckdose verbunden ist, selbst wenn das Gerät ausgeschaltet wurde. Dieser Betriebszustand wird als Bereitschaftsmodus bezeichnet. In diesem Zustand nimmt das Gerät eine sehr geringe Menge Strom auf.
Enheten är inte urkopplad från nätet så länge som den är ansluten till vägguttaget även om enheten i sig självt är avstängd. Detta kallas för beredskapsläge och i detta tillstånd konsumerar apparaten minimalt med ström.
L'unità non è scollegata dall'impianto elettrico di casa soltanto che rimane collegata ad una presa di corrente anche se è spenta. Questo modo viene chiamato "modo di attesa". In esso, l'unità consuma una quantità molto bassa di energia per mantenere in memoria le impostazioni da voi fatte.
Aunque el propio aparato se encuentre apagado, éste no se desconectará de la fuente de CA siempre que se mantenga enchufado a la toma de corriente. Este estado recibe el nombre de "modo de espera". En este estado, este aparato ha sido diseñado para consumir una cantidad muy pequeña de energía.
De stroomtoevoer naar het toestel is niet afgesloten zolang de stekker nog in het stopcontact zit, zelfs niet als het toestel zelf uitgeschakeld is. Deze toestand wordt "standby" (waak- of paraatstand) genoemd. Het toestel is ontworpen om in deze toestand.



CAUTION VISIBLE AND INVISIBLE LASER RADIATION WHEN OPEN. AVOID EXPOSURE TO BEAM.
ADVARSEL SYNLIG OG USYNLIG LASERSTRÅLING VED ÅBNING. UNDGÅ UDSÆTTELSE FOR STRÅLING.
ADVARSEL SYNLIG OG USYNLIG LASERSTRÅLING NÅR DEKSEL ÅPNES. UNNGÅ EKSPONERING FOR STRÅLEN.
VARNING SYNLIG OCH OSYNLIG LASERSTRÅLNING NÅR DENNA DEL ÄR ÖPPNAD. BETRakta EJ STRÅLEN.
VARO! AVATTAESSA OLET ALTTIINA NÄKYVÄLLE JA NÄKYMÄTTÖMÄLLE LASER SÄTEILYLLE. ÄLÄ KATSO SÄTEESEEN.
VORSICHT SICHTBARE UND UNSICHTBARE LASERSTRAHLUNG WENN ABDECKUNG GEÖFFNET. NICHT DEM STRAHL AUSSETZEN.
DANGER VISIBLE AND INVISIBLE LASER RADIATION WHEN OPEN. AVOID DIRECT EXPOSURE TO BEAM.
ATTENTION RAYONNEMENT LASER VISIBLE ET INVISIBLE EN CAS D'OUVERTURE. EXPOSITION DANGEREUSE AU FAISCEAU.

Warning for power supply

The primary side of the power supply carries live mains voltage when the player is connected to the mains even when the player is switched off !

This primary area is not shielded so it is possible to touch copper tracks and/or components when servicing the player.

Service personnel have to take precautions to prevent touching this area or components in this area .

The primary side of the power supply has been indicated with a lightening stroke and a stripe-marked print on the printed wiring board.

Note:

The screws on the DVD mechanism (position 50 in on the exploded view drawing) may never be touched, removed or re-adjusted.

Handle the DVD mechanism with care when the unit has to be exchanged!

The DVD mechanism is very sensitive for dropping or giving shocks.

■ PREVENTION OF ELECTRO STATIC DISCHARGE

The laser diode in the DVD mechanism may be damaged due to static electricity from clothes or the human body. Use caution to prevent electro static damage when servicing or handling the DVD-mechanism.

1. Grounding for electro static damage prevention

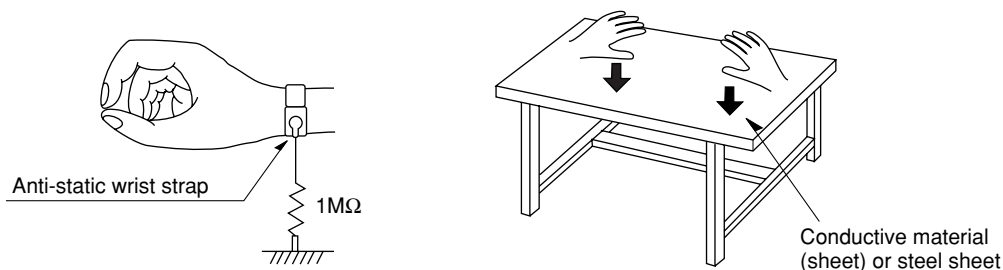
Some devices, such as the DVD player, use an optical pickup (laser diode) that will be damaged by static electricity in the working environment. Only attempt service after ensuring that all grounding procedures have been completed.

1. Worktable grounding

Put a grounded conductive material (sheet) or iron sheet on the area where the optical pickup is placed.

2. Human body grounding

Use an anti-static wrist strap to discharge the static electricity from your body.



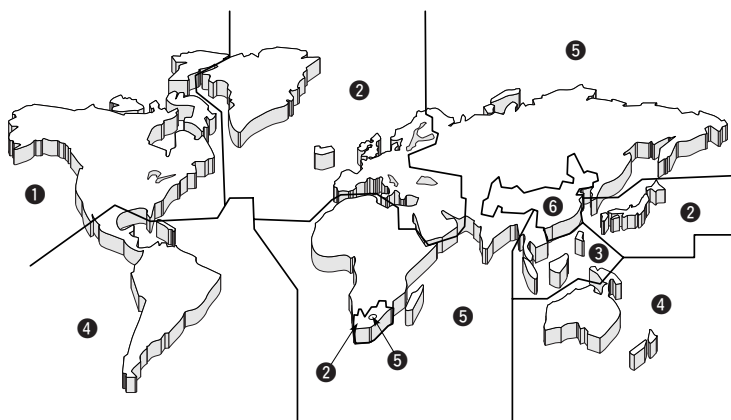
2. Handling Precautions for DVD mechanism

1. Handle the DVD mechanism gently, as it is an extremely high-precision assembly.
2. The flexible cable lines may break if an excessive force is applied to it. Use caution when handling the cable.
3. The semi-fixed resistor for laser power adjustment should not be adjusted. Do not turn the resistor.

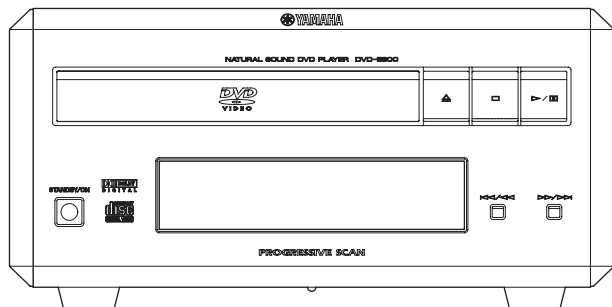
■ LOCALE MANAGEMENT INFORMATION

Locale Management Information : This DVD player is designed and manufactured to respond to the Locale Management Information that is recorded on a DVD disc. If the Locale number described on the DVD disc does not correspond to the Locale number of this DVD player, this DVD player cannot play this disc.

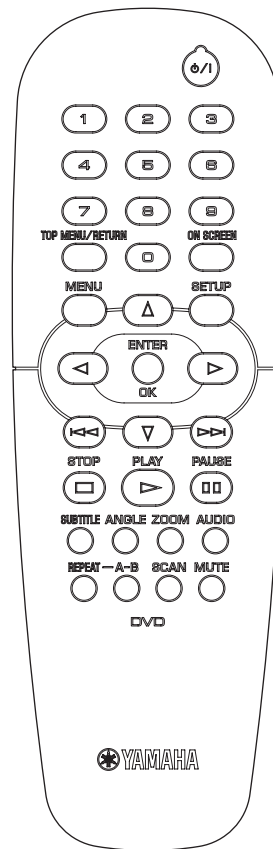
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FRONT PANEL

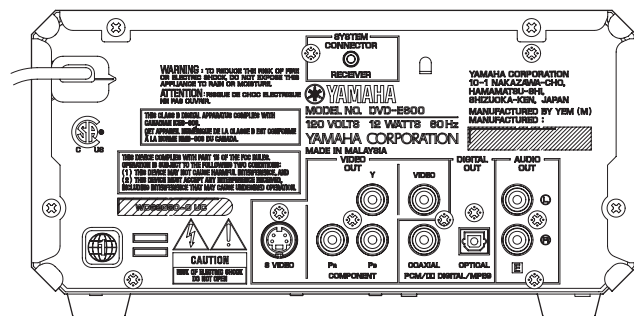


REMOTE CONTROL PANEL

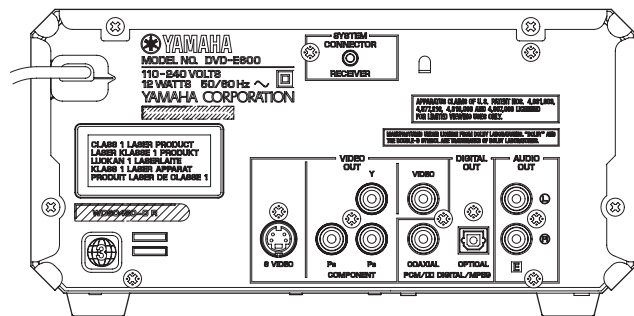


REAR PANELS

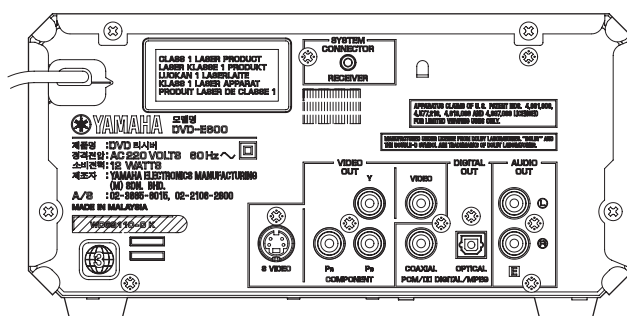
U, C models



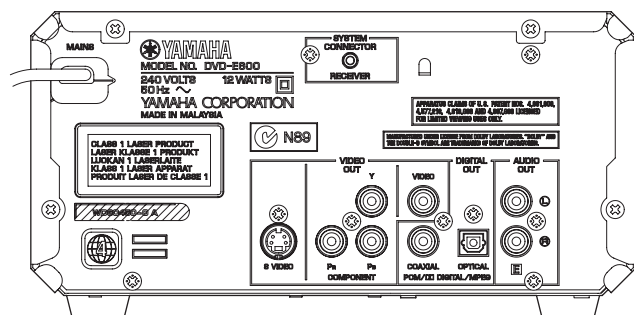
R model



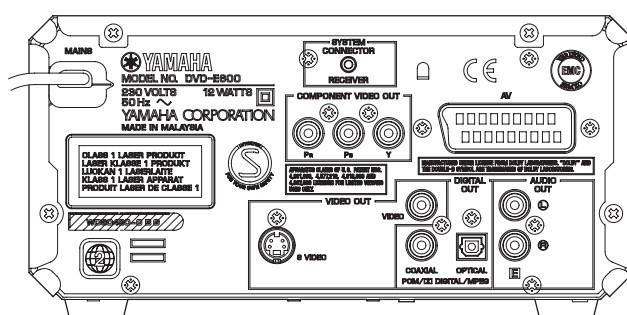
K model



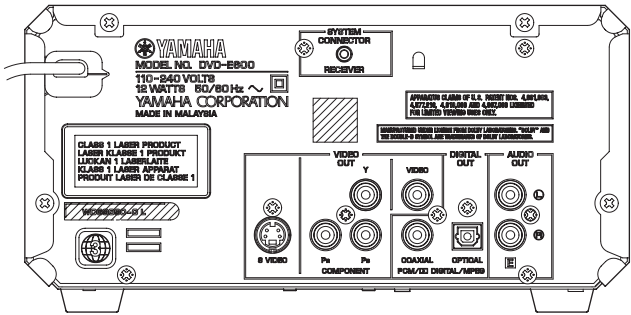
A model



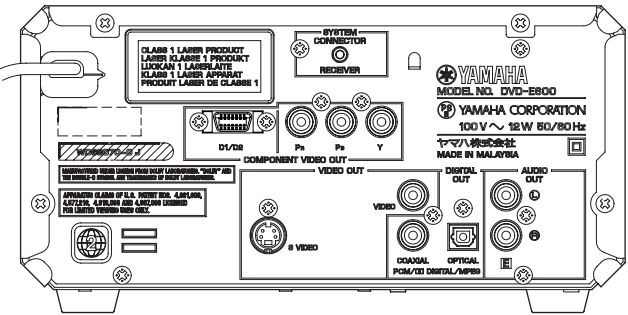
B, G, E models



L model



J model



SPECIFICATIONS / 参考仕様

PLAYBACK SYSTEM /対応ディスク	
DVD Video	
Video CD & SVCD	
CD	
PICTURE CD	
CD-R, CD-RW	
DVD+R, DVD+RW	
DVD-R, DVD-RW	

VIDEO PERFORMANCE /ビデオ部	
Video (CVBS) Output	1 Vpp into 75 ohms
S-Video Output	Y: 1Vpp into 75 ohms C: 0.3Vpp into 75 ohms
Component Video Output	Y: 1Vpp into 75 ohms Pb/Cb Pr/Cr: 0.7Vpp into 75 ohms
RGB (SCART) Output	0.7 Vpp into 75 ohms
Black Level Shift	On/Off
Video Shift	Left/Right

AUDIO FORMAT /オーディオフォーマット		
Digital	Mpeg/Dolby Digital	Compressed Digital
	PCM	16, 20, 24 bits fs, 44.1, 48, 96 kHz
	MP3(ISO 9660)	24, 32, 56, 64, 96, 128, 256 kbps fs 16, 22.05, 24, 32, 44.1, 48kHz
Analog Sound Stereo		

AUDIO PERFORMANCE /オーディオ特性		
DA Converter	24 bits	
Signal-Noise (1kHz)	105 dB	
Dynamic Range (1kHz)	100 dB	
DVD	fs 96 kHz	2 Hz - 44 kHz
	fs 48 kHz	2 Hz - 22 kHz
SVCD	fs 48 kHz	2 Hz - 22 kHz
	fs 44.1 kHz	2 Hz - 20 kHz
CD/VCD	fs 44.1 kHz	2 Hz - 20 kHz
Distortion and Noise (1kHz)	0.003%	

TV STANDARD (PAL/50Hz) (NTSC/60Hz)		
Number of lines	625	525
Playback	Multistandard (PAL/NTSC)	

CONNECTIONS /接続端子	
Y Output	Cinch (green)
Pb/Cb Output	Cinch (blue)
Pr/Cr Output	Cinch (red)
SCART	Euroconnector (B, G, E models only)
D Terminal	(J model only)
S-Video Output	Mini DIN, 4 pins
Video Output	Cinch
Audio Output (L+R)	Cinch

Digital Output	1 coaxial, 1 optical IEC958 for CDDA / LPCM/ MPEG1 IEC1937 for MPEG 2, Dolby Digital
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GENERAL /一般	
Dimensions (w x h x d)	217 x 108 x 346
Weight	Approx. 2.5 Kg
Finish	
Gold color	U, C, R, K, A, G, E models
Silver color	U, R, B, G, E, L, J models
Power Supply	
U, C models	AC120V, 60Hz
R, L models	AC110/120/220/230-240V, 50/60Hz
K model	AC220V, 60Hz
A model	AC240V, 50Hz
B, G, E models	AC230V, 50Hz
J model	AC100V, 50/60Hz
Power Consumption	12W
Standby Power Consumption (reference data)	1W

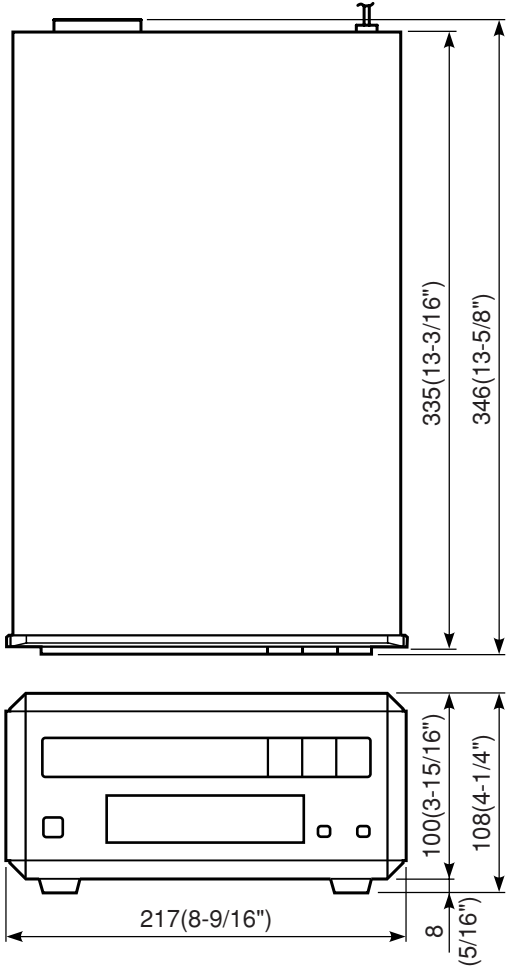
ACCESSORIES /付属品 (RDX-E600)	
	Remote Control x 1, Battery x 2
	System Control Cable x 1, Audio Pin Cable x 1, Video Pin Cable x 1

* *Specifications subject to change without prior notice.*
※ 参考仕様および外観は予告なく変更されることがあります。

<i>U</i>	<i>USA model</i>	<i>B</i>	<i>British model</i>
<i>C</i>	<i>Canadian model</i>	<i>G</i>	<i>European model</i>
<i>R</i>	<i>General model</i>	<i>E</i>	<i>South European model</i>
<i>K</i>	<i>Korean model</i>	<i>J</i>	<i>Japanese model</i>
<i>A</i>	<i>Australian model</i>		

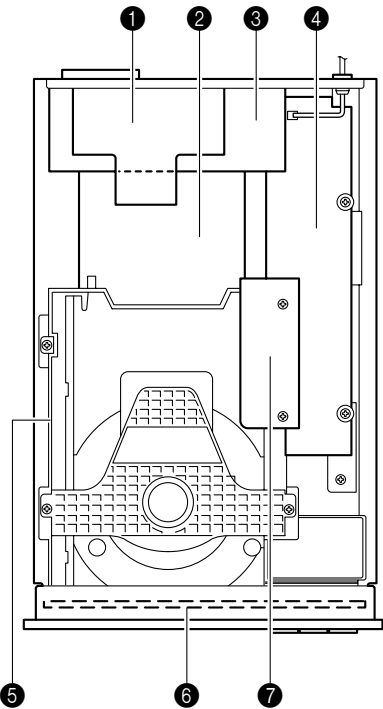
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DIMENSIONS / 寸法図 (DVD-E600)



Unit : mm (inch)
単位 : mm (インチ)

INTERNAL VIEW



- ① OPERATION (2) P.C.B.
- ② MONO P.C.B.
- ③ VIDEO P.C.B. (B, G, E, J models only)
- ④ POWER SUPPLY UNIT
- ⑤ DVD MECHANISM UNIT
- ⑥ OPERATION (1) P.C.B.
- ⑦ OPERATION (3) P.C.B.

■ DISASSEMBLY PROCEDURES / 分解手順

(Remove parts in the order as numbered.)
Disconnect the power cable from the AC outlet.

(番号順に部品を取り外してください。)
AC電源コンセントから、電源コードを抜いてください。

1. Removal of Top Cover

- a. Remove 4 screws (①), 4 screws (②) in Fig. 1.
- b. Slide the Top Cover rearward to remove it.

1. トップカバーの外し方

- a. ①のネジ4本、②のネジ4本を外します。(Fig. 1)
- b. トップカバーを後方へスライドさせ、取り外します。

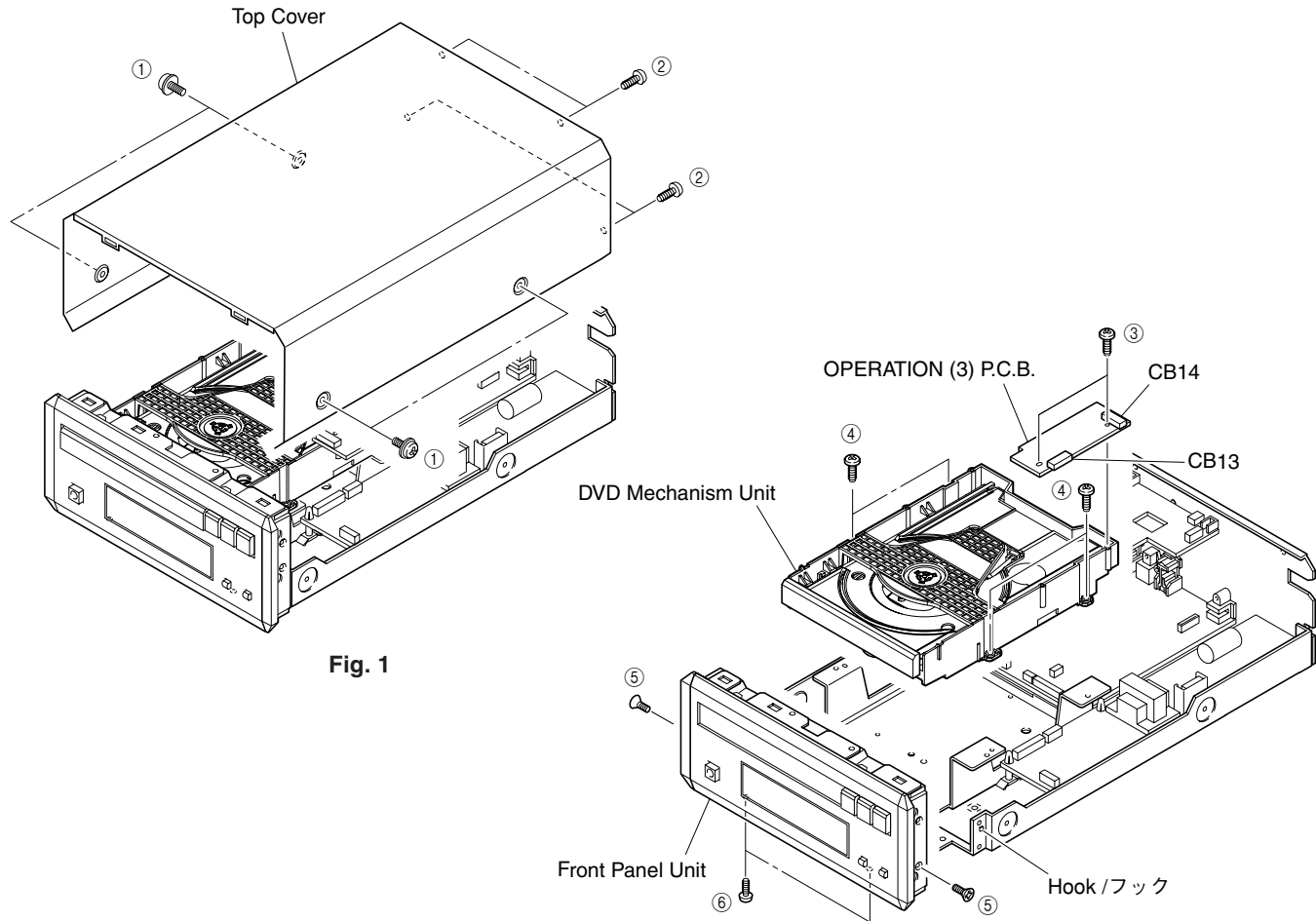


Fig. 1

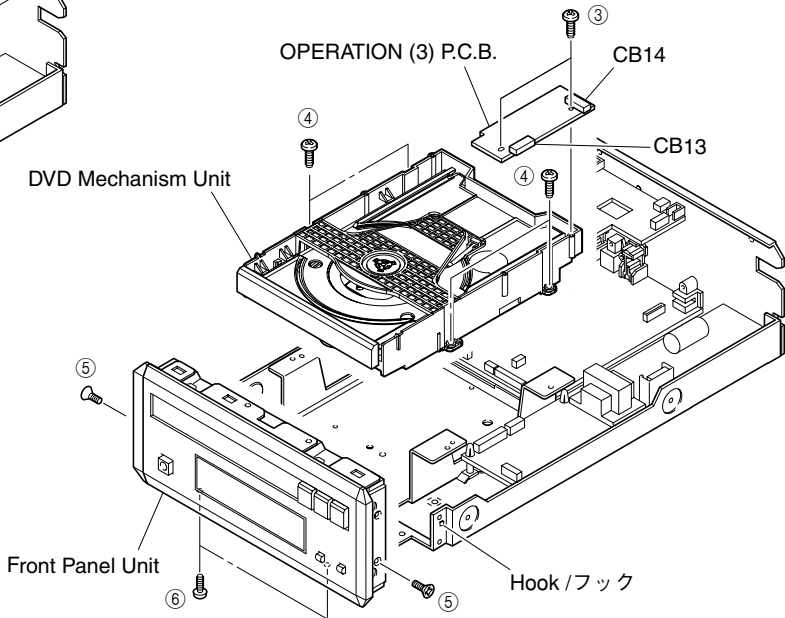


Fig. 2

2. Removal of OPERATION (3) P.C.B. and DVD Mechanism Unit

- a. Remove 2 screws (③) in Fig. 2.
- b. Remove a connectors (CB13, CB14) in Fig. 2.
- c. Remove the OPERATION (3) P.C.B.
- d. Remove 4 screws (④) in Fig. 2.
- e. Remove a connector (CB12) in Fig. 3.
- f. Remove the DVD Mechanism Unit back ward.

2. OPERATION (3) P.C.B.、DVDメカユニットの外し方

- a. ③のネジ2本を外します。(Fig. 2)
- b. コネクター CB13、CB14を外します。(Fig. 2)
- c. OPERATION (3) P.C.B.を取り外します。
- d. ④のネジ4本を外します。(Fig. 2)
- e. コネクター CB12を外します。(Fig. 3)
- f. DVDメカユニットを持ち上げながら後方へ取り外します。

3. Removal of Front Panel Unit

- a. Remove 2 screws (⑤), 2 screws (⑥) in Fig. 2.
- b. Remove a connectors (CB5, 0203, 1608, 1622) in Fig. 3.
- c. Release 2 hooks and remove the Front Panel Unit by pulling it forward.

3. フロントパネルユニットの外し方

- a. ⑤のネジ2本、⑥のネジ2本を外します。(Fig. 2)
- b. コネクター CB5、0203、1608、1622を外します。(Fig. 3)
- c. パネル両サイドのフックを外して、フロントパネルユニットを前方に引き出します。

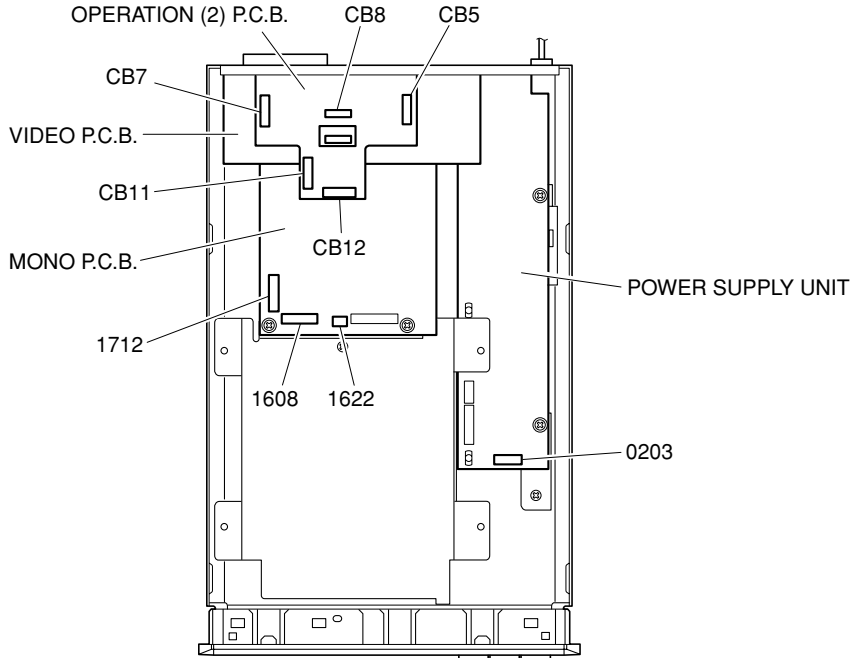


Fig. 3

4. Removal of OPERATION (2) P.C.B.

- a. Remove 2 screws (⑦) in Fig. 4.
- b. Remove a connectors (1712, CB7, CB8, CB11) in Fig. 3.
- c. Remove the OPERATION (2) P.C.B.

4. OPERATION (2) P.C.B.の外し方

- a. ⑦のネジ2本を外します。(Fig. 4)
- b. コネクター 1712、CB7、CB8、CB11を外します。(Fig. 3)
- c. OPERATION (2) P.C.B.を取り外します。

5. Removal of VIDEO P.C.B. (B, G, E models only)

- a. Remove 4 screws (⑧) in Fig. 4.
- b. Remove the VIDEO P.C.B.

5. VIDEO P.C.B.の外し方

- a. ⑧のネジ4本を外します。(Fig. 4)
- b. VIDEO P.C.B.を取り外します。

6. Removal of MONO P.C.B.

- a. Remove 5 (U, C, R, K, A, L models) / 4 (B, G, E models) screws (⑨) in Fig. 4.
- b. Remove 2 screws (⑩) in Fig. 5.
- c. Remove a connector (1601) in Fig. 5.
- d. Remove the MONO P.C.B.

6. MONO P.C.B.の外し方

- a. ⑨のネジ4本を外します。(Fig. 4)
- b. ⑩のネジ2本を外します。(Fig. 5)
- c. コネクター 1601を外します。(Fig. 5)
- d. MONO P.C.B.を取り外します。

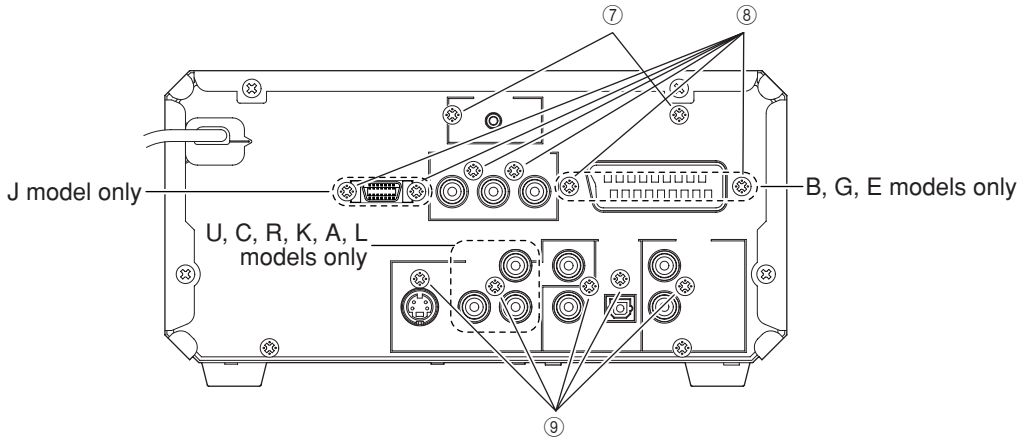


Fig. 4

7. Removal of POWER SUPPLY UNIT

- Remove 2 screws (⑪) in Fig. 5.
- Loosen 2 spacers in Fig. 5.
- Remove a connector (0100) in Fig. 5.
- Remove the POWER SUPPLY UNIT.

7. POWER SUPPLY UNITの外し方

- ⑪のネジ2本を外します。(Fig. 5)
- スペーサー2個をゆるめます。(Fig. 5)
- コネクタ 0100を外します。(Fig. 5)
- POWER SUPPLY UNITを取り外します。

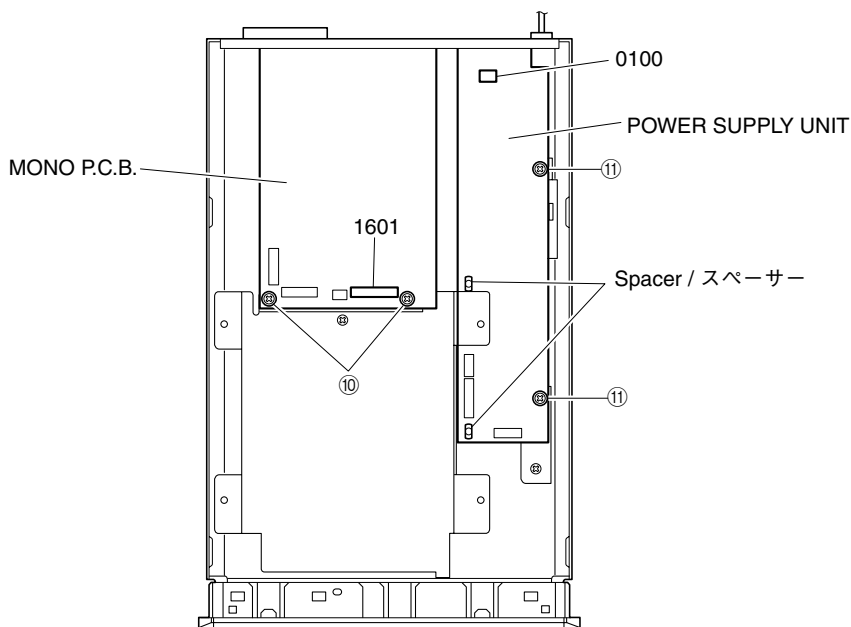


Fig. 5

When checking the P.C.B.

- Reconnect all cables (connectors) that have been disconnected.
- When connecting the flat cable, use care for the polarity.

P.C.B. チェックをする場合には

- 外したケーブル(コネクタ)をすべて接続してください。
- フラットケーブルを接続する際、極性に注意してください。

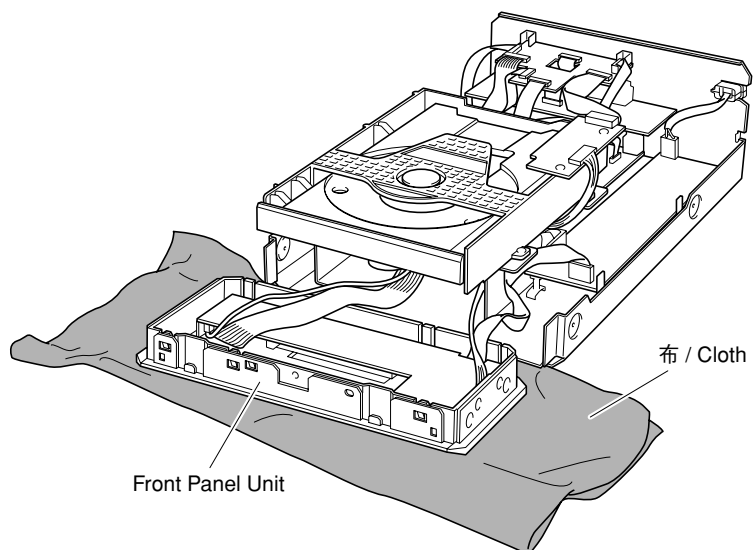
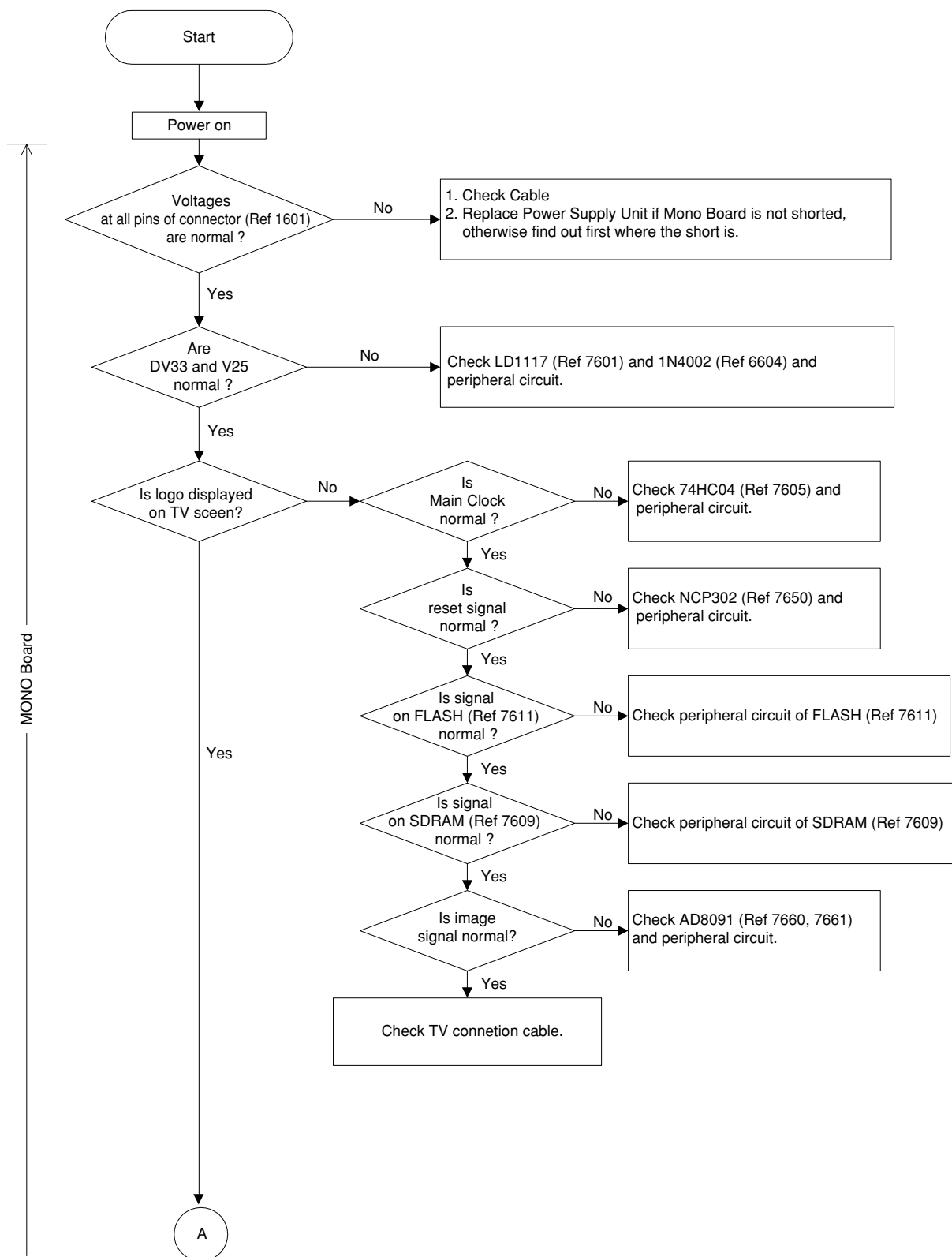
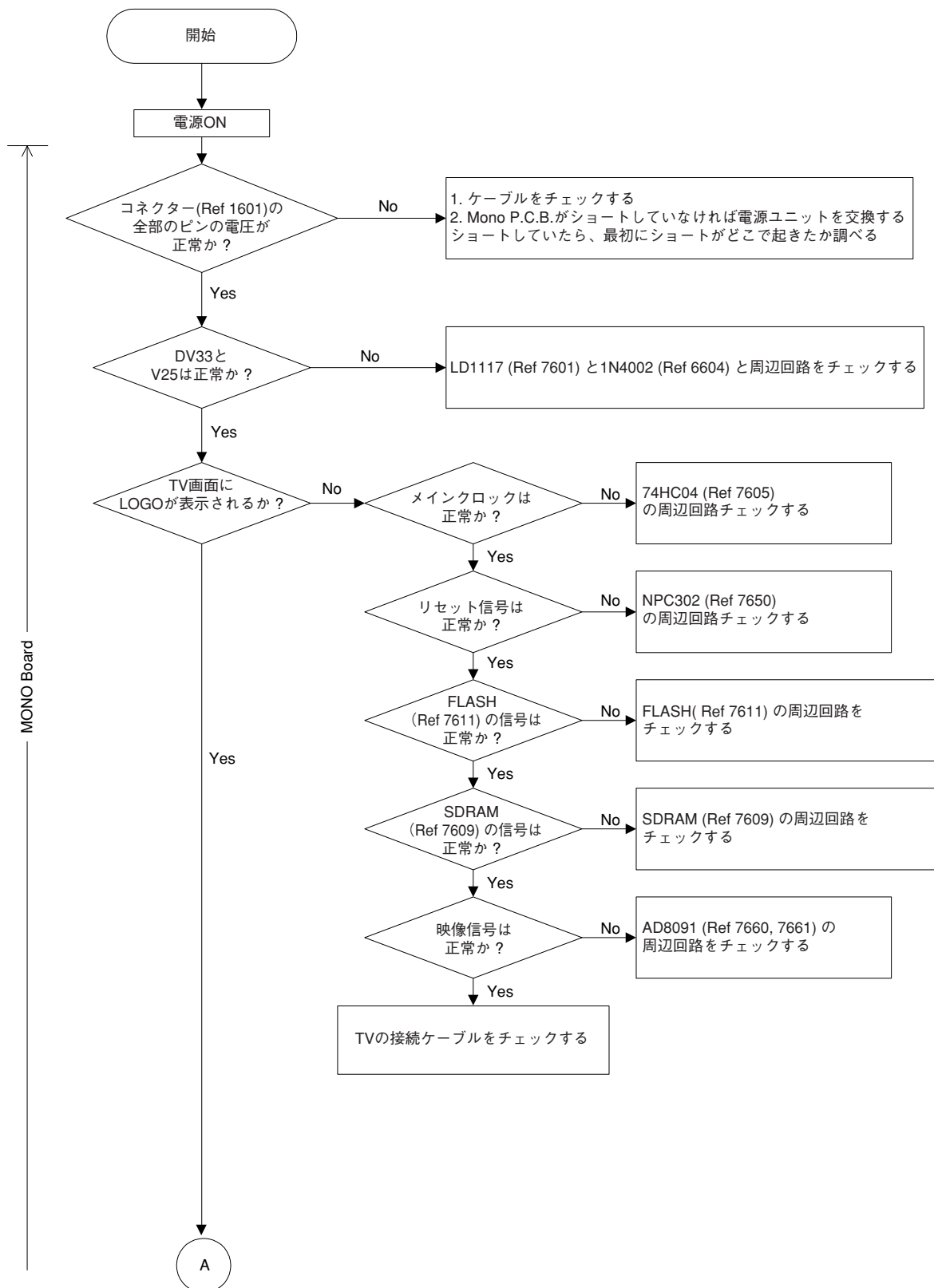


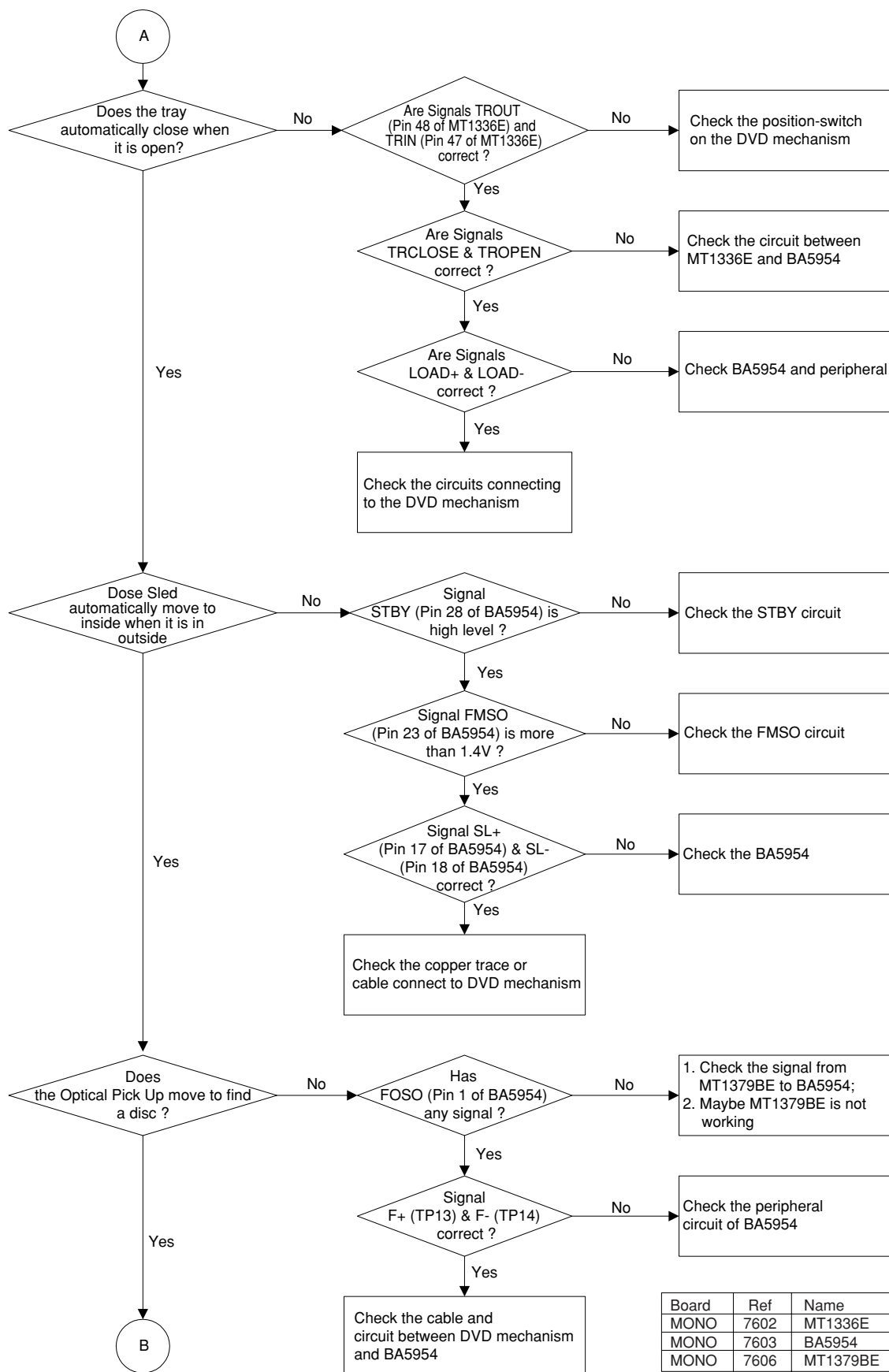
Fig. 6

■ MAINTENANCE FLOW CHART

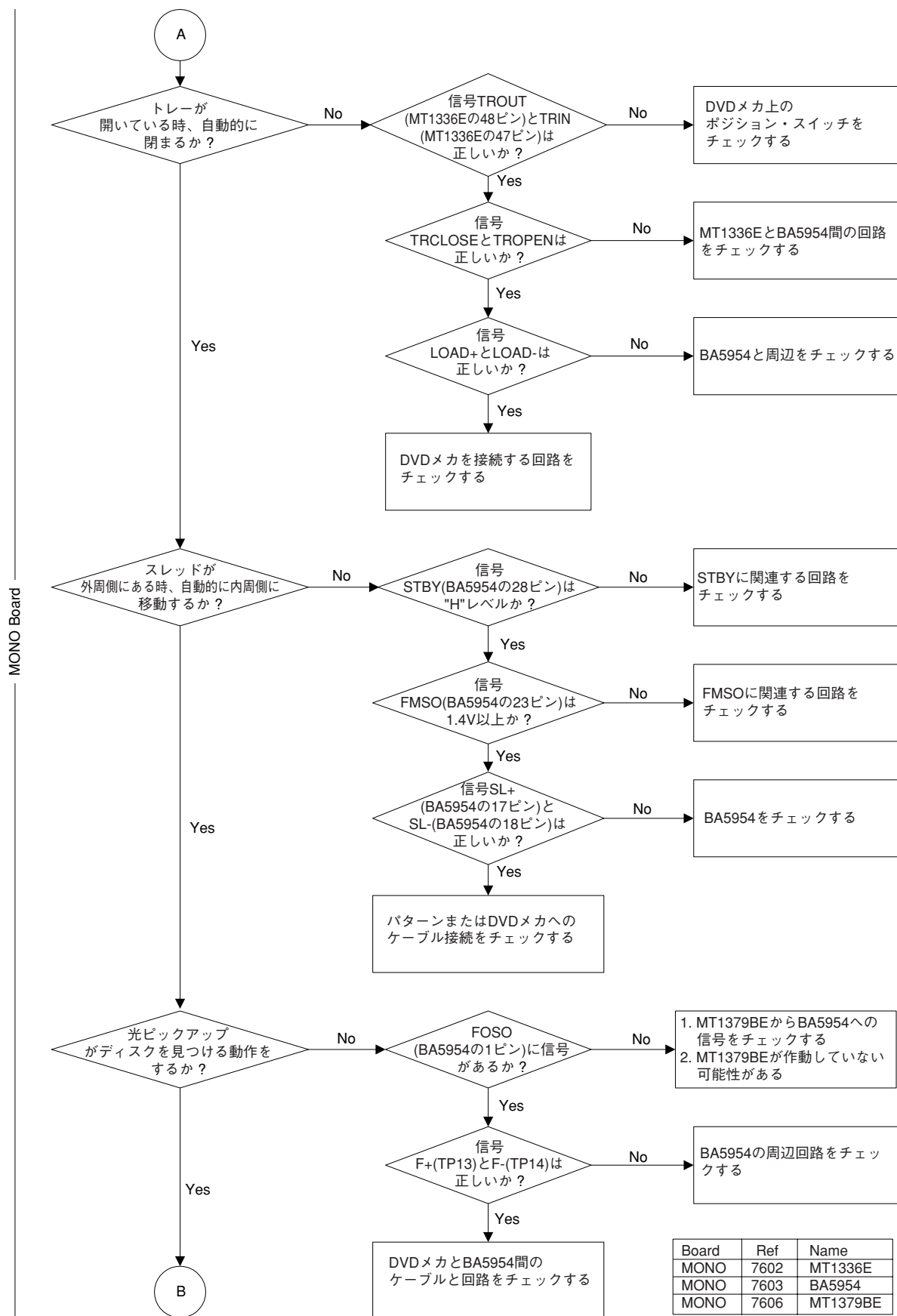


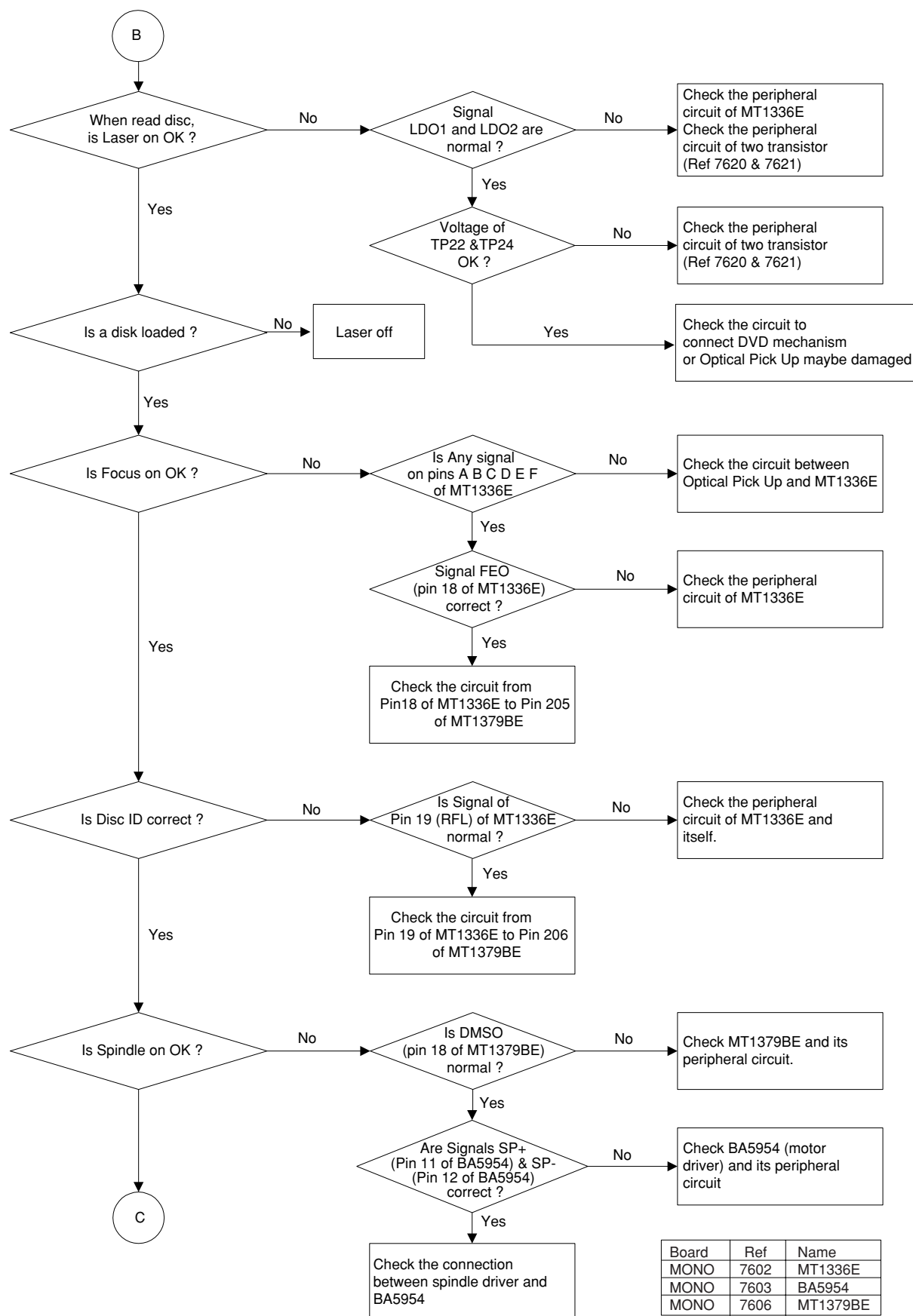
■ メンテナンスフローチャート





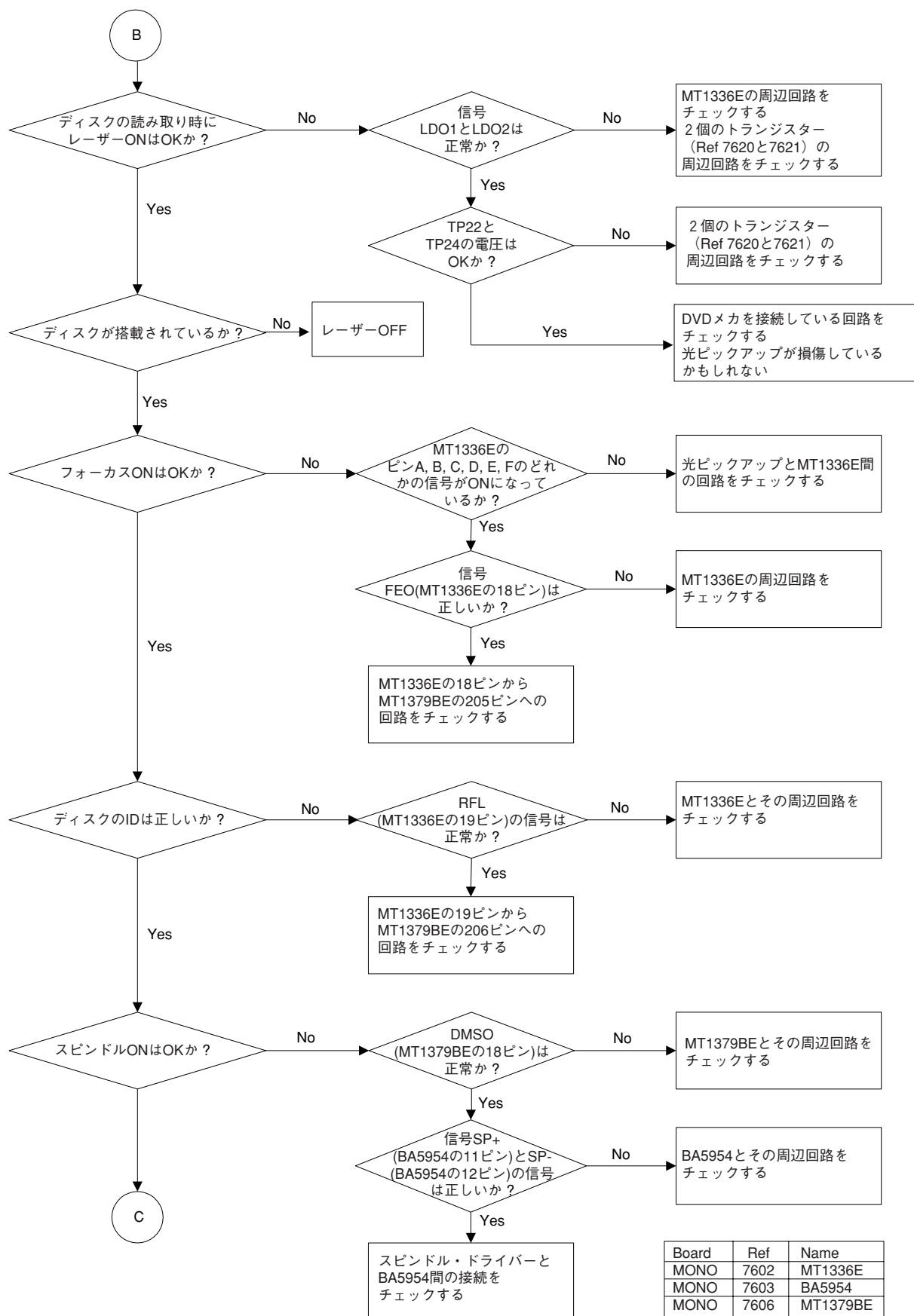
Board	Ref	Name
MONO	7602	MT1336E
MONO	7603	BA5954
MONO	7606	MT1379BE

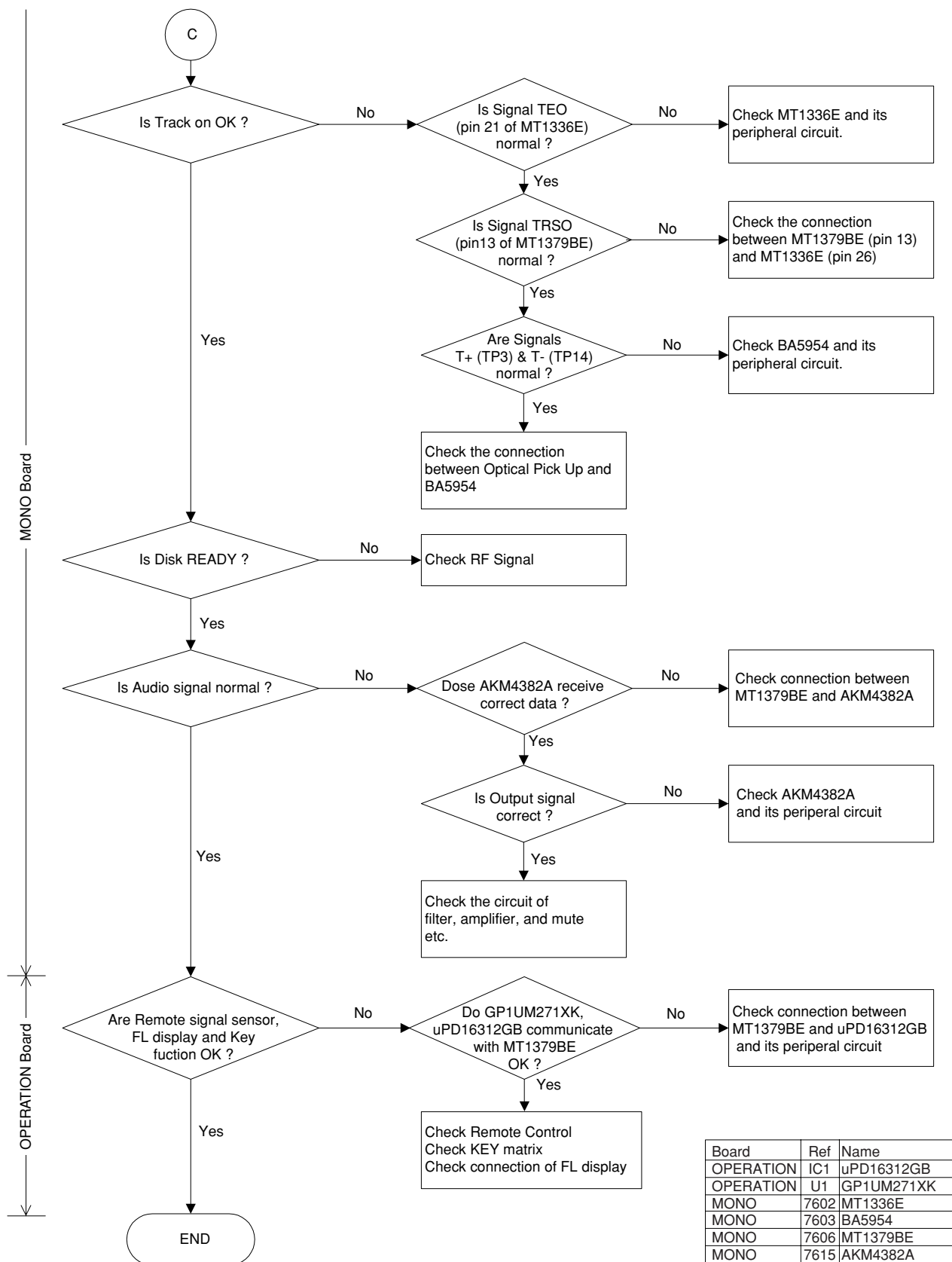


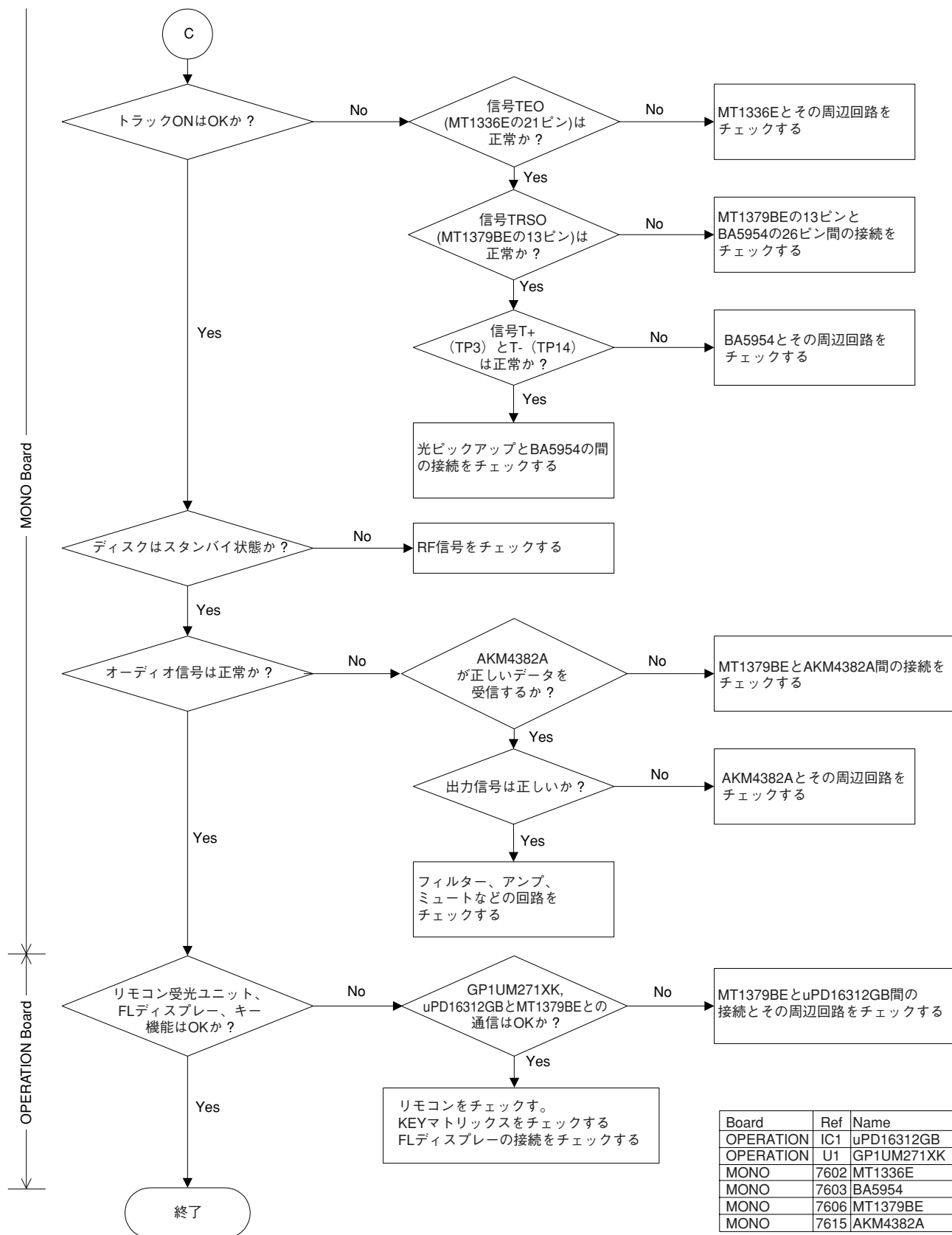


Board	Ref	Name
MONO	7602	MT1336E
MONO	7603	BA5954
MONO	7606	MT1379BE

MONO Board



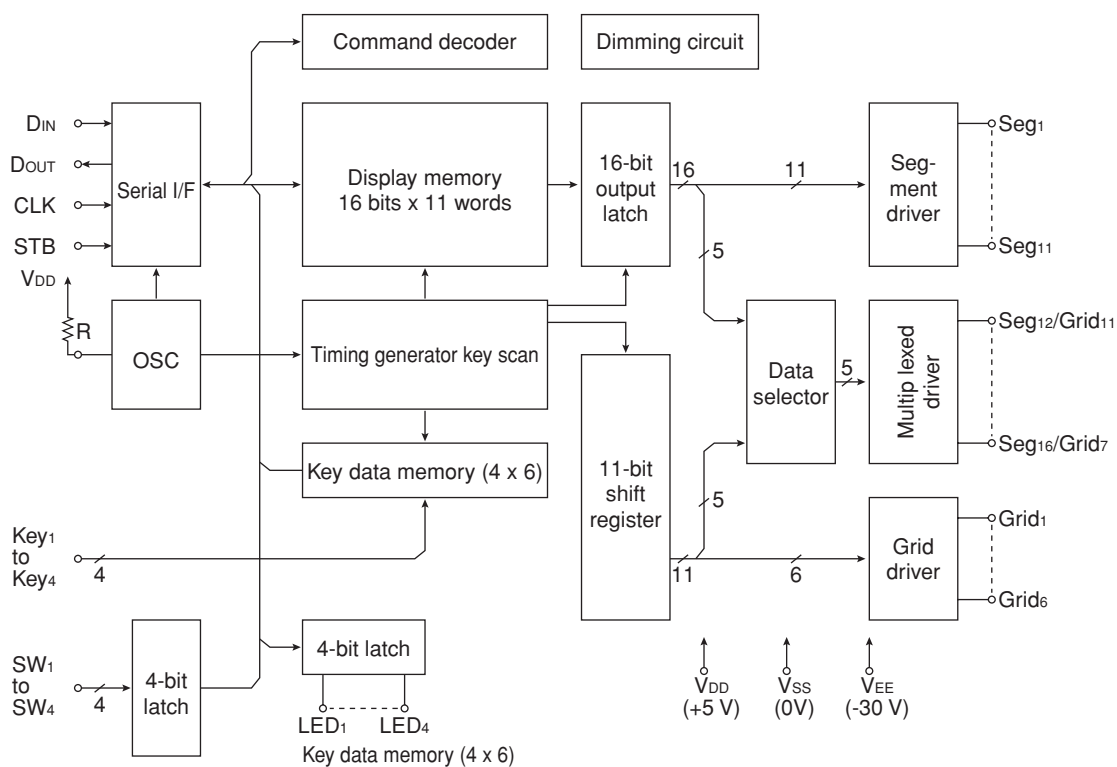
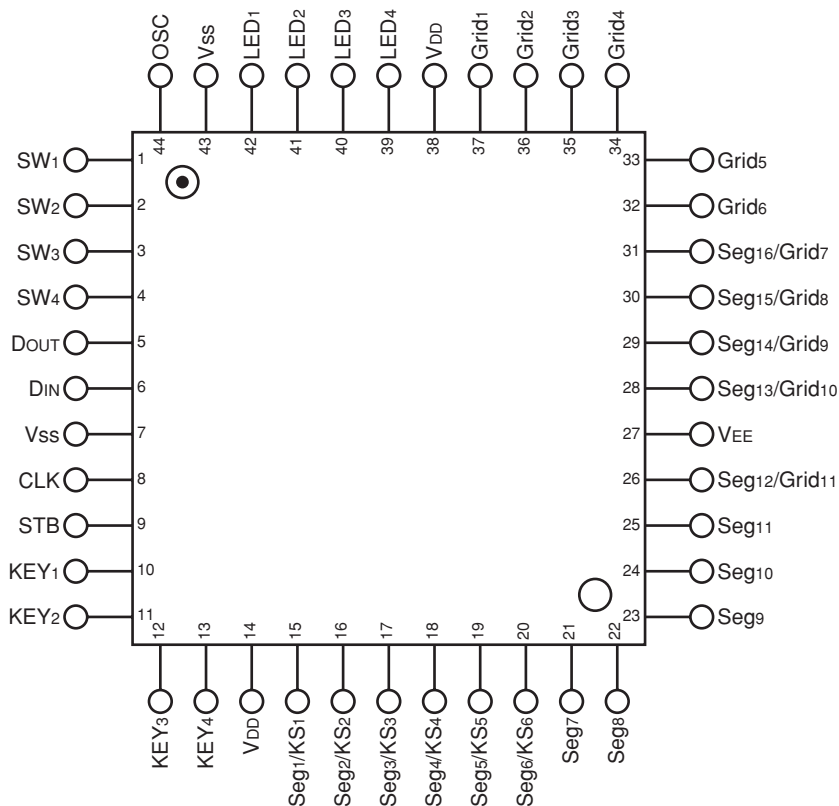




IC DATA

IC1 : μ PD16312GB-3B4 (OPERATION P.C.B.)

8bit CPU



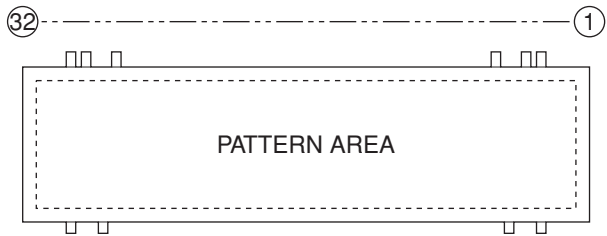
IC1 : μ PD16312GB-3B4 (OPERATION P.C.B.)

8bit CPU

No.	Name	Symbol	Description
1	Switch input	SW1	These pins constitute a 4-bit general-purpose input port.
2		SW2	
3		SW3	
4		SW4	
5	Data output	DOUT	Output serial data at the falling edge of the shift clock, starting from low order bit. This is N-ch open-drain output pin.
6	Data input	DIN	Input serial data at rising edge of shift clock, starting from the low order bit.
7	Logic ground	VSS	Connect this pin to system GND.
8	Clock input	CLK	Reads serial data at the rising edge, and outputs data at the falling edge.
9	Strobe	STB	Initializes serial interface at the rising or falling edge of the μ PD16312. It then waits for reception of a command. Data input after STB has fallen is processed as a command. While command data is processed, current processing is stopped, and the serial interface is initialized. While STB is high, CLK is ignored.
10	Key data input	KEY1	Data input to these pins is latched at the end of the display cycle.
11		KEY2	
12		KEY3	
13		KEY4	
14	Logic power	VDD	5 V $\pm$ 10 %
15	High-voltage output	Seg1/KS1	Segment output pins (Dual function as key source)
16		Seg2/KS2	
17		Seg3/KS3	
18		Seg4/KS4	
19		Seg5/KS5	
20		Seg6/KS6	
21	High-voltage output (segment)	Seg7	Segment output pins
22		Seg8	
23		Seg9	
24		Seg10	
25		Seg11	
26	High-voltage output (segment/grid)	Seg12/Grid11	These pins are selectable for segment or grid driving.
27	Pull-down level	VEE	VDD - 35 V max.
28	High-voltage output (segment/grid)	Seg13/Grid10	These pins are selectable for segment or grid driving.
29		Seg14/Grid9	
30		Seg15/Grid8	
31		Seg16/Grid7	
32	High-voltage output (grid)	Grid6	Grid output pins
33		Grid5	
34		Grid4	
35		Grid3	
36		Grid2	
37		Grid1	
38	Logic power	VDD	5 V $\pm$ 10 %
39	LED output	LED4	CMOS output. +20 mA max.
40		LED3	
41		LED2	
42		LED1	
43	Logic ground	VSS	Connect this pin to system GND.
44	Oscillator pin	OSC	Connect resistor to this pin to determine the oscillation frequency to this pin.

■ DISPLAY DATA

● V1 : 7-BT-299GNK (WD602800)

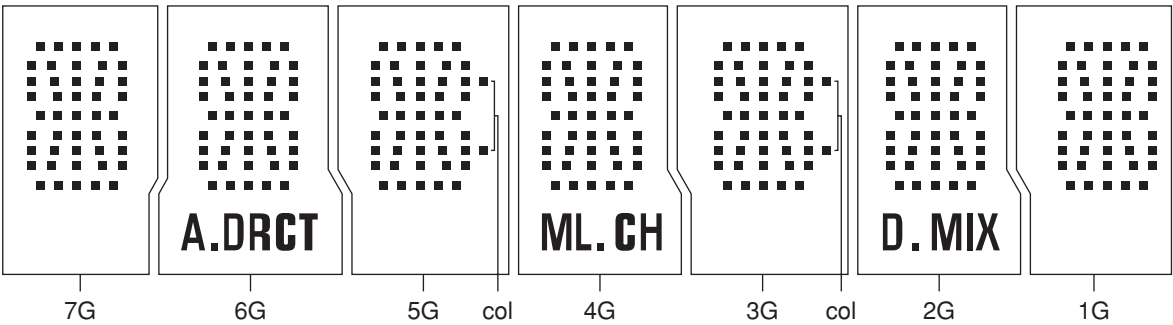


● PIN CONNECTION

PIN NO.	32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
CONNECTION	F2	F2	NP	1G	2G	3G	4G	5G	6G	7G	NP	NP	NP	NP	P15	P14	P13	P12	P11	P10	P9	P8	P7	P6	P5	P4	P3	P2	P1	NP	F1	F1

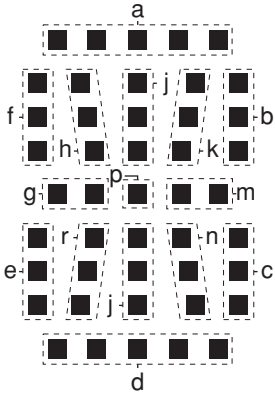
NOTE : 1) F1, F2 Filament 2) NP No pin 3) 1G ~ 7G Grid

● GRIG ASSIGNMENT

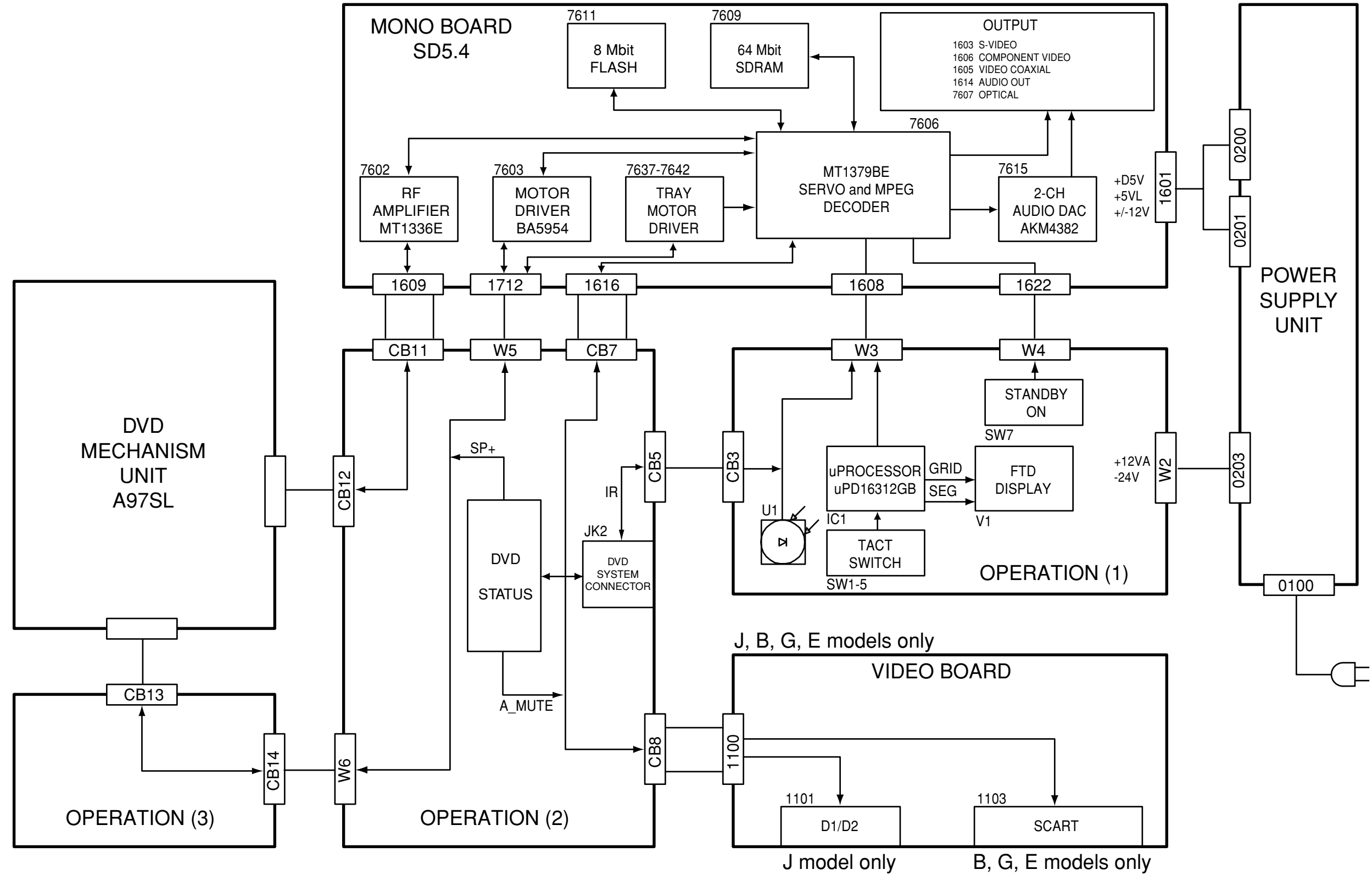


● ANODE CONNECTION

	7G	6G	5G	4G	3G	2G	1G
P1				a			
P2				j			
P3				h			
P4				k			
P5				b			
P6				f			
P7				m			
P8				g			
P9				c			
P10				e			
P11				r			
P12				n			
P13				d			
P14	-	A.DRGT	col	ML.CH	col	D.MIX	-
P15				p			



■ BLOCK DIAGRAM

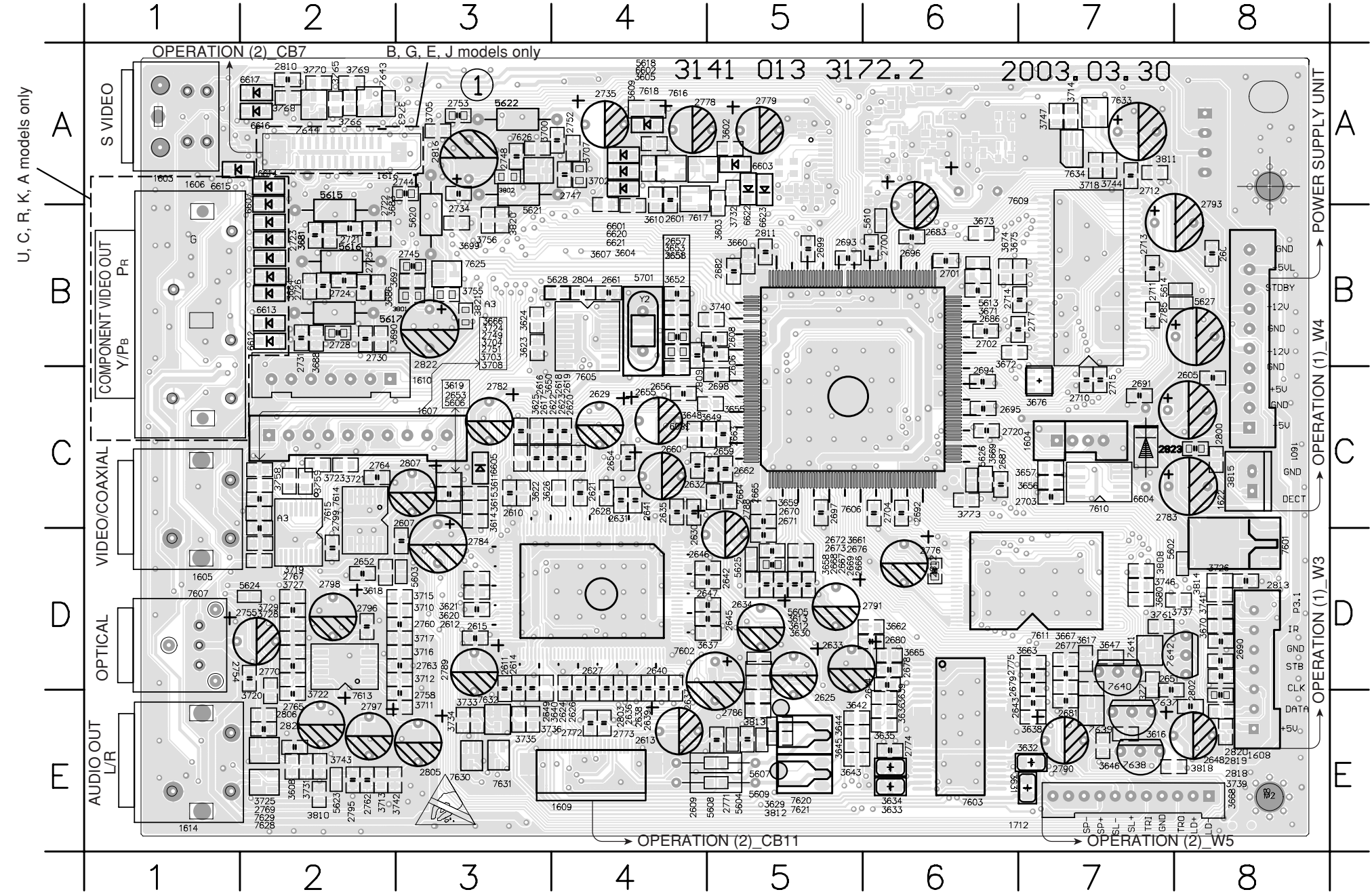


■ **PRINTED CIRCUIT BOARD**
FOR INFORMATION ONLY (NO SERVICE PARTS WILL BE AVAILABLE)

SD5.4 MONO (SIDE A)

The first digit of a component indicates the component type.
1xxx : Connector 3xxx : Resistor 5xxx : Coil 7xxx : IC, Transistor, FET
2xxx : Capacitor 4xxx : SMD jumper 6xxx : Diode 9xxx : Wire jumper

1601 C8	2603 B8	2618 C3	2632 C4	2646 D5	2661 B4	2677 D7	2695 C6	2714 B7	2735 A4	2763 D3	2781 A7	2798 D2	2816 A3	3653 B4	3725 E2	5609 E5	7620 E5
1603 A1	2605 C8	2619 C4	2633 D5	2647 D5	2662 C5	2678 D6	2696 B6	2715 C7	2744 A3	2764 C2	2782 C3	2799 D2	2818 E8	3655 C5	3726 D8	5610 B6	7621 E5
1604 C7	2606 B5	2620 C4	2634 D5	2648 E7	2663 C5	2679 E7	2697 C5	2717 B6	2745 B3	2765 E2	2783 C7	2800 C7	2819 D8	3656 C7	3727 D2	5613 B6	7625 B3
1605 C1	2607 D3	2621 C4	2635 C4	2649 E3	2664 C5	2680 D6	2698 C5	2720 C6	2747 A4	2767 D2	2784 D3	2802 E8	2820 D8	3657 C7	3728 D2	5614 B8	7626 A3
1606 B1	2608 B5	2622 C3	2636 E4	2651 E7	2665 C5	2681 E7	2699 B5	2721 B2	2748 A3	2769 E2	2785 B8	2803 E4	2821 E2	3658 D5	3729 D2	5615 B2	7628 E2
1607 C2	2609 E5	2623 C4	2637 E4	2652 D2	2666 D5	2682 B5	2700 B6	2722 B2	2749 C2	2770 D2	2786 D5	2804 B4	2822 B3	3659 C5	3731 E2	5616 B2	7629 E2
1608 E8	2610 C3	2624 E4	2638 E4	2653 C3	2667 D5	2683 B6	2701 B6	2723 B2	2751 D2	2771 E5	2788 D4	2805 E3	2823 C8	3660 B5	3732 A5	5617 B2	7630 E3
1609 E4	2611 E3	2625 D5	2639 E4	2654 C4	2668 D5	2686 B6	2702 B6	2724 B2	2752 A4	2772 E4	2789 D3	2806 E2	3602 A5	3661 D5	3733 E3	5618 A4	7631 E3
1610 C2	2612 D3	2626 E4	2640 E4	2655 C4	2669 D5	2687 C6	2703 C7	2725 B2	2753 A3	2773 E4	2790 E7	2807 C3	3603 B5	3662 D6	3734 E3	5620 B3	7632 E3
1614 E1	2613 E4	2627 E4	2641 C4	2656 C4	2670 D5	2690 D8	2704 C6	2726 B2	2754 D2	2774 E6	2791 D5	2809 B4	3604 B4	3663 D7	3735 E3	5621 A3	7633 A7
1616 A2	2614 E3	2628 C4	2642 D5	2657 B4	2671 D5	2691 C7	2710 C7	2728 B2	2755 D1	2775 D7	2793 B7	2810 A2	3605 A4	3664 E7	3736 E3	5622 A3	7634 A7
1622 C8	2615 D3	2629 C4	2643 E7	2658 B4	2672 D5	2692 C6	2711 B7	2730 B2	2758 E3	2776 D6	2795 E2	2811 B5	3607 B4	3665 D6	3737 D8	5623 E2	7637 E7
1712 E8	2616 C3	2630 C4	2644 E6	2659 C5	2673 D5	2693 B5	2712 A7	2731 B2	2760 D3	2778 A4	2796 D2	2812 D6	3608 E2	3666 C2	3739 E8	5624 D2	7638 E7
2601 A4	2617 C3	2631 C4	2645 D5	2660 C4	2676 D5	2694 C6	2713 B7	2734 A3	2762 E2	2779 A5	2797 E2	2813 D8	3609 A4	3667 D7	3740 B5	5625 D5	7639 E7

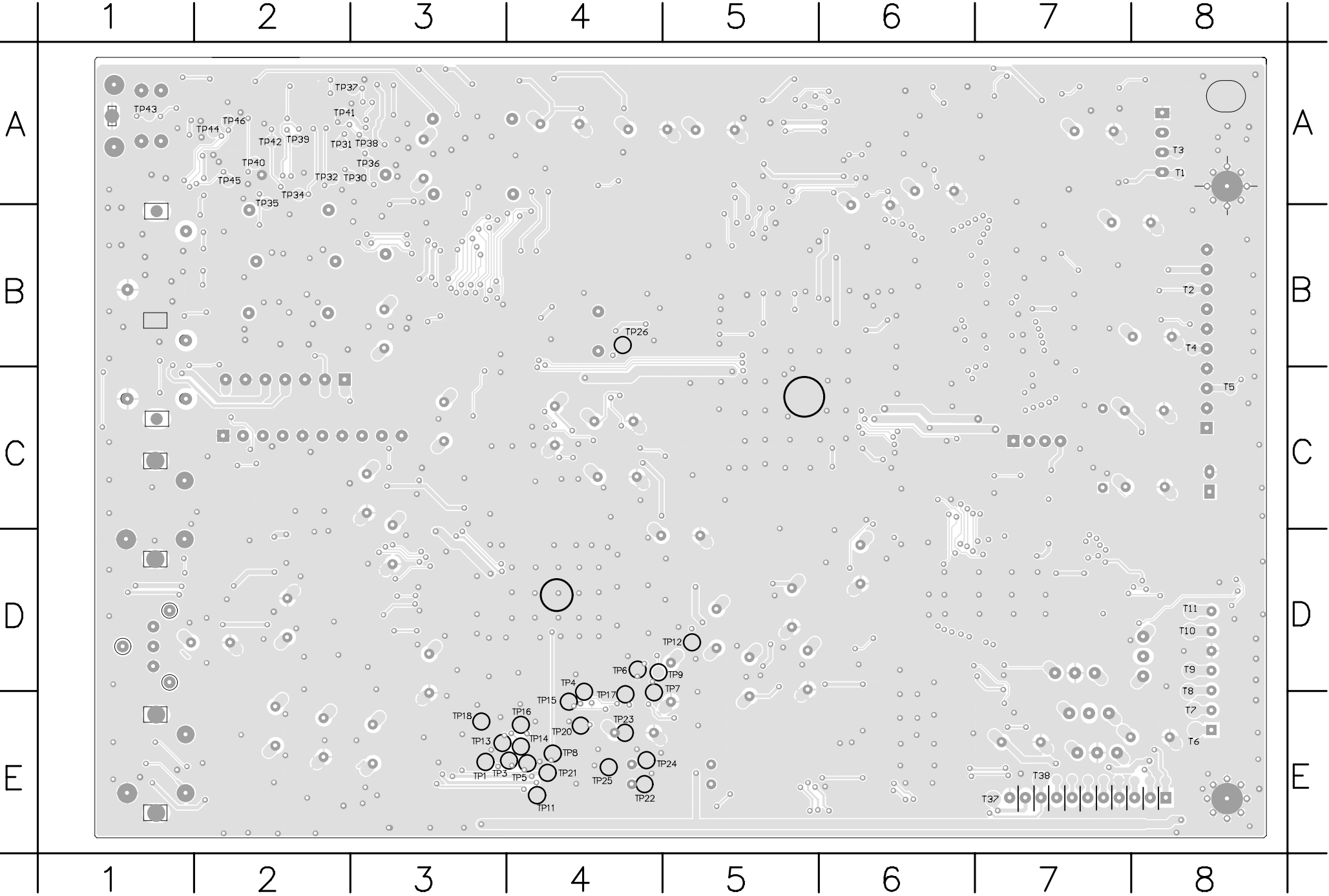


3610 A4	3668 E8	3741 D8	5626 C6	7640 D7
3611 C3	3669 C6	3742 E2	5627 B8	7641 D7
3612 E5	3670 D8	3743 E2	5628 B4	7642 D8
3613 D5	3671 B6	3744 A7	5701 B4	7643 A2
3614 D3	3672 B6	3746 D7	6601 A4	7644 A2
3615 C3	3673 B6	3747 A7	6602 A4	
3616 E7	3674 B6	3755 B3	6603 A5	
3617 D7	3675 B7	3756 B3	6604 C7	
3618 D2	3676 C7	3758 C2	6605 C3	
3619 C3	3680 D7	3759 C2	6606 B2	
3620 D3	3681 B2	3760 E7	6607 B2	
3621 D3	3683 B2	3761 D7	6608 B2	
3622 C3	3684 B2	3763 A2	6609 B2	
3623 B3	3686 B2	3765 A2	6610 B2	
3624 B3	3688 B2	3766 A2	6611 B2	
3625 C3	3690 B2	3768 A2	6612 B2	
3626 C4	3697 B3	3769 A2	6613 B2	
3629 E5	3699 B3	3770 A2	6614 A2	
3630 E5	3700 A3	3771 E7	6615 A1	
3631 E7	3702 A4	3773 C6	6616 A2	
3632 E7	3703 D2	3801 B3	6617 A2	
3633 E6	3704 C2	3802 A3	6620 A4	
3634 E6	3705 A3	3808 D7	6621 A4	
3635 E6	3707 A4	3809 B4	6622 A5	
3636 E6	3708 D2	3810 E2	6623 A5	
3637 D5	3710 D3	3811 A7	7601 D8	
3638 E7	3711 E3	3812 E5	7602 D4	
3639 E6	3712 D3	3813 E5	7603 D6	
3640 E3	3713 E2	3814 D8	7605 B4	
3642 E5	3714 A7	3815 C8	7606 C5	
3643 E5	3715 D3	3818 E7	7607 D1	
3644 E5	3716 D3	3820 B3	7609 B7	
3645 E5	3717 D3	3821 B3	7610 C7	
3646 E7	3718 A7	5602 D8	7611 D7	
3647 D7	3719 D2	5603 D3	7613 E2	
3648 C4	3720 E2	5604 E5	7614 C2	
3649 C5	3721 C2	5605 D5	7615 C2	
3650 C3	3722 D2	5606 C3	7616 A5	
3651 B4	3723 C2	5607 E5	7617 A4	
3652 C4	3724 C2	5608 E5	7618 A4	

■ **PRINTED CIRCUIT BOARD**
FOR INFORMATION ONLY (NO SERVICE PARTS WILL BE AVAILABLE)

SD5.4 MONO (SIDE B)

The first digit of a component indicates the component type.
1xxx : Connector 3xxx : Resistor 5xxx : Coil 7xxx : IC, Transistor, FET
2xxx : Capacitor 4xxx : SMD jumper 6xxx : Diode 9xxx : Wire jumper



TP1	E3	TP41	A2
TP3	E4	TP42	A2
TP4	E4	TP43	A1
TP5	E4	TP44	A2
TP6	D4	TP45	A2
TP7	E4	TP46	A2
TP8	E4	T1	A8
TP9	D4	T2	B8
TP11	E4	T3	A8
TP12	D5	T4	B8
TP13	E3	T5	C8
TP14	E4	T6	E8
TP15	E4	T7	E8
TP16	E4	T8	E8
TP17	E4	T9	D8
TP18	E3	T10	D8
TP20	E4	T11	D8
TP21	E4	T37	E7
TP22	E4	T38	E7
TP23	E4		
TP24	E4		
TP25	E4		
TP26	B4		
TP27	E5		
TP28	E5		
TP30	A3		
TP31	A2		
TP32	A2		
TP34	A2		
TP35	B2		
TP36	A3		
TP37	A3		
TP38	A3		
TP39	A2		
TP40	A2		

■ **PRINTED CIRCUIT BOARD**
FOR INFORMATION ONLY (NO SERVICE PARTS WILL BE AVAILABLE)

VIDEO

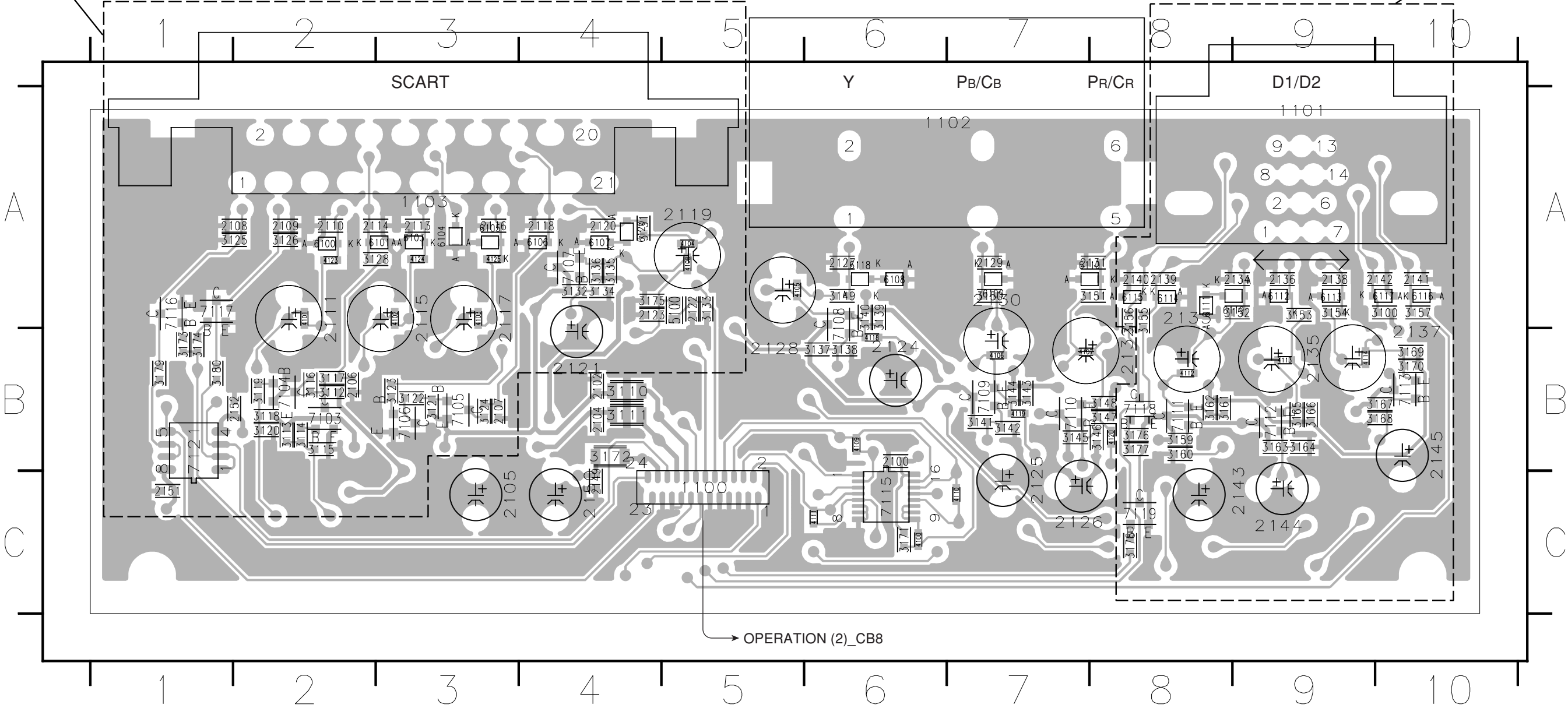
(B, G, E, J models only)

The first digit of a component indicates the component type.
1xxx : Connector 3xxx : Resistor 5xxx : Coil 7xxx : IC, Transistor, FET
2xxx : Capacitor 4xxx : SMD jumper 6xxx : Diode 9xxx : Wire jumper

11100	C5	21117	A3	21135	B9	31112	B2	31133	A5	31151	A8	31170	B10	41107	B7	61104	A3	71104	B2
11101	A9	21118	A4	21136	A9	31113	B3	31134	A4	31152	A9	31171	B6	41108	A5	61105	A3	71105	B3
11102	A6	21119	A5	21137	B10	31114	B4	31135	A4	31153	A9	31172	B4	41109	B6	61106	A4	71106	B3
11103	A3	21120	A4	21138	A9	31115	B5	31136	A4	31154	A9	31173	B1	41110	C7	61107	A4	71107	A4
21100	B6	21121	B4	21139	A8	31116	B6	31137	B6	31155	A8	31174	B1	41111	C6	61108	A6	71108	A6
21102	B4	21122	A5	21140	A8	31117	B7	31138	A6	31156	A8	31175	B4	41112	B8	61109	A7	71109	B7
21104	B4	21123	A4	21141	A10	31118	B8	31139	A6	31157	A10	31176	B8	41113	B9	61110	A7	71110	B7
21105	C3	21124	B6	21142	A10	31119	B9	31140	A6	31158	B8	31177	B8	41114	B9	61111	A8	71111	B8
21106	B2	21125	C7	21143	C9	31120	B10	31141	B7	31159	B8	31178	C8	41115	B6	61112	A9	71112	B9
21107	B3	21126	C7	21144	C9	31121	B1	31142	B7	31160	B8	31179	B1	41116	B7	61113	A9	71113	B10
21108	A2	21127	A6	21145	B10	31122	B3	31143	B7	31161	B9	31180	C6	41117	B8	61114	A8	71114	C6
21109	A2	21128	B5	21146	C4	31123	B4	31144	B7	31162	C3	41100	C6	41118	A2	61115	A8	71115	A10
21110	A2	21129	B7	21147	C4	31124	B5	31145	B7	31163	B9	41101	A2	41119	A3	61116	A10	71116	A1
21111	A2	21130	A7	21148	C1	31125	B6	31146	B8	31164	B9	41102	A3	41120	A3	61117	A10	71117	B8
21113	A3	21131	A8	21149	B2	31126	A2	31147	B8	31165	B10	41103	A3	51100	A5	61118	A6	71118	CC8
21114	A2	21132	B8	31100	A10	31127	A4	31148	B8	31166	B10	41104	A5	61101	A2	61119	A9	71119	B1
21115	A3	21133	A8	31110	B4	31128	A4	31149	A6	31167	B10	41105	A5	61102	A3	61120	A4		
21116	A3	21134	A9	31111	B4	31129	A4	31150	A7	31168	B10	41106	B7	61103	A3	71103	B2		

B, G, E models only

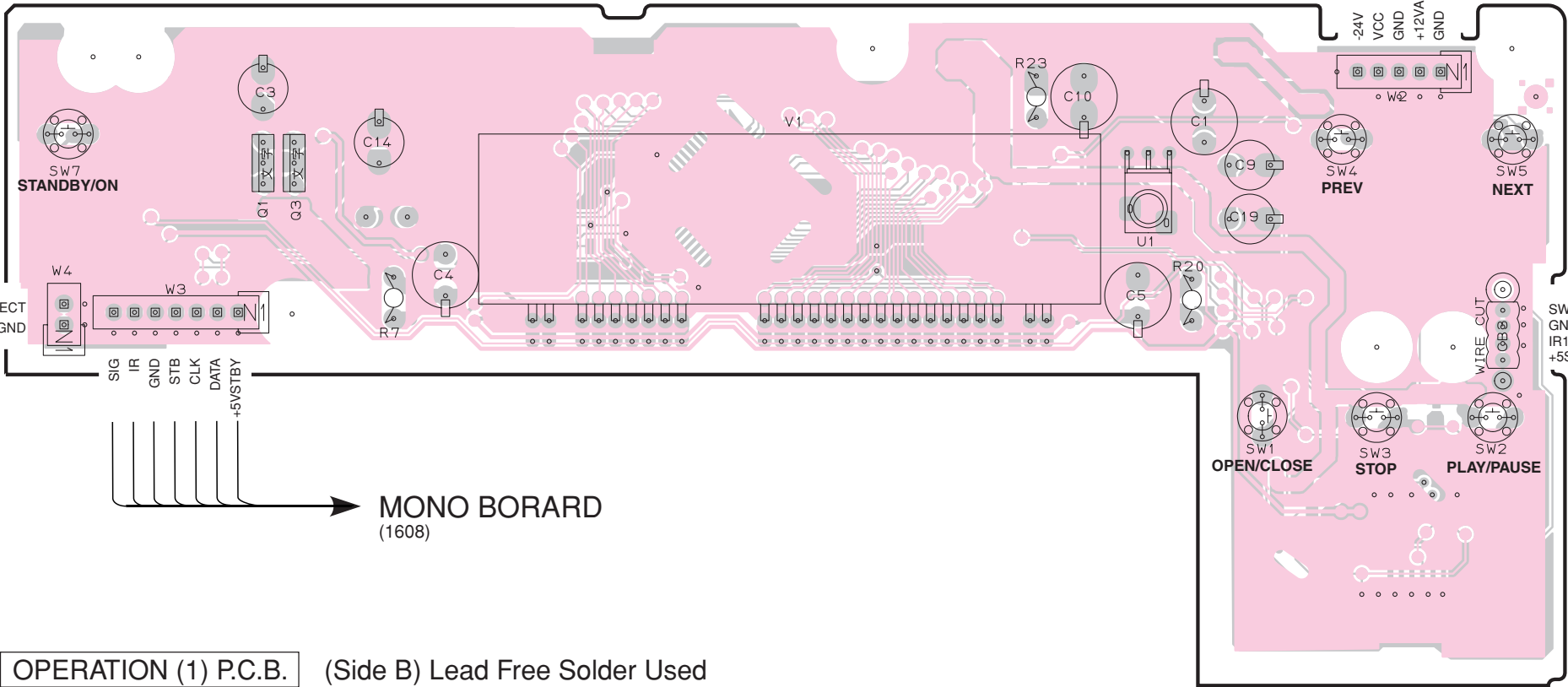
J model only



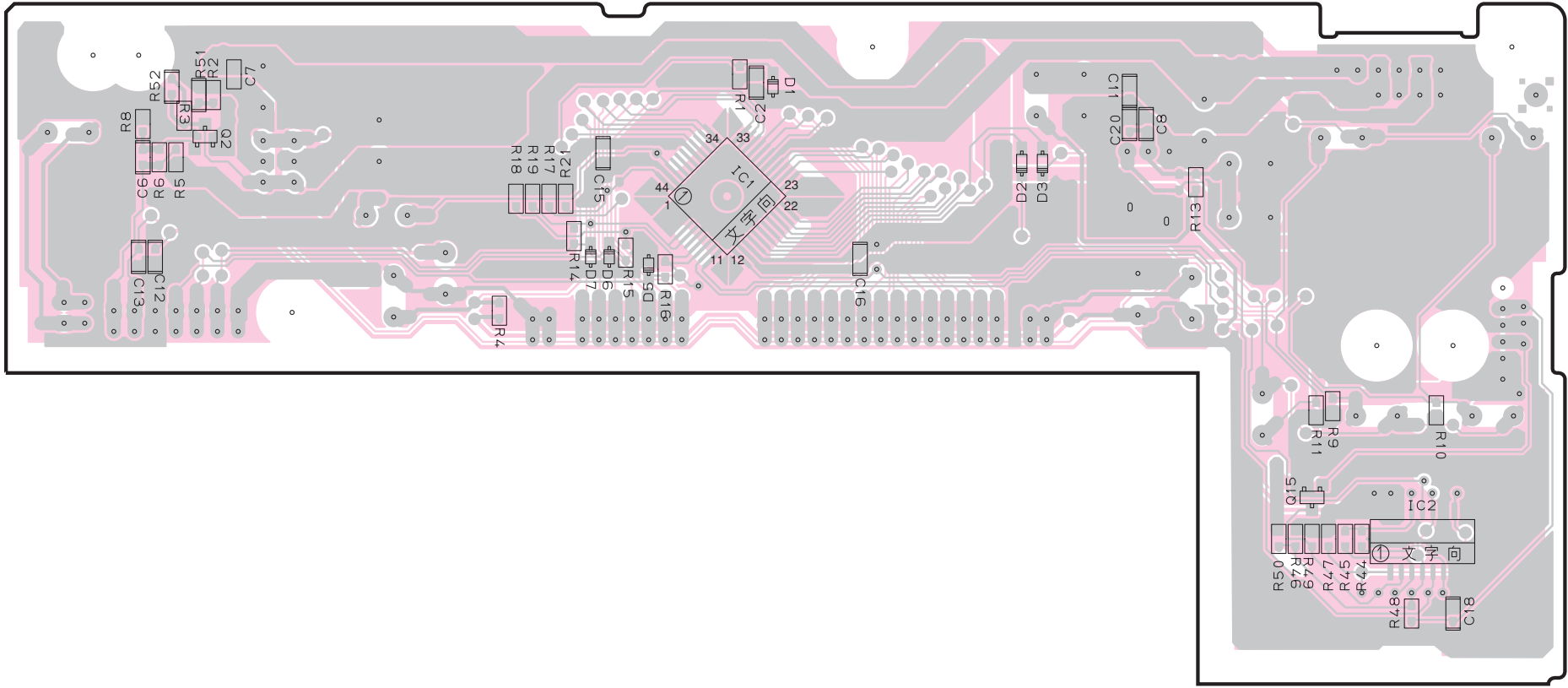
PRINTED CIRCUIT BOARD

OPERATION (1) P.C.B. (Side A)

POWER SUPPLY UNIT



OPERATION (1) P.C.B. (Side B) Lead Free Solder Used



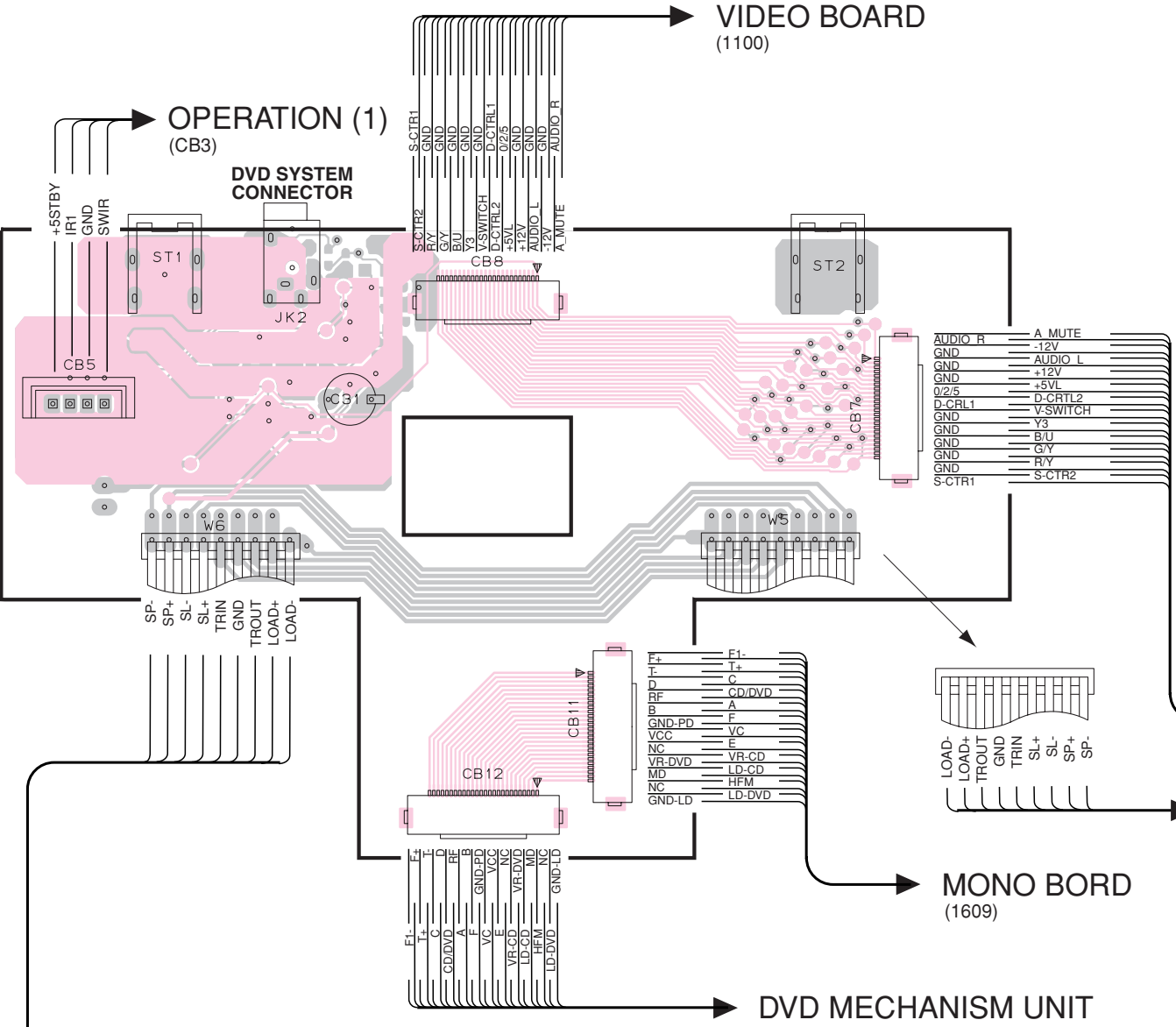
OPERATION (2)
(CB5)

• Semiconductor Location

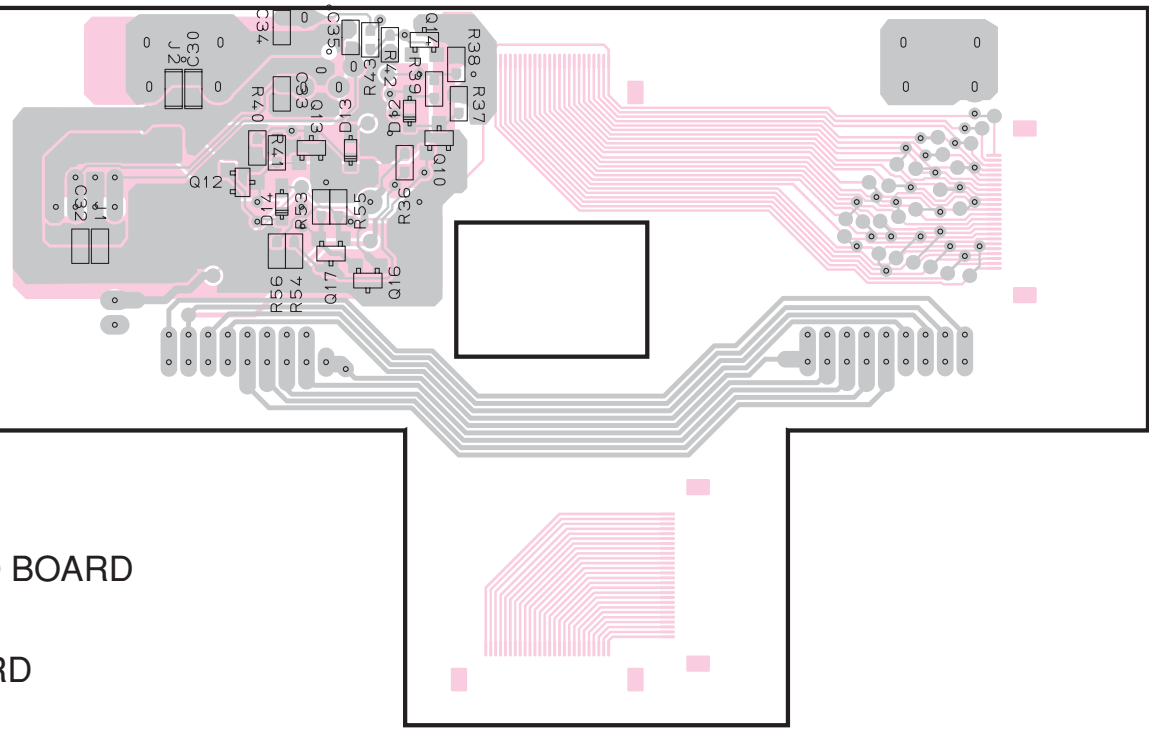
Ref. No.	Location
D1	E5
D2	F5
D3	F5
D5	E5
D6	E5
D7	E5
IC1	E5
IC2	H6
Q1	C2
Q2	C5
Q3	C2
Q15	G6

PRINTED CIRCUIT BOARD

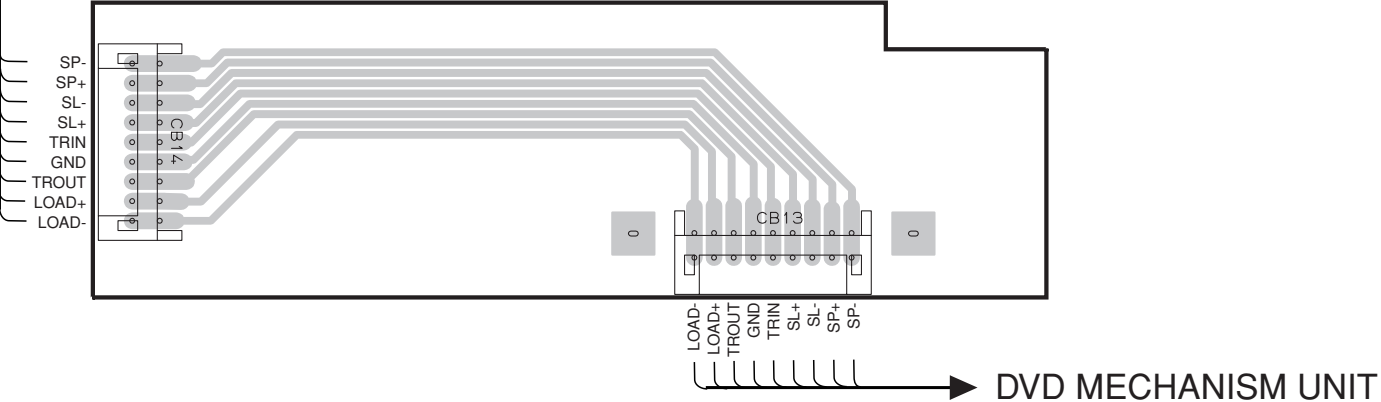
OPERATION (2) P.C.B. (Side A)



OPERATION (2) P.C.B. (Side B) Lead Free Solder Used



OPERATION (3) P.C.B. (Side B) Lead Free Solder Used

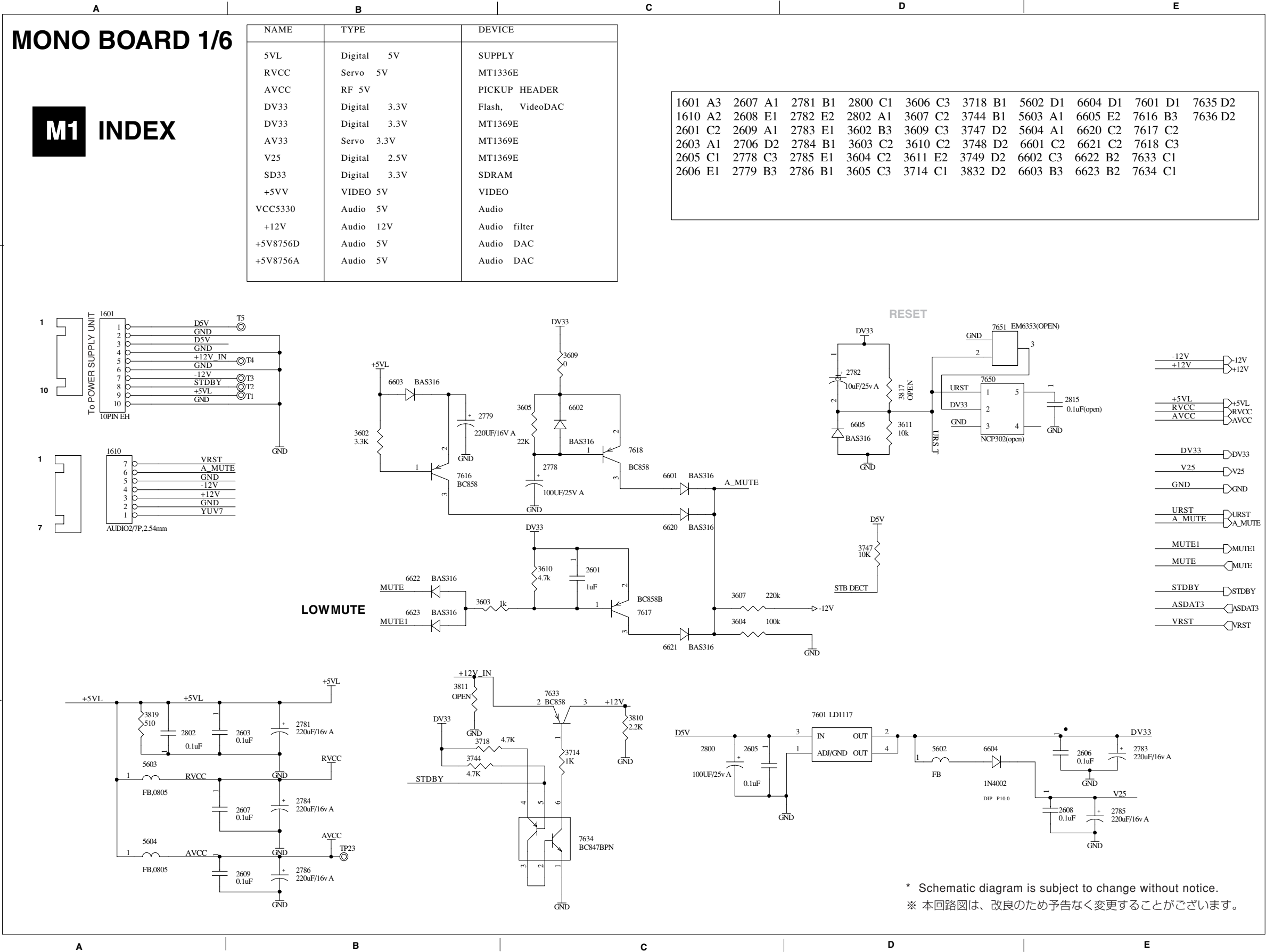


Semiconductor Location

Ref. No.	Location
D12	H3
D13	H3
D14	H3
Q10	H3
Q12	G3
Q13	H3
Q14	H2
Q16	H3
Q17	H3

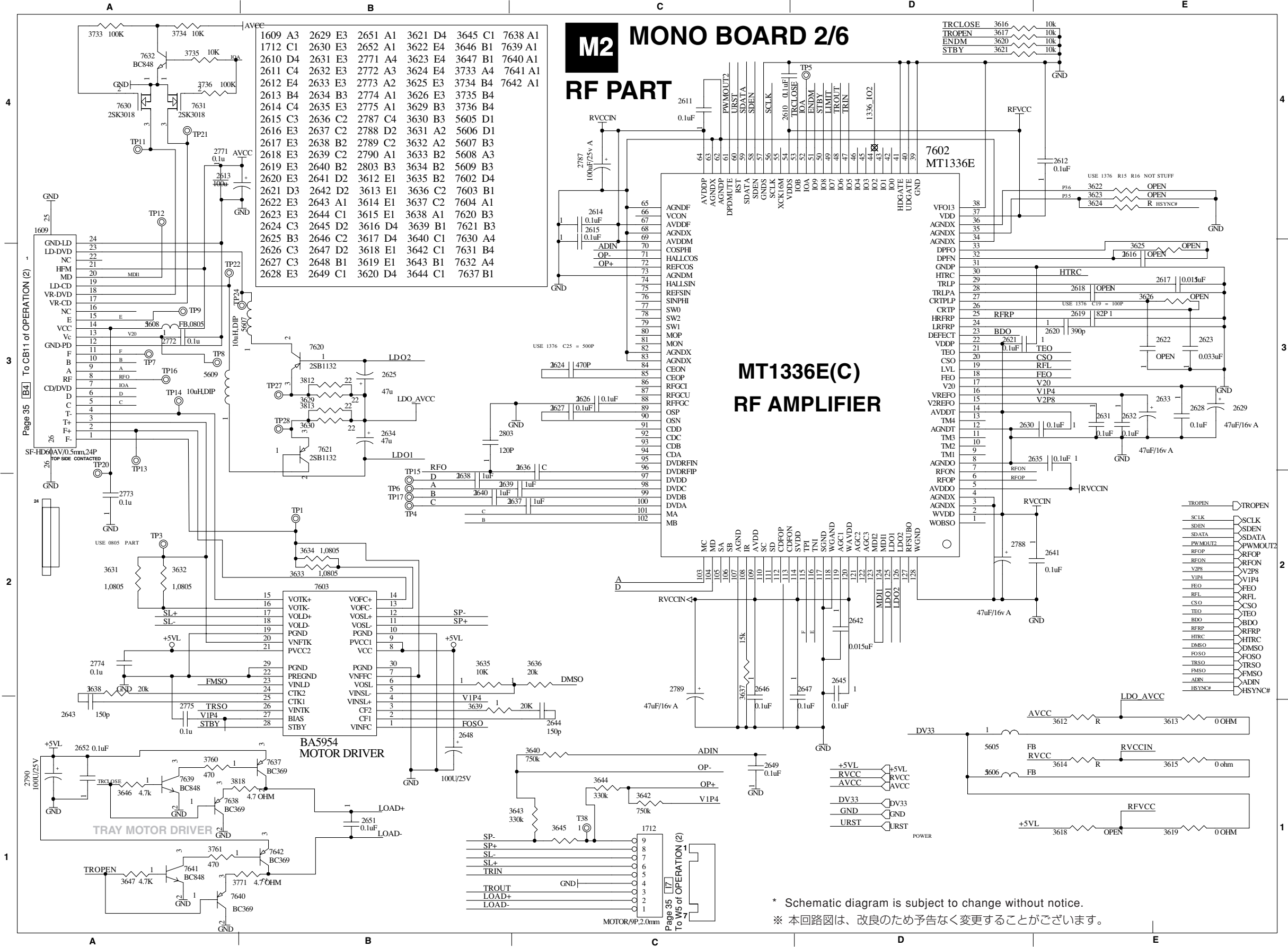
■ SCHEMATIC DIAGRAM
FOR INFORMATION ONLY (NO SERVICE PARTS WILL BE AVAILABLE)

The first digit of a component indicates the component type.
1xxx : Connector 3xxx : Resistor 5xxx : Coil 7xxx : IC, Transistor, FET
2xxx : Capacitor 4xxx : SMD jumper 6xxx : Diode 9xxx : Wire jumper



■ SCHEMATIC DIAGRAM
FOR INFORMATION ONLY (NO SERVICE PARTS WILL BE AVAILABLE)

The first digit of a component indicates the component type.
1xxx : Connector 3xxx : Resistor 5xxx : Coil 7xxx : IC, Transistor, FET
2xxx : Capacitor 4xxx : SMD jumper 6xxx : Diode 9xxx : Wire jumper

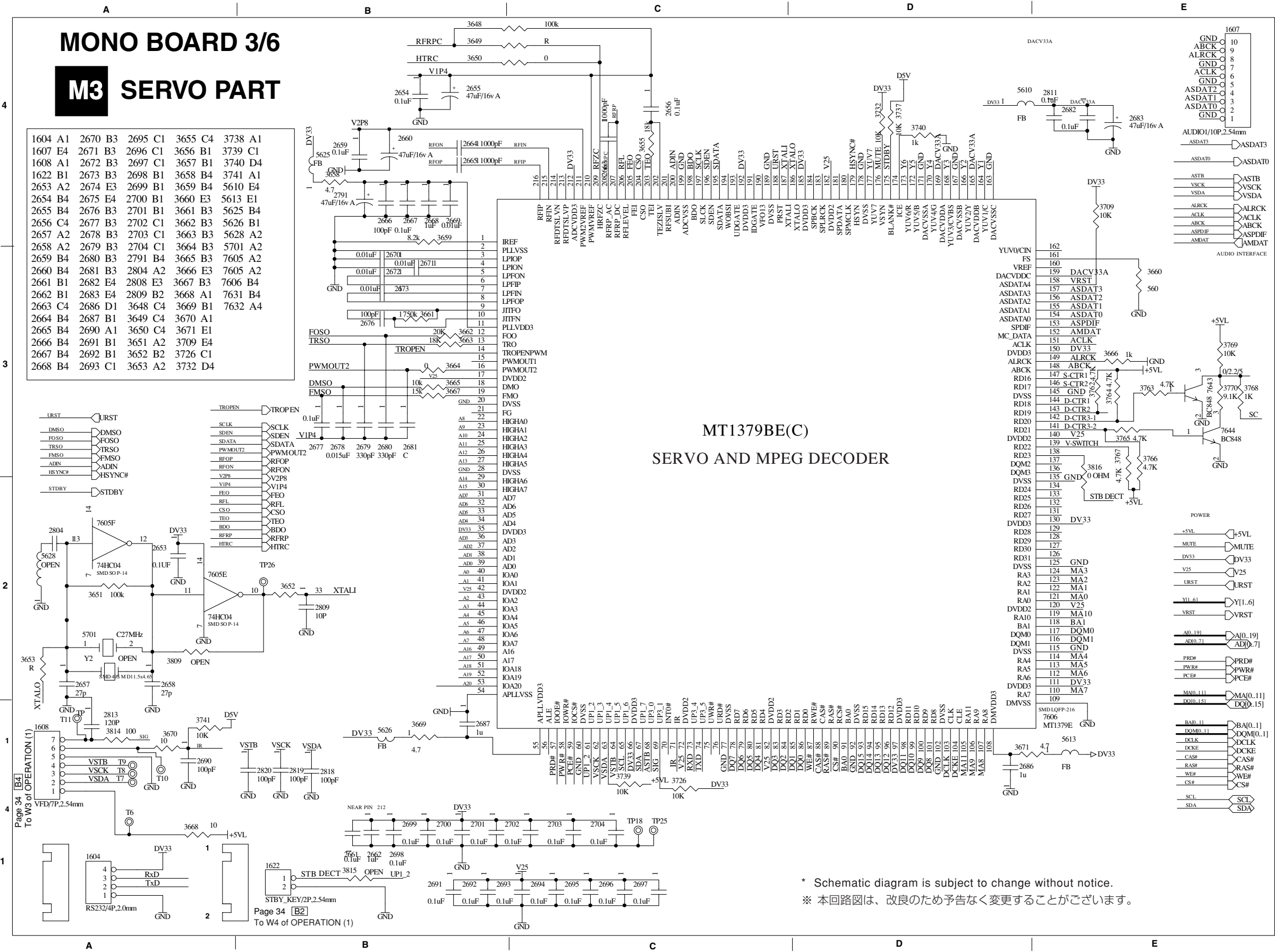


* Schematic diagram is subject to change without notice.
※ 本回路図は、改良のため予告なく変更することがございます。

■ SCHEMATIC DIAGRAM
FOR INFORMATION ONLY (NO SERVICE PARTS WILL BE AVAILABLE)

The first digit of a component indicates the component type.

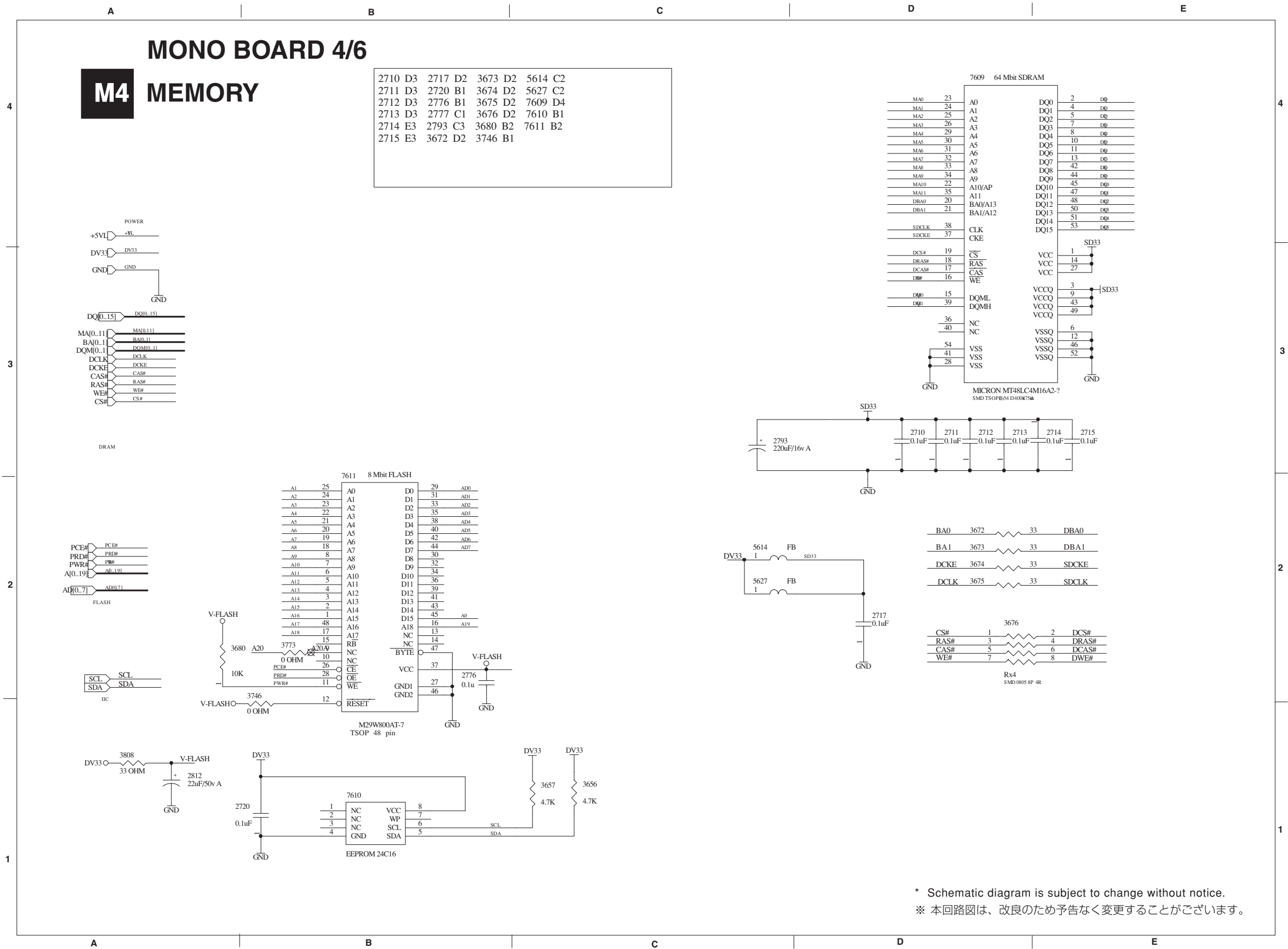
1xxx : Connector 3xxx : Resistor 5xxx : Coil 7xxx : IC, Transistor, FET
2xxx : Capacitor 4xxx : SMD jumper 6xxx : Diode 9xxx : Wire jumper



* Schematic diagram is subject to change without notice.
※ 本回路図は、改良のため予告なく変更することがございます。

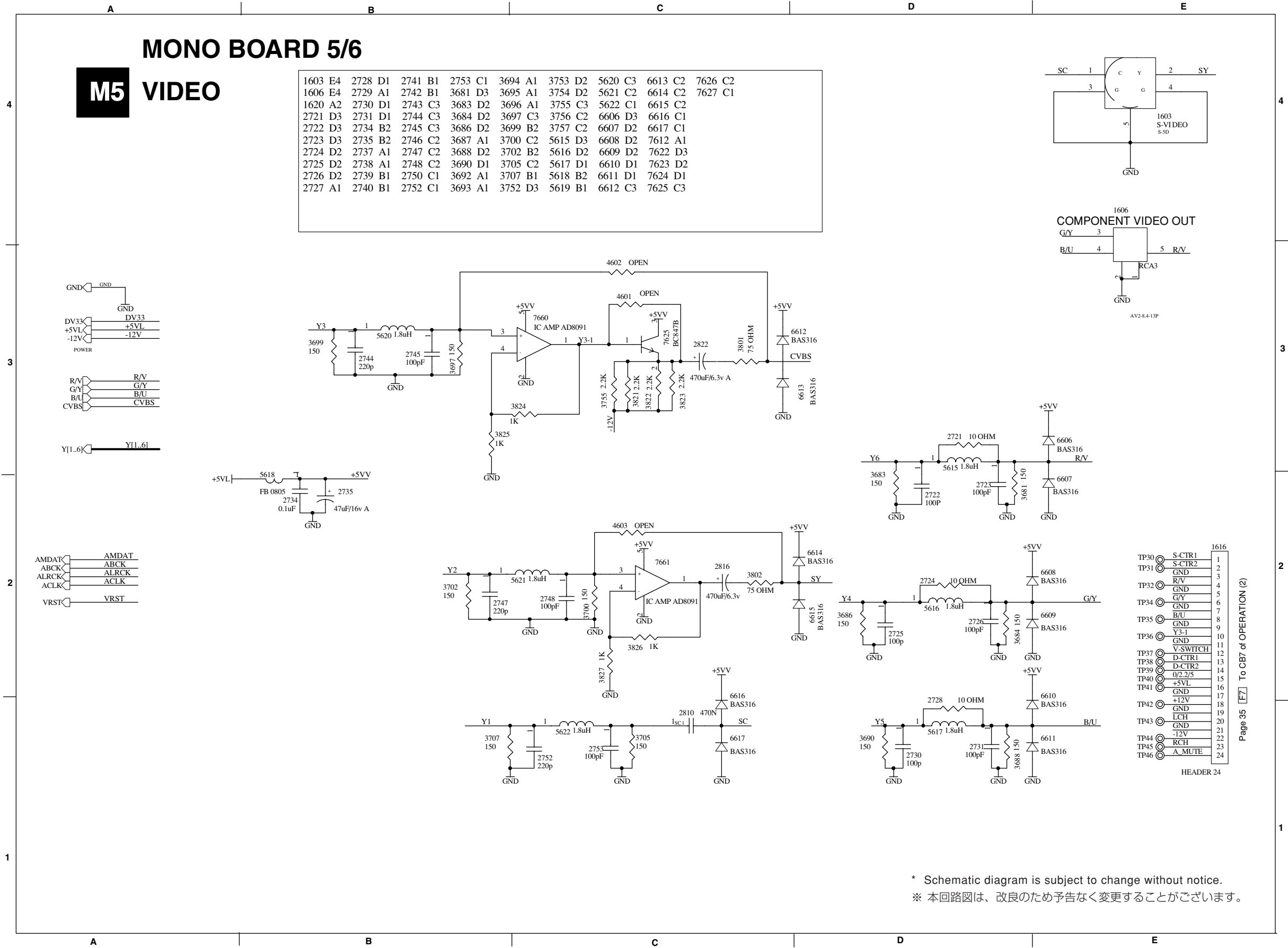
■ SCHEMATIC DIAGRAM
FOR INFORMATION ONLY (NO SERVICE PARTS WILL BE AVAILABLE)

The first digit of a component indicates the component type.
1xxx : Connector 3xxx : Resistor 5xxx : Coil 7xxx : IC, Transistor, FET
2xxx : Capacitor 4xxx : SMD jumper 6xxx : Diode 9xxx : Wire jumper



■ SCHEMATIC DIAGRAM
FOR INFORMATION ONLY (NO SERVICE PARTS WILL BE AVAILABLE)

The first digit of a component indicates the component type.
1xxx : Connector 3xxx : Resistor 5xxx : Coil 7xxx : IC, Transistor, FET
2xxx : Capacitor 4xxx : SMD jumper 6xxx : Diode 9xxx : Wire jumper

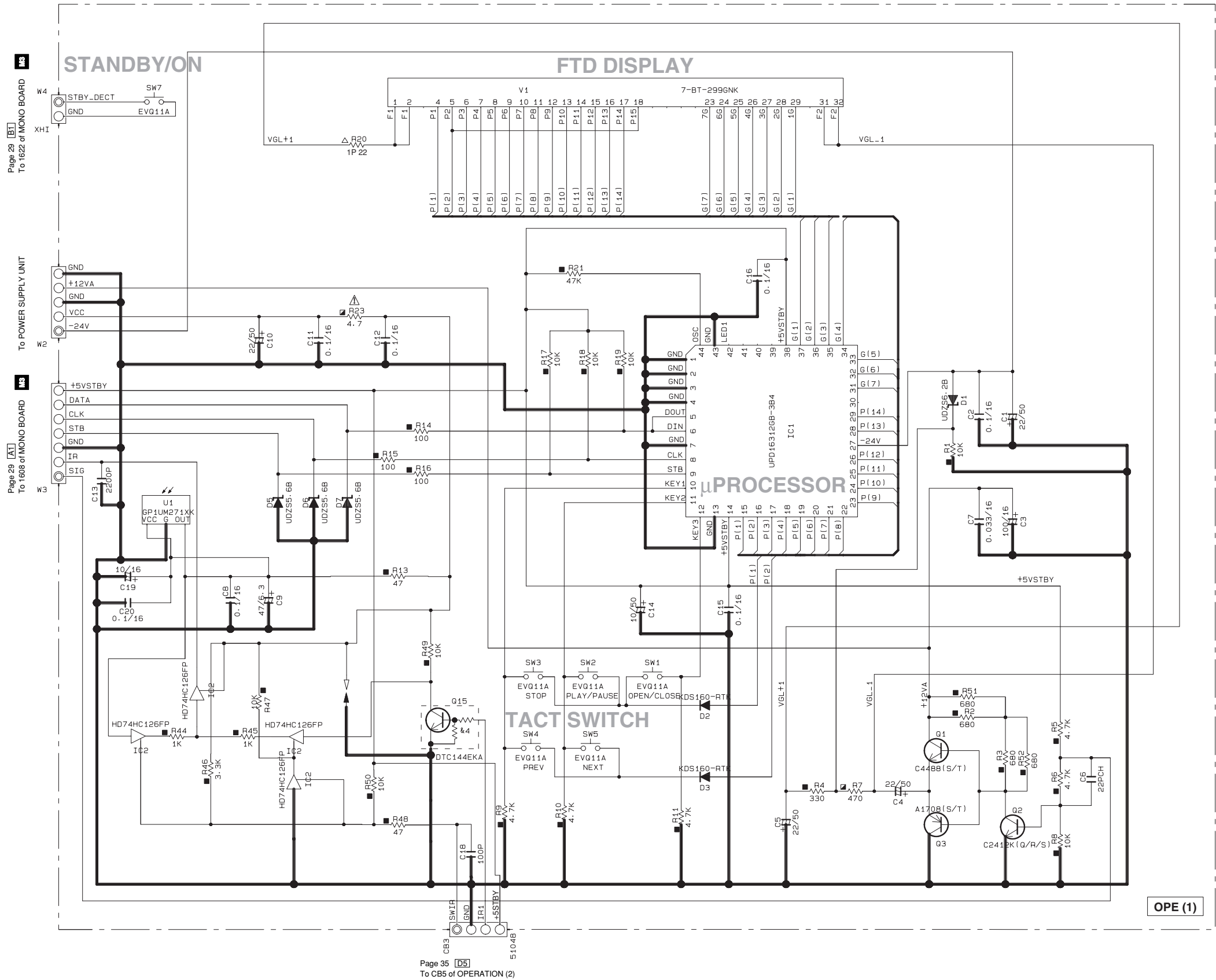


</

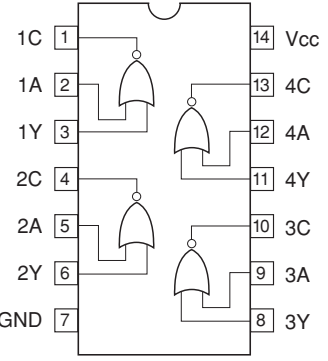
1xxx : Connector	3xxx : Resistor	5xxx : Coil	7xxx : IC, Transistor, FET
2xxx : Capacitor	4xxx : SMD jumper	6xxx : Diode	9xxx : Wire jumper



SCHEMATIC DIAGRAM (OPERATION 1/2)



IC2 : HD74HC126FP
Quadruple Bus Buffer Gates
(with 3-state outputs)



- ★ All voltages are measured with a 10MΩ/V DC electronic volt meter.
- ★ Components having special characteristics are marked Δ and must be replaced with parts having specifications equal to those originally installed.
- ★ Schematic diagram is subject to change without notice.

- 電圧は、内部抵抗10MΩの電圧計で測定したものです。
- Δ 印のある部品は、安全性確保部品を示しています。部品の交換が必要な場合、パーツリストに記載されている部品を使用してください。
- 本回路図は標準回路図です。改良のため予告なく変更することがございます。

SCHEMATIC DIAGRAM (OPERATION 2/2)

RESISTOR

REMARKS	PARTS NAME
NO MARK	CARBON FILM RESISTOR (P=5)
	CARBON FILM RESISTOR (P=10)
	METAL OXIDE FILM RESISTOR
	METAL FILM RESISTOR
	METAL PLATE RESISTOR
	FIRE PROOF CARBON FILM RESISTOR
	CEMENT MOLDED RESISTOR
	SEMI VARIABLE RESISTOR
	CHIP RESISTOR

CAPACITOR

REMARKS	PARTS NAME
NO MARK	ELECTROLYTIC CAPACITOR
	TANTALUM CAPACITOR
NO MARK	CERAMIC CAPACITOR
	CERAMIC TUBULAR CAPACITOR
	POLYESTER FILM CAPACITOR
	POLYSTYRENE FILM CAPACITOR
	MICA CAPACITOR
	POLYPROPYLENE FILM CAPACITOR
	SEMICONDUCTIVE CERAMIC CAPACITOR
	POLYPHENYLENE SULFIDE FILM CAPACITOR

		J, B, G, E	U, C, R, K, A, L
s1	CB8	WB18560	X

X: NOT USED
O: USED

Interchangeable Parts at Manufacture-Stage

Mark	Reference Parts Number	Parts Name
&1		
&2	Q16, 17	1037AK Q, R, S TP 1235A E F TP
&3	Q13	DTA144EKA TP KRA104S-RTK
&4	Q10, 12, 15	DTC144EKA TP KRC104S-RTK

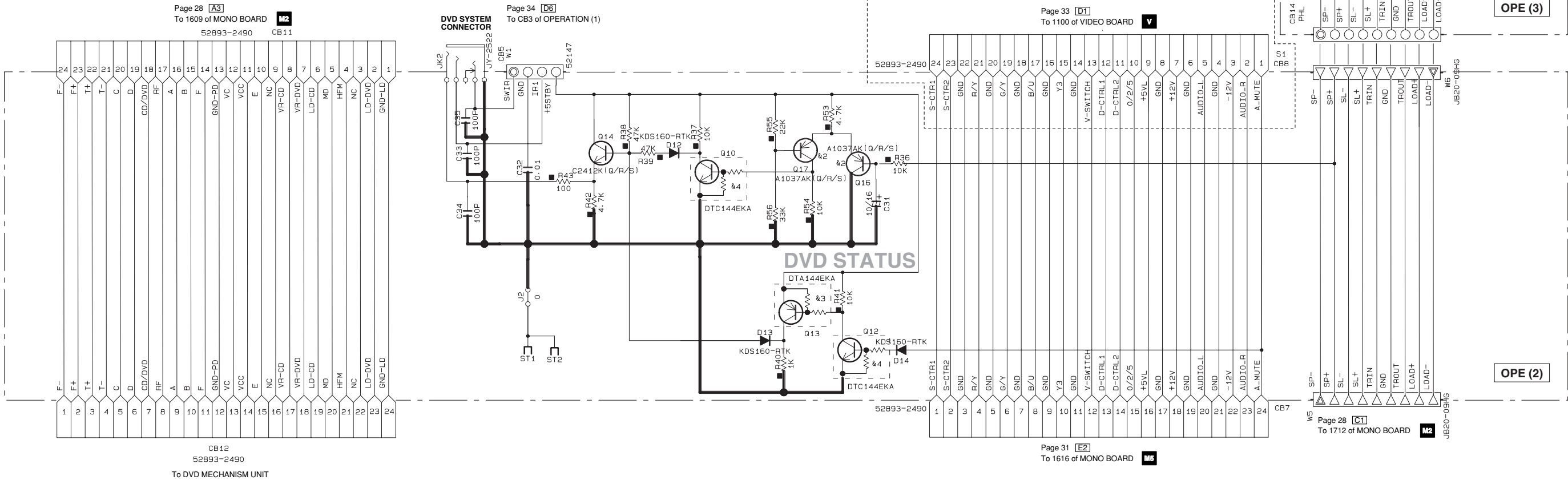
- ★ All voltages are measured with a 10MΩ/V DC electronic volt meter.
- ★ Components having special characteristics are marked and must be replaced with parts having specifications equal to those originally installed.
- ★ Schematic diagram is subject to change without notice.

- 電圧は、内部抵抗10MΩの電圧計で測定したものです。
- 印のある部品は、安全性確保部品を示しています。部品の交換が必要な場合、パーツリストに記載されている部品を使用してください。
- 本回路図は標準回路図です。改良のため予告なく変更することがございます。

NOTICE (model)

(J)..... JAPAN
(U)..... U. S. A
(C)..... CANADA
(R)..... GENERAL
(T)..... CHINA
(K)..... KOREA
(A)..... AUSTRALIA
(B)..... BRITISH
(G)..... EUROPE
(L)..... SINGAPORE
(E)..... SOUTH EUROPE

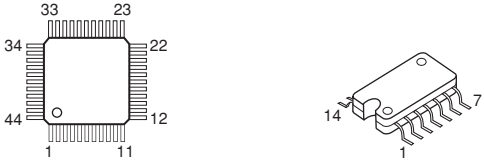
B, G, E, J models only



PIN CONNECTION DIAGRAM

ICs

uPD16312 HD74HC123FPEL



Transistors

2SA1037AK (Q, R, S) 2SC4488 (S, T)
2SC2412K (Q, R, S) 2SA1708 (S, T)
DTC144EKA
DTA144EKA



Diodes

UDZS5.6BTE-17 KDS160-RTX
UDZ6.2B 6.2V



PARTS LIST

ELECTRICAL PARTS

WARNING

- Components having special characteristics are marked and must be replaced with parts having specifications equal to those originally installed.
- 印のある部分は、安全確保部品を示しています。部品の交換が必要な場合、パーツリストに記載されている部品を使用してください。
- 部品価格ランクは、予告なく変更することがあります。

ABBREVIATIONS IN THIS LIST ARE AS FOLLOWS:

C.A.EL.CHP	: CHIP ALUMI.ELECTROLYTIC CAP	L.EMIT	: LIGHT EMITTING MODULE
C.CE	: CERAMIC CAP	LED.DSPLY	: LED DISPLAY
C.CE.ARRAY	: CERAMIC CAP ARRAY	LED.INFRD	: LED,INFRARED
C.CE.CHP	: CHIP CERAMIC CAP	MODUL.RF	: MODULATOR,RF
C.CE.ML	: MULTILAYER CERAMIC CAP	PHOT.CPL	: PHOTO COUPLER
C.CE.M.CHP	: CHIP MULTILAYER CERAMIC CAP	PHOT.INTR	: PHOTO INTERRUPTER
C.CE.SAFTY	: RECOGNIZED CERAMIC CAP	PHOT.RFLCT	: PHOTO REFLECTOR
C.CE.TUBLR	: CERAMIC TUBULAR CAP	PIN.TEST	: PIN,TEST POINT
C.CE.SMI	: SEMI CONDUCTIVE CERAMIC CAP	PLST.RIVET	: PLASTIC RIVET
C.EL	: ELECTROLYTIC CAP	R.ARRAY	: RESISTOR ARRAY
C.MICA	: MICA CAP	R.CAR.	: CARBON RESISTOR
C.ML.FLM	: MULTILAYER FILM CAP	R.CAR.CHP	: CHIP RESISTOR
C.MP	: METALLIZED PAPER CAP	R.CAR.FP	: FLAME PROOF CARBON RESISTOR
C.MYLAR	: MYLAR FILM CAP	R.FUS	: FUSABLE RESISTOR
C.MYLAR.ML	: MULTILAYER MYLAR FILM CAP	R.MTL.CHP	: CHIP METAL FILM RESISTOR
C.PAPER	: PAPER CAPACITOR	R.MTL.FLM	: METAL FILM RESISTOR
C.PLS	: POLYSTYRENE FILM CAP	R.MTL.OXD	: METAL OXIDE FILM RESISTOR
C.POL	: POLYESTER FILM CAP	R.MTL.PLAT	: METAL PLATE RESISTOR
C.POLY	: POLYETHYLENE FILM CAP	RSNR.CE	: CERAMIC RESONATOR
C.PP	: POLYPROPYLENE FILM CAP	RSNR.CRYS	: CRYSTAL RESONATOR
C.TNTL	: TANTALUM CAP	R.TW.CEM	: TWIN CEMENT FIXED RESISTOR
C.TNTL.CHP	: CHIP TANTALUM CAP	R.WW	: WIRE WOUND RESISTOR
C.TRIM	: TRIMMER CAP	SCR.BND.HD	: BIND HEAD B-TITE SCREW
CN	: CONNECTOR	SCR.BW.HD	: BW HEAD TAPPING SCREW
CN.BS.PIN	: CONNECTOR,BASE PIN	SCR.CUP	: CUP TITE SCREW
CN.CANNON	: CONNECTOR,CANNON	SCR.TERM	: SCREW TERMINAL
CN.DIN	: CONNECTOR,DIN	SCR.TR	: SCREW,TRANSISTOR
CN.FLAT	: CONNECTOR,FLAT CABLE	SUPRT.PCB	: SUPPORT,P.C.B.
CN.POST	: CONNECTOR,BASE POST	SURG.PRTCT	: SURGE PROTECTOR
COIL.MX.AM	: COIL,AM MIX	SW.TACT	: TACT SWITCH
COIL.AT.FM	: COIL,FM ANTENNA	SW.LEAF	: LEAF SWITCH
COIL.DT.FM	: COIL,FM DETECT	SW.LEVER	: LEVER SWITCH
COIL.MX.FM	: COIL,FM MIX	SW.MICRO	: MICRO SWITCH
COIL.OUTPT	: OUTPUT COIL	SW.PUSH	: PUSH SWITCH
DIOD.ARRAY	: DIODE ARRAY	SW.RT.ENC	: ROTARY ENCODER
DIODE.BRG	: DIODE BRIDGE	SW.RT.MTR	: ROTARY SWITCH WITH MOTOR
DIODE.CHP	: CHIP DIODE	SW.RT	: ROTARY SWITCH
DIODE.VAR	: VARACTOR DIODE	SW.SLIDE	: SLIDE SWITCH
DIOD.Z.CHP	: CHIP ZENER DIODE	TERM.SP	: SPEAKER TERMINAL
DIODE.ZENR	: ZENER DIODE	TERM.WRAP	: WRAPPING TERMINAL
DSCR.CE	: CERAMIC DISCRIMINATOR	THRMST.CHP	: CHIP THERMISTOR
FER.BEAD	: FERRITE BEADS	TR.CHP	: CHIP TRANSISTOR
FER.CORE	: FERRITE CORE	TR.DGT	: DIGITAL TRANSISTOR
FET.CHP	: CHIP FET	TR.DGT.CHP	: CHIP DIGITAL TRANSISTOR
FL.DSPLY	: FLUORESCENT DISPLAY	TRANS	: TRANSFORMER
FLTR.CE	: CERAMIC FILTER	TRANS.PULS	: PULSE TRANSFORMER
FLTR.COMB	: COMB FILTER MODULE	TRANS.PWR	: POWER TRANSFORMER ASS'Y
FLTR.LC.RF	: LC FILTER,EMI	TUNER.AM	: TUNER PACK,AM
GND.MTL	: GROUND PLATE	TUNER.FM	: TUNER PACK,FM
GND.TERM	: GROUND TERMINAL	TUNER.PK	: FRONT-ENDTUNER PACK
HOLDER.FUS	: FUSE HOLDER	VR	: ROTARY POTENTIOMETER
IC.PRTCT	: IC PROTECTOR	VR.MTR	: POTENTIOMETER WITH MOTOR
JUMPER.CN	: JUMPER CONNECTOR	VR.SW	: POTENTIOMETER WITH ROTARY SW
JUMPER.TST	: JUMPER,TEST POINT	VR.SLIDE	: SLIDE POTENTIOMETER
L.DTCT	: LIGHT DETECTING MODULE	VR.TRIM	: TRIMMER POTENTIOMETER

Note) Those parts marked with “#” are not included in the P.C.B. ass'y.

P.C.B. OPERATION

	Ref. No.	PART NO.	Description	Remarks	Markets	部品名	Rank
* %		WD854900	P.C.B.	OPERATION	SI	JBGE	P C B オペレーション
* %		WD921200	P.C.B.	OPERATION	SI	UCRKAL	P C B オペレーション
	CB5	VK024800	CN.BS.PIN	4P		JBGE	ベースピン
*	CB7	WB185600	CN.BS.PIN	52893 24P SE			F F C コネクター
*	CB8	WB185600	CN.BS.PIN	52893 24P SE			F F C コネクター
*	CB11	WB185600	CN.BS.PIN	52893 24P SE			F F C コネクター
*	CB12	WB185600	CN.BS.PIN	52893 24P SE			F F C コネクター
	CB13	VB858800	CN.BS.PIN	9P			ベースピン
	CB14	VB858800	CN.BS.PIN	9P			ベースピン
*	C1	UM417220	C.EL	22uF 50V			ケミコン K S
	C3	UM398100	C.EL	100uF 16V			ケミコン
*	C4	UM417220	C.EL	22uF 50V			ケミコン K S
*	C5	UM417220	C.EL	22uF 50V			ケミコン K S
	C9	UM517470	C.EL	47uF 6.3V			ケミコン M S 5
*	C10	UM417220	C.EL	22uF 50V			ケミコン K S
	C14	UM417100	C.EL	10uF 50V			ケミコン
	C19	UM397100	C.EL	10uF 16V			ケミコン
	C31	UM397100	C.EL	10uF 16V			ケミコン
	D1	VU172100	DIODE.ZENR	UDZS6.2B 6.2V			ツェナーダイオード
*	D2	WC398800	DIODE	KDS160-RTK			ダイオード
*	D3	WC398800	DIODE	KDS160-RTK			ダイオード
	D5	VU172000	DIODE.ZENR	UDZS5.6BTE-17 5.6V			ツェナーダイオード
	D6	VU172000	DIODE.ZENR	UDZS5.6BTE-17 5.6V			ツェナーダイオード
	D7	VU172000	DIODE.ZENR	UDZS5.6BTE-17 5.6V			ツェナーダイオード
*	D12	WC398800	DIODE	KDS160-RTK			ダイオード
*	D13	WC398800	DIODE	KDS160-RTK			ダイオード
*	D14	WC398800	DIODE	KDS160-RTK			ダイオード
*	IC1	X5751A00	IC.CPU	UPD16312GB-3B4			C P U / 周辺 I C
*	IC2	XY071A00	IC	HD74HC126FP BUS BU			ロジック I C フラット
*	JK2	WD662100	JACK.PIN	4P JY-2522			ピンジャック 4 P
	Q1	VP872700	TR	2SC4488 S, T			トランジスタ
	Q2	VV556400	TR	2SC2412K Q, R, S			トランジスタ
	Q3	VP872600	TR	2SA1708 S, T			トランジスタ
	Q10	VV655700	TR.DGT	DTC144EKA			デジタルトランジスタ
	Q12	VV655700	TR.DGT	DTC144EKA			デジタルトランジスタ
	Q13	VV655300	TR.DGT	DTA144EKA			デジタルトランジスタ
	Q14	VV556400	TR	2SC2412K Q, R, S			トランジスタ
	Q15	VV655700	TR.DGT	DTC144EKA			デジタルトランジスタ
	Q16	VV556500	TR	2SA1037K Q, R, S			トランジスタ
	Q17	VV556500	TR	2SA1037K Q, R, S			トランジスタ
	R7	HV755470	R.CAR.FP	470 Ω 1/4W			不燃化カーボン抵抗
	R20	VP940000	R.MTL.OXD	22 Ω 1W			酸化金属被膜抵抗
△	R23	HV753470	R.CAR.FP	4.7 Ω 1/4W			不燃化カーボン抵抗
	ST1	V4040500	SCR.TERM	M3			スクリュー / ターミナル
	ST2	V4040500	SCR.TERM	M3			スクリュー / ターミナル
	SW1	V4757100	SW.TACT	EVQ11A			タクトSW
	SW2	V4757100	SW.TACT	EVQ11A			タクトSW
	SW3	V4757100	SW.TACT	EVQ11A			タクトSW
	SW4	V4757100	SW.TACT	EVQ11A			タクトSW
	SW5	V4757100	SW.TACT	EVQ11A			タクトSW
	SW7	V4757100	SW.TACT	EVQ11A			タクトSW
	U1	V8444900	L.DTCT	GP1UM271XK			リモコン受光ユニット
*	V1	WD602800	FL.DSPLY	7-BT-299GNK			蛍光表示管

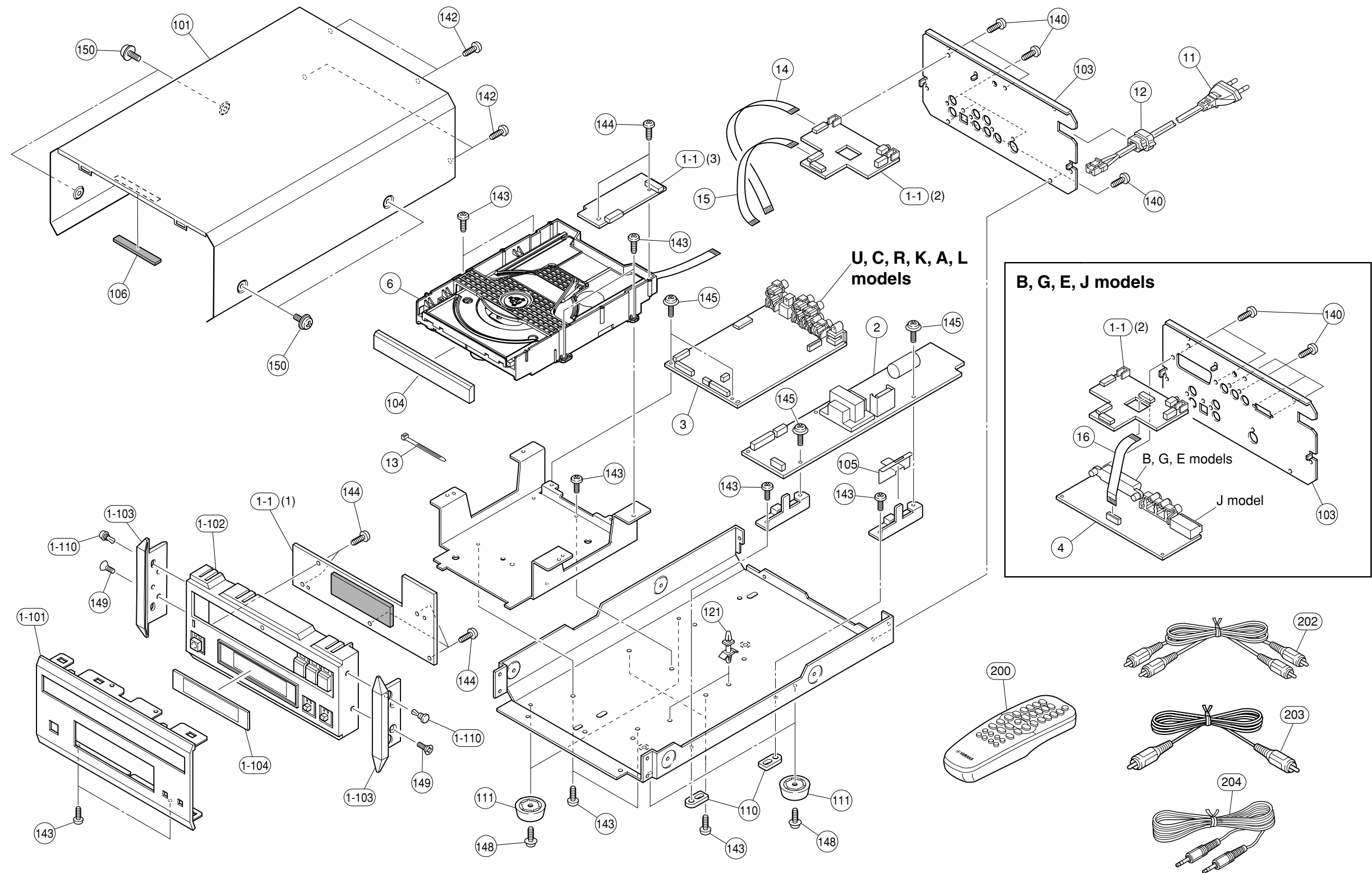
* New Parts * 新規部品(マーク#の部品は、基板に含まれません)

P.C.B. OPERATION & Chip Parts

	Ref. No.	PART NO.	Description	Remarks	Markets	部品名	Rank
* %		WD890100	SHEET.FL	GD		シート / F L オレンジ	
*		WD890000	SHEET.FL	SI		シート / F L アオ	
% : Note on the OPERATION P.C.B. Of the OPERATION P.C.B. part Nos., only the silver (SI) type part Nos. are included in the table. The only different part between the gold (GD) and silver (SI) type parts is the sheet/FL that is attached to the fluorescent character display tube. When a gold (GD) type OPERATION P.C.B. becomes necessary, order a silver (SI) type OPERATION P.C.B. and a gold (GD) type sheet/FL (WD890100) and replace the sheet/FL of the silver (SI) type OPERATION P.C.B. with the gold (GD) type sheet/FL. % : OPERATION P.C.B.の注意 OPERATION P.C.B.の部品No.はシルバー(SI)用の部品No.のみを記載しています。 シルバー(SI)とゴールド(GD)の違う部品は、蛍光表示管に貼り付けるシート/FLのみです。 ゴールド(GD)用のOPERATION P.C.B.が必要になった場合は、シルバー(SI)用のOPERATION P.C.B.とゴールド(GD)用のシート/FL(WD890100)を取り寄せ、シート/FLを貼り替えて使用してください。							
		US034330	C.CE.M.CHP	0.033uF 16V		チップセラ (B)	
		US061220	C.CE.M.CHP	22pF 50V		チップセラコン	
		US062100	C.CE.M.CHP	100pF 50V		チップセラコン	
		US063220	C.CE.M.CHP	2200pF 50V		チップセラコン	
		US064100	C.CE.M.CHP	0.01uF 50V		チップセラコン	
		US135100	C.CE.CHP	0.1uF 16V		チップセラコン	
		RD350000	R.CHP	0 Ω 1/16W		チップ抵抗	01
		RD354470	R.CHP	47 Ω 1/16W		チップ抵抗	01
		RD355100	R.CHP	100 Ω 1/16W		チップ抵抗	01
		RD355330	R.CHP	330 Ω 1/16W		チップ抵抗	01
		RD355680	R.CHP	680 Ω 1/16W		チップ抵抗	01
		RD356100	R.CHP	1K Ω 1/16W		チップ抵抗	01
		RD356330	R.CHP	3.3K Ω 1/16W		チップ抵抗	01
		RD356470	R.CHP	4.7K Ω 1/16W		チップ抵抗	01
		RD357100	R.CHP	10K Ω 1/16W		チップ抵抗	
		RD357220	R.CHP	22K Ω 1/16W		チップ抵抗	01
		RD357330	R.CHP	33K Ω 1/16W		チップ抵抗	01
		RD357470	R.CHP	47K Ω 1/16W		チップ抵抗	01

* New Parts * 新規部品(マーク#の部品は、基板に含まれません)

EXPLODED VIEW



% : Note on the OPERATION P.C.B. (1-1)
Of the OPERATION P.C.B. (1-1) part Nos., only the silver (SI) type part Nos. are included in the table.
The only different part between the gold (GD) and silver (SI) type parts is the sheet/FL that is attached to the fluorescent character display tube. When a gold (GD) type OPERATION P.C.B. (1-1) becomes necessary, order a silver (SI) type OPERATION P.C.B. (1-1) and a gold (GD) type sheet/FL (WD890100) and replace the sheet/FL of the silver (SI) type OPERATION P.C.B. (1-1) with the gold (GD) type sheet/FL.

% : OPERATION P.C.B. (1-1) の注意
OPERATION P.C.B. (1-1) の部品No. はシルバー (SI) 用の部品No. のみを記載しています。
シルバー (SI) とゴールド (GD) の違う部品は、蛍光表示管に貼り付けるシート/FLのみです。
ゴールド (GD) 用のOPERATION P.C.B. (1-1) が必要になった場合は、シルバー (SI) 用のOPERATION P.C.B. (1-1) とゴールド (GD) 用のシート/FL (WD890100) を取り寄せ、シート/FL を貼り替えて使用してください。

MECHANICAL PARTS

	Ref. No.	PART NO.	Description	Remarks	Markets	部品名	Rank
* %	1-1	WD854900	P.C.B. ASS'Y	OPERATION	SI	JBGE PCB オペレーション	
*	1-1	WD921200	P.C.B. ASS'Y	OPERATION	SI	UCRKAL PCB オペレーション	
*	1-101	WD608100	FRONT PANEL		GD	フロントパネル	
*	1-101	WD607900	FRONT PANEL		SI	フロントパネル	
*	1-102	WE493500	SUB PANEL-DVD		GD	サブパネルーDVD	
*	1-102	WE493400	SUB PANEL-DVD		SI	サブパネルーDVD	
*	1-103	V8785200	PANEL/SIDE	H100		パネル／サイド	
*	1-104	WD607500	SHEET/WINDOW			シート／ウィンドウ	
	1-110	VQ368600	PUSH RIVET	P3555-B		プッシュリベット	01
*	2	WD853600	POWER SUPPLY UNIT	3132 429 00142	JUC	電源ユニット	
*	2	WD853700	POWER SUPPLY UNIT	3122 429 00122	RKAL	電源ユニット	
*	2	WE435300	POWER SUPPLY UNIT	3122 429 00361	BGE	電源ユニット	
*	3	WD854100	P.C.B. ASS'Y	MONO	3139 248 83861	J PCB MONO	
*	3	WD854200	P.C.B. ASS'Y	MONO	3139 248 83881	UCRKAL PCB MONO	
*	3	WD854300	P.C.B. ASS'Y	MONO	3139 248 83861	BGE PCB MONO	
*	4	WD854500	P.C.B. ASS'Y	VIDEO	3139 248 82672	J PCB ビデオ	
*	4	WD854600	P.C.B. ASS'Y	VIDEO	3139 248 82683	BGE PCB ビデオ	
*	6	WD882500	DVD MECHANISM UNIT	A97SL	3141 018 03812	DVDメカユニット	
	△ 11	V2723100	POWER CABLE	1.8m		J 電源コード	
* △	11	V9293500	POWER CABLE	2m		UC 電源コード	
	△ 11	WC992700	POWER CABLE	2m		R 電源コード	
* △	11	V8013000	POWER CABLE	2m		K 電源コード	
* △	11	WC743700	POWER CABLE	2m		A 電源コード	
* △	11	VV437300	POWER CABLE	2m		B 電源コード	
* △	11	V9293600	POWER CABLE	2m		GEL 電源コード	
	12	V2438700	CORD STOPPER	10P1		コードストッパー	
	13	VU590000	BINDING TIE	CBTD001B		インシュロックタイ	
*	14	WD877600	FLEXIBLE FLAT CABLE	24P 180mm P=0.5		カード電線 C&C	
*	15	WD877800	FLEXIBLE FLAT CABLE	26P 120mm P=0.5		カード電線 C&C	
*	16	WD877800	FLEXIBLE FLAT CABLE	24P 70mm P=0.5		JBGE カード電線 C&C	
*	101	V7127400	TOP COVER		GD	トップカバー	
*	101	V7127300	TOP COVER		SI	トップカバー	
*	103	WD690700	REAR PANEL			J リヤパネル	
*	103	WD690800	REAR PANEL			UC リヤパネル	
*	103	WD604800	REAR PANEL			R リヤパネル	
*	103	WD691100	REAR PANEL			K リヤパネル	
*	103	WD604500	REAR PANEL			A リヤパネル	
*	103	WD604900	REAR PANEL			BGE リヤパネル	
*	103	WD690900	REAR PANEL			L リヤパネル	
*	104	WD607000	LID/DVD		GD	リッド／DVD	
*	104	WD606800	LID/DVD		SI	リッド／DVD	
*	105	WE361000	SHEET/BARRIER			シート／バリヤ	
	106	VP857700	DAMPER	4x6x55		ダンパー	
	110	V7616600	DAMPER			ダンパー	
	111	V3688500	LEG	M0080-M0		レッグ	
*	121	WD894600	SPACER PCB	KGLS-8S		PCBスパーサ	
	140	VN413300	BIND HEAD BONDING B-T. SCREW	3x8 MFZN2BL		ボンディングBタイトネジ	01
	142	EP600830	BIND HEAD B-TIGHT SCREW	3x8 MFC2BL		バインドBタイトネジ	01
	143	EP600250	BIND HEAD B-TIGHT SCREW	3x8 MFZN2Y		バインドBタイトネジ	01
	144	VF617600	PAN HEAD P-TIGHT SCREW	2.6x8 MFC2BL		鉄ナベPタイトネジ	01
	145	VT669300	PW HEAD B-TIGHT SCREW	3x8-8 MFC2		PWヘッドBタイトネジ	
	148	EL300650	PW HEAD B-TIGHT SCREW	3x8-8 MFC2BL		PWヘッドBタイトネジ	01
	149	EP600790	FLAT HEAD B-TIGHT SCREW	3x8 MFZN2BL		皿Bタイトネジ	

* New Parts * 新規部品(マーク#の部品は、基板に含まれません)

WARNING

- Components having special characteristics are marked △ and must be replaced with parts having specifications equal to those originally installed.
- △印のある部分は、安全確保部品を示しています。部品の交換が必要な場合、パーツリストに記載されている部品を使用してください。

	Ref. No.	PART NO.	Description	Remarks	Markets	部品名	Rank
%	150	VY712800	PW HEAD B-TIGHT SCREW	3x8-8 MFNI33		PWヘッドBタイトネジ	
	WD890100	SHEET/FL ORANGE		GD		シート／FL オレンジ	
			ACCESSORIES			付属品	
*	200	WD882600	REMOTE CONTROL	3139 248 71873	3139 248 71873	リモコンーDVD	
	202	VY952200	AUDIO PIN CABLE	RD/WH 1m 1pc		ステレオピンケーブル	
	203	VV209200	VIDEO PIN CABLE	YE 1m 1pc		ビデオ用ピンケーブル	
	204	WD865200	SYSTEM CONTROL CABLE	1P 1m 1pc		システムコントロールケーブル	
			BATTERY	SUM-3N 2pcs		乾電池 2PCS	

* New Parts * 新規部品(マーク#の部品は、基板に含まれません)

MEMO

DVD-E600

YAMAHA