

# PCG-GRX670/GRX690

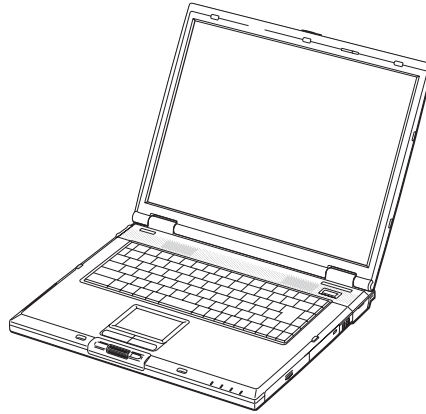
## SERVICE MANUAL

Ver 1-2002J

Revision History

*For American Area*

*US Model  
Canadian Model*



Lineup : PCG-GRX670  
PCG-GRX690

Illust : PCG-GRX690



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**NOTEBOOK COMPUTER**

**SONY®**

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Caution Markings for Lithium/Ion Battery - The following or similar texts shall be provided on battery pack of equipment or in both the operating and the service instructions.

**CAUTION:** Danger of explosion if battery is incorrectly replaced. Replace only with the same or equivalent type recommended by the manufacturer. Discard used batteries according to the manufacturer’s instructions.

**CAUTION:** The battery pack used in this device may present a fire or chemical burn hazard if mistreated. Do not disassemble, heat above 100°C (212°F) or incinerate.

Dispose of used battery promptly.  
Keep away from children.

**CAUTION:** Changing the back up battery.

- Overcharging, short circuiting, reverse charging, multilation or incineration of the cells must be avoided to prevent one or more of the following occurrences; release of toxic materials, release of hydrogen and/or oxygen gas, rise in surface temperature.
- If a cell has leaked or vented, it should be replaced immediately while avoiding to touch it without any protection.



## Service and Inspection Precautions

### 1. Obey precautionary markings and instructions

Labels and stamps on the cabinet, chassis, and components identify areas requiring special precautions. Be sure to observe these precautions, as well as all precautions listed in the operating manual and other associated documents.

### 2. Use designated parts only

The set’s components possess important safety characteristics, such as noncombustibility and the ability to tolerate large voltages. Be sure that replacement parts possess the same safety characteristics as the originals. Also remember that the  $\Delta$  mark, which appears in circuit diagrams and parts lists, denotes components that have particularly important safety functions; be extra sure to use only the designated components.

### 3. Always follow the original design when mounting parts and routing wires

The original layout includes various safety features, such as inclusion of insulating materials (tubes and tape) and the mounting of parts above the printer board. In addition, internal wiring has been routed and clamped so as to keep it away from hot or high-voltage parts. When mounting parts or routing wires, therefore, be sure to duplicate the original layout.

### 4. Inspect after completing service

After servicing, inspect to make sure that all screws, components, and wiring have been returned to their original condition. Also check the area around the repair location to ensure that repair work has caused no damage, and confirm safety.

### 5. When replacing chip components...

Never reuse components. Also remember that the negative side of tantalum capacitors is easily damaged by heat.

### 6. When handling flexible print boards...

- The temperature of the soldering-iron tip should be about 270C.
- Do not apply the tip more than three times to the same pattern.
- Handle patterns with care; never apply force.

Caution: Remember that hard disk drives are easily damaged by vibration. Always handle with care.

**ATTENTION AU COMPOSANT AYANT RAPPORT À LA SÉCURITÉ!**  
**LES COMPOSANTS IDENTIFÉS PAR UNE MARQUE  $\Delta$  SUR LES DIAGRAMMES SCHÉMATIQUES ET LA LISTE DES PIÈCES SONT CRITIQUES POUR LA SÉCURITÉ DE FONCTIONNEMENT. NE REMPLACER CES COMPOSANTS QUE PAR DES PIÈSES SONY DONT LES NUMÉROS SONT DONNÉS DANS CE MANUEL OU DANS LES SUPPÉMENTS PUBLIÉS PAR SONY.**

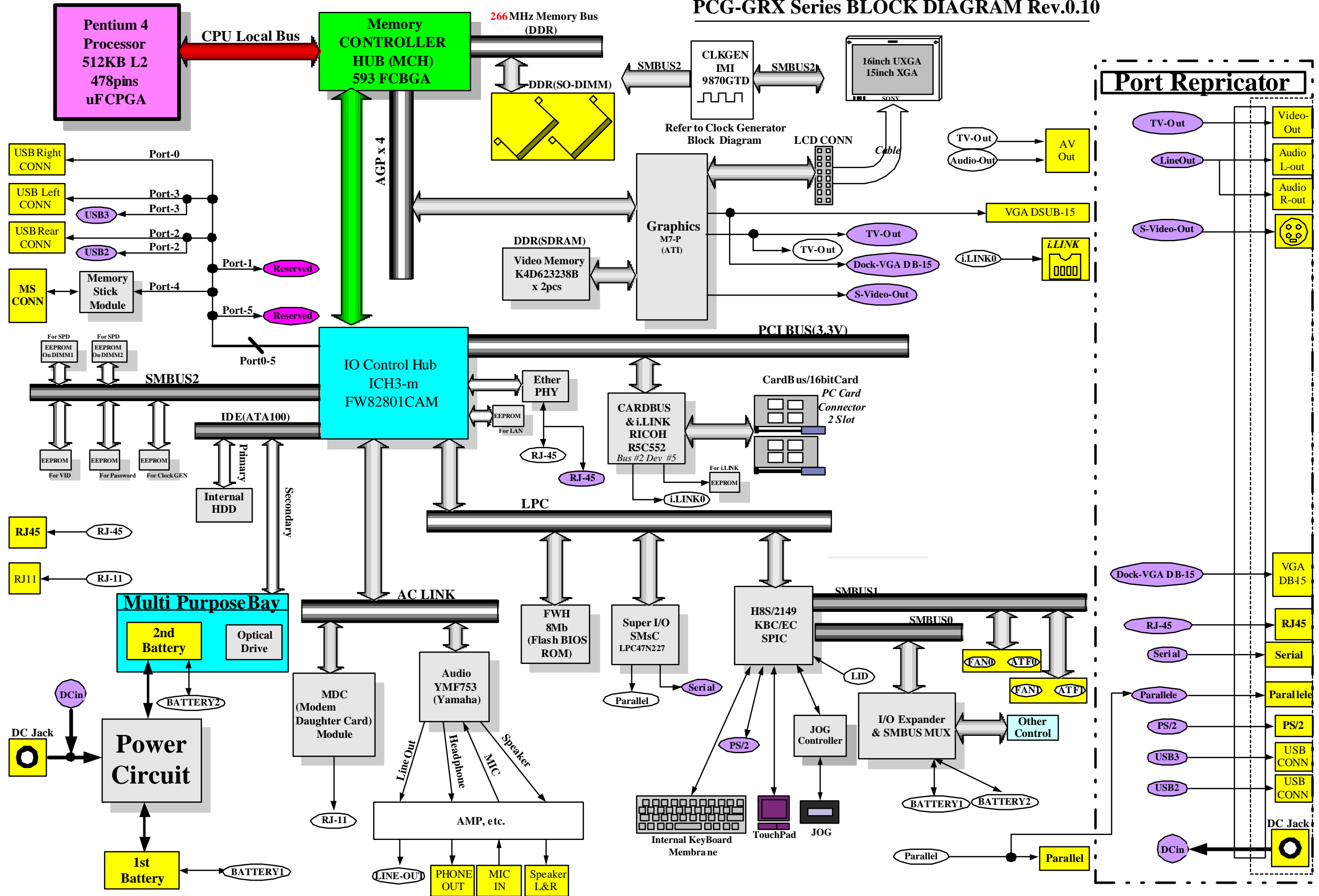
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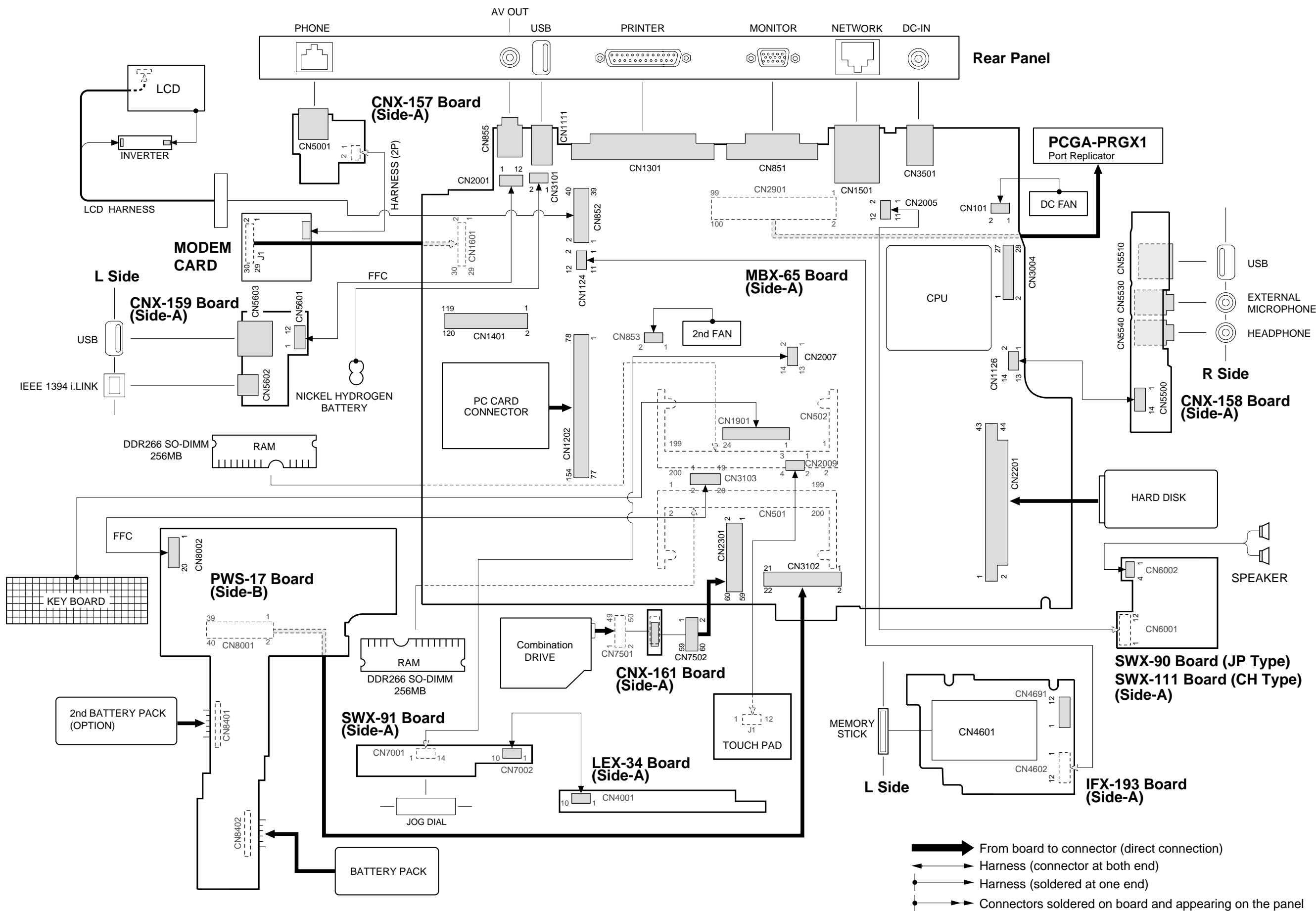
History of the changes is shown as the  
“Revision History” at the end of this data.

# CHAPTER 1. BLOCK DIAGRAM

PCG-GRX Series BLOCK DIAGRAM Rev.0.10



# CHAPTER 2. FRAME HARNESS DIAGRAM



- From board to connector (direct connection)
- Harness (connector at both end)
- Harness (soldered at one end)
- Connectors soldered on board and appearing on the panel

# CHAPTER 3.

## EXPLODED VIEWS AND PARTS LIST

### NOTE:

- Items marked “ \* ” are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- The mechanical parts with no reference number in the exploded views are not supplied.
- When two or more parts are shown in parallel, use the part described first as the main part.
- The parts marked “ \$ ” are the High Value Modules.
- The parts marked “ # ” are the parts on which barcode label is attached.
- The indication [CH] is used for identification of part type.
- Regarding the boards of this model, the discrete parts on the boards cannot be replaced. However, Some connectors can be replaced.

### 【使用上の注意】

- \* 印の部品は常備在庫しておりません。
- 図面番号のない部品は供給しません。
- 併記部品の場合、上部記載部品をメイン部品として使用してください。
- 部品名称の前に \$ 印のついた部品は、High Value Module です。
- 商品名称の前に # 印のついた部品は、バーコードラベル貼付部品です。
- [CH]の表記は部品管理上の識別です。
- 本モデルの基板については、基板上的各部品の修理は行うことができません。ただし、一部のコネクタについては、修理可能です。

The components identified by mark  $\Delta$  or dotted line with mark  $\Delta$  are critical for safety. Replace only with part number specified.

Les composants identifiés par une marque  $\Delta$  sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

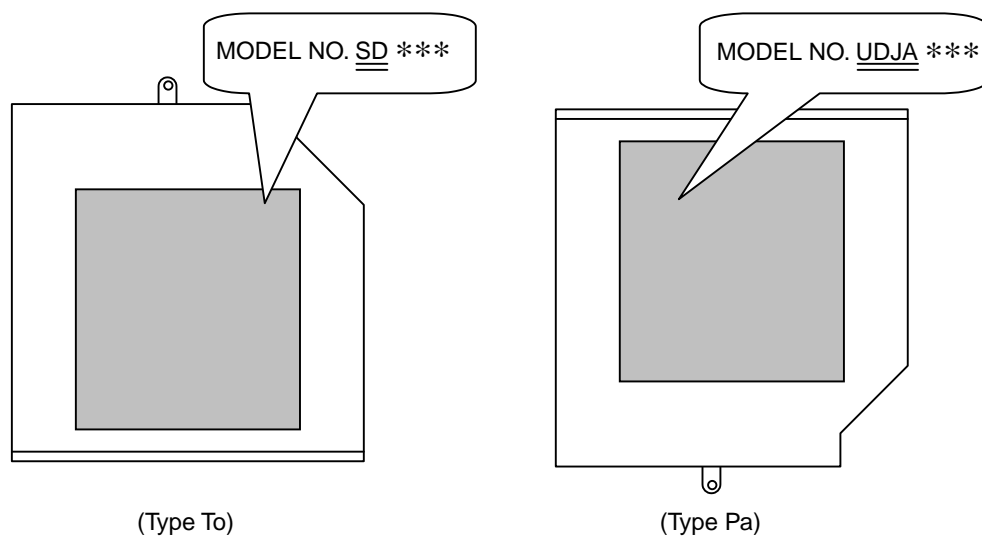
$\Delta$ 印の部品、または $\Delta$ 印付きの点線で囲まれた部品は、安全性を維持するために重要な部品です。従って交換時は、必ず指定の部品を使用してください。

### How to Use Parts Differently.

This series of product uses the two different types of optical drive (To type and Pa type).  
When replacing the optical drive, use the To type parts for the To type optical drive, and use the Pa type parts for the Pa type optical drive.  
Replace the peripheral parts of optical drive with the same type in the same way.

[ Applicable models ]  
GRX670/GRX690 Model

[ How to identify the To and Pa types of parts ]



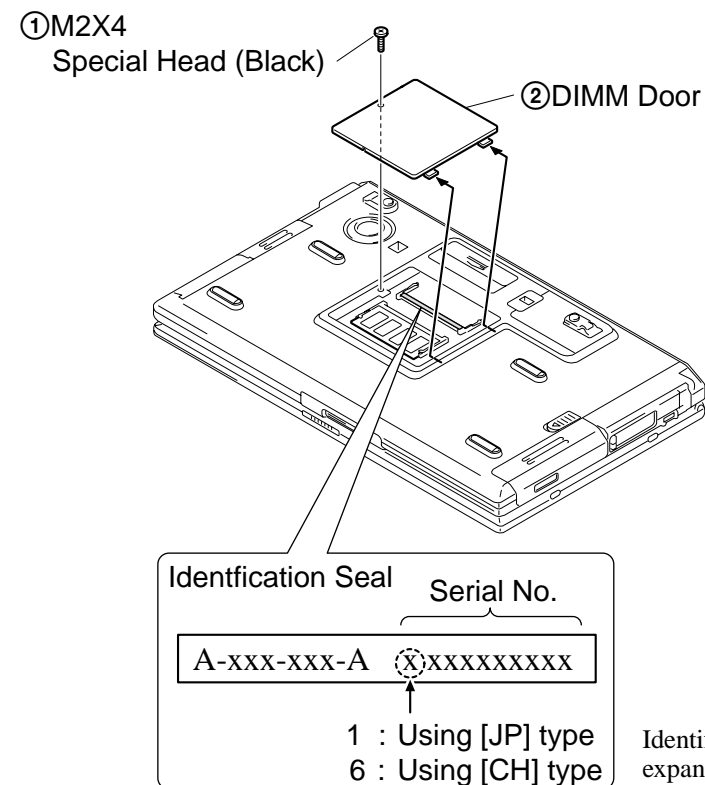
[ Example of showing in repair part list ]

Ref.No.	Part No.	Description
999	1-796-506-11 \$ #	W-DVD (SD-R6012) (To)
999	1-796-480-11 \$ #	W-DVD (UDJA-810) (Pa)

### How to use properly the repair parts.

There are some parts that use the 2 types ; the [CH] parts or alternately the [JP] parts, in this series. Use the [CH] repair parts for the [CH] type product, vice versa.

[ How to identify the parts ]



Identification seal is attached on the expansion memory connector.

[ Repair part description example ]

Ref.No.	Part No.	Description
999	A-8110-582-A	[CH]...MBX-65 ASSY (C) (S)
999	4-8067-424-A	[JP]...MBX-65 ASSY (S)

\*About Repair level of mounted board.

JP type... Component level service is possible. Refer to this manual for details.

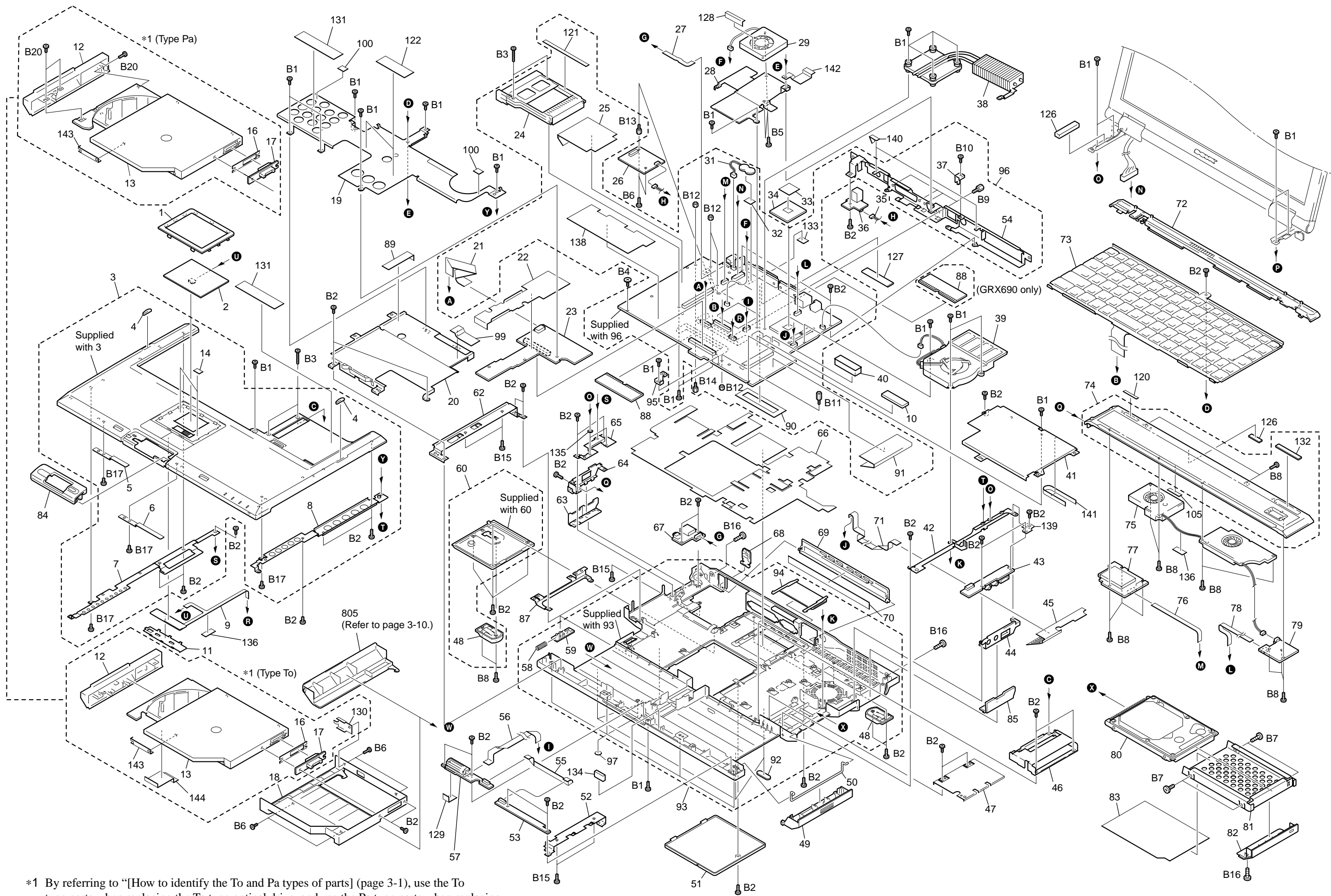
CH type... Do not execute the component level service in principle.

However, some of the connectors can be repaired by the component level service.

Refer to “Connector Section” of this manual for details.

### 3-1. Main Section

Ref.No.	Part No.	Description	Ref.No.	Part No.	Description	Ref.No.	Part No.	Description	Ref.No.	Part No.	Description
1	4-660-888-01	ESCUSHION TOUCHPAD	* 62	4-660-448-01	SUB-FRAME BAY	138	4-665-909-01	INSULATOR BAY2	B1	4-641-726-41	SCREW (M2), SPECIAL HEAD
2	1-796-166-21	PAD, TOUCH	63	X-4624-538-2	ASSY DOOR L	139	4-666-111-01	SHEET AUDIO GND	B2	4-641-726-12	SCREW (M2), SPECIAL HEAD
3	X-4624-531-5	ASSY PALMREST	64	4-660-822-03	BRACKET DOOR L	140	4-666-114-01	SHIELD TAPE BRACKET IO A	B3	7-621-772-70	SCREW +B 2X14
4	4-660-904-01	CUSHION PALMREST	65	4-660-452-02	HINGE BASE LEFT	141	4-665-467-01	SPACER BATTERY (K)	B4	4-654-387-01	SCREW (MBX)
5	4-660-906-03	SPRING BLIND	66	4-660-872-01	INSULATOR HEATSINK BOTTOM	142	4-667-524-01	COPPER TAPE ETHERNET	B5	4-641-656-12	SCREW (M2.5), 0 PLATE P
6	4-660-906-13	SPRING BLIND	67	A-8067-476-A \$	CNX-159 ASSY (C) (S)	143	4-661-087-02	GROUND PLATE C	B6	4-656-703-01	SCREW M2
* 7	4-660-900-02	PLATE ARM LEFT	68	4-660-544-02	CAP MODEM	144	4-669-412-01	CU SHEET DVD-RW (To)	B7	4-635-301-01	SCREW M3X4
* 8	4-660-901-01	PLATE ARM RIGHT	69	4-660-864-02	DOOR IO	*1 Use the FILAMENT TAPE.					
9	1-761-518-11	PWB, FLEXIBLE PRINT	70	4-660-874-11	LABELIO						
10	4-668-738-02	THERMAL SHEET FET	71	1-823-724-12	CABLE, FLEXIBLE FLAT	72	4-660-887-04	DISPLAY BASE	B8	4-639-112-01	SCREW M2X4
* 11	4-660-903-01	BRACKET TOUCHPAD	73	1-477-285-21 \$	KEYBOARD UNIT (U)	74	X-4624-605-5	ASSY HOOD KEYBOARD	B9	4-635-966-01	SCREW (HEX)
12	X-4625-149-1	ASSY BEZEL DVD-RW (To)	75	1-825-081-11	SPEAKER, (2.8CM) BOX WITH	76	1-823-719-12	CABLE, FLEXIBLE FLAT	B10	4-642-852-01	+B M2
12	X-4624-992-1	ASSY BEZEL DVD-RW (Pa)	77	A-8111-020-A \$	COMPLETE PWB IFX-193A3	78	1-823-720-12	CABLE, FLEXIBLE FLAT	B11	4-654-386-01	SPACER (PWS)
13	1-796-506-11 \$ #	W-DVD (SD-R6012) (To)	79	A-8111-023-A \$	COMPLETE PWB SWX-111A3	80	A-8059-666-A \$ #	(GRX670)...	B12	7-622-205-05	NUT M2 TYPE2
13	1-796-480-11 \$ #	W-DVD (UJDA-810) (Pa)	80	A-8111-359-A \$ #	ASSY HDD 40GB (T,20,F) (S)	81	4-653-799-02	(GRX690)...	B13	4-651-989-01	SPACER (MBX)
14	4-661-451-01	ADHESIVE TAPE TOUCHPAD	82	X-4624-536-3	ASSY HDD 60GB (T,30,F) (S)	83	4-653-801-02	ASSY HDD 60GB (T,30,F) (S)	B14	4-661-248-01	SPACER 4MM
16	4-654-837-01	SHEET BAY BOARD	84	X-4624-532-2	ASSY ESCUSHION JOG	85	X-4624-539-2	ASSY DOOR R	B15	4-641-726-12	SCREW (M2), SPECIAL HEAD
17	A-8067-477-A \$	CNX-161 ASSY (C) (S)	* 81	4-653-799-02	BRACKET HDD	87	4-660-449-02	SUB-FRAME BOTTOM LEFT	B16	4-654-811-01	SCREW M3
18	4-660-860-03	CASE BAY	82	X-4624-536-3	ASSY DOOR HDD	88	6-600-116-01	IC M470L3224DT0-CB0	B17	4-657-192-01	SCREW, TAPPING, SPECIAL
19	X-4624-533-3	ASSY PLATE KEYBOARD	83	4-653-801-02	SHEET HDD	88	6-600-093-01	(DDR266 SO-DIMM 256MB)	B20	4-645-177-01	SCREW (M1.7X3.5)
20	X-4624-528-2	ASSY BRACKET BAY	84	X-4624-532-2	ASSY ESCUSHION JOG	89	4-662-961-01	IC HYMD232M6466-H			
21	1-823-721-12	CABLE, FLEXIBLE FLAT	85	X-4624-539-2	ASSY DOOR R	90	4-654-953-01	(DDR266 SO-DIMM 256MB)			
22	4-661-289-01	INSULATOR PWS	* 87	4-660-449-02	SUB-FRAME BOTTOM LEFT	91	4-662-926-02	SHEET BLIND L			
23	A-8067-712-A \$	PWS-17 ASSY (C) (S)	88	6-600-116-01	IC M470L3224DT0-CB0	92	4-660-868-01	SHEET PORT			
24	1-815-594-21	CONNECTOR, PC CARD(EJECT,RIGHT)	89	4-662-961-01	IC M470L3224DT0-CB0	93	X-4624-527-5	SHEET PORT			
25	4-660-831-01	INSULATOR PCMCIA	90	4-654-953-01	SHEET PORT	94	4-660-866-02	INSULATOR HDD PWB			
26	1-761-380-23 #	CARD, MODEM	91	4-662-926-02	INSULATOR HDD PWB	95	4-662-798-01	FOOT FRONT			
27	1-761-519-11	PWB, FLEXIBLE PRINT	92	4-660-868-01	FOOT FRONT	96	A-8067-706-A \$ #	ASSY BOTTOM			
* 28	4-660-852-02	HEATSINK GHC	93	X-4624-527-5	ASSY BOTTOM	97	4-654-380-21	DOOR PORT			
* 29	1-763-828-11	2ND FAN	94	4-660-866-02	DOOR PORT	99	4-664-547-01	PLATE GND PWS			
31	1-756-281-11	BATTERY, NICKEL HYDROGEN	95	4-662-798-01	PLATE GND PWS	100	4-664-632-01				
32	4-642-711-01	SHEET (BATTERY), ADHESIVE	96	A-8067-706-A \$ #	MBX-65AP3 (C) ASSY (S)	105	4-664-561-01				
33	4-660-835-01	THERMAL SHEET CPU	97	4-654-380-21	CAP BAY	120	4-666-800-21	ADHESIVE TAPE			
34	6-703-333-01	IC RH80532GC041512-2	99	4-664-547-01	SHEET FPC	120	4-666-800-41				
35	1-960-827-61	HARNESS (2 PIN)	100	4-664-632-01	SPACER K	121	4-663-828-02	(GRX690)...LABEL ID (U)			
36	A-8067-474-A \$	CNX-157 ASSY (C) (S)	105	4-664-561-01	ADHESIVE TAPE	122	4-663-827-01	(GRX670)...LABEL ID (U)			
37	4-660-876-01	PLATE DC JACK	120	4-666-800-21	(GRX690)...LABEL ID (U)	122	4-663-827-01	SPACER PC CARD			
38	4-660-853-01	THERMAL FIN	121	4-663-828-02	SPACER PC CARD	126	4-663-230-02	CUSHION KEYBOARD			
* 39	1-763-829-11	CPU FAN	122	4-663-827-01	CUSHION KEYBOARD	127	4-663-227-01	CUSHION HOOD			
40	4-668-737-02	THERMAL SHEET COIL	126	4-663-230-02	CUSHION HOOD	128	4-664-048-01	CUSHION IO			
41	4-660-445-03	BRACKET BATTERY	127	4-663-227-01	CUSHION IO	129	4-664-308-21	INSULATOR FAN			
* 42	X-4624-936-1	ASSY (SUBFRAME) (BOTTOM) (RIGHT)	128	4-664-048-01	INSULATOR FAN	130	4-655-927-03	SHEET JOG			
43	A-8067-475-A \$	CNX-158 ASSY (C) (S)	129	4-664-308-21	SHEET JOG	131	4-664-285-01	SPRING (DVD-ROM) (To)			
44	4-660-823-02	BRACKET DOOR R	130	4-655-927-03	SPRING (DVD-ROM) (To)	132	4-661-644-01	CUSHION KEYBOARD R			
45	4-661-272-02	INSULATOR BOARD AUDIO	131	4-664-285-01	CUSHION KEYBOARD R	133	4-664-362-01				
* 46	4-660-905-01	HOLDER HDD	132	4-661-644-01	SHEET, EYE CONVERTER	134	4-664-363-21				
* 47	4-660-451-01	PLATE GND HDD	133	4-664-362-01	CUSHION IO LEFT	135	4-664-482-01				
48	4-663-115-01	FOOT REAR FIXED	134	4-664-363-21	CUSHION SPRING BLIND R	136					
49	4-660-861-02	DOOR BATTERY	135	4-664-482-01	SPACER HINGE L						
50	4-660-443-01	SPRING DOOR BATTERY	136		FILAMENT TAPE (W12X30) (*1)						
51	4-660-862-21	DOOR DIMM									
* 52	4-660-447-01	SUB-FRAME BATTERY									
53	A-8067-480-A \$	LEX-34 ASSY (C) (S)									
* 54	X-4624-529-2	ASSY BRACKET IO									
55	1-823-725-12	CABLE, FLEXIBLE FLAT									
56	1-823-723-13	CABLE, FLEXIBLE FLAT									
57	A-8067-478-A \$	SWX-91 ASSY (C) (S)									
58	4-653-745-01	SPRING BAY									
59	4-659-630-02	LATCH BAY									
60	X-4624-530-4	ASSY DOOR MODEM									



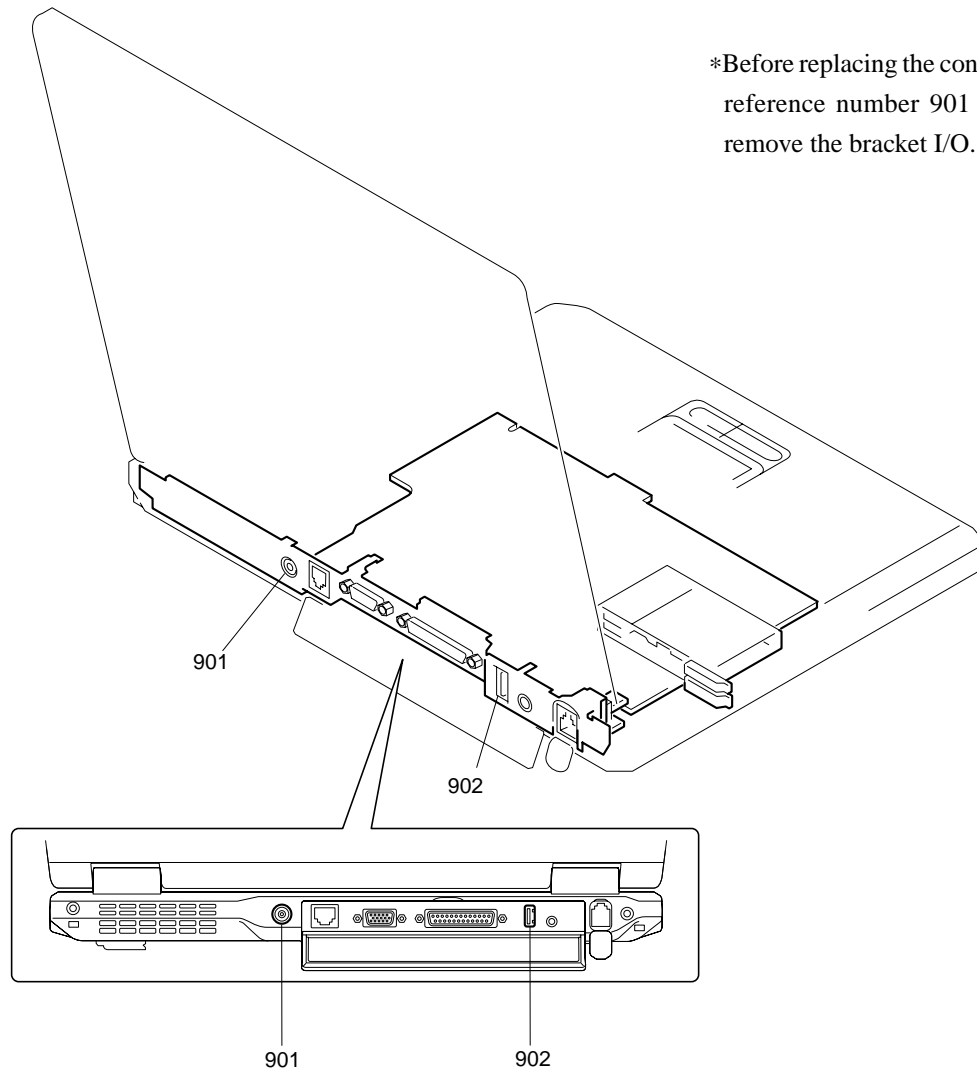
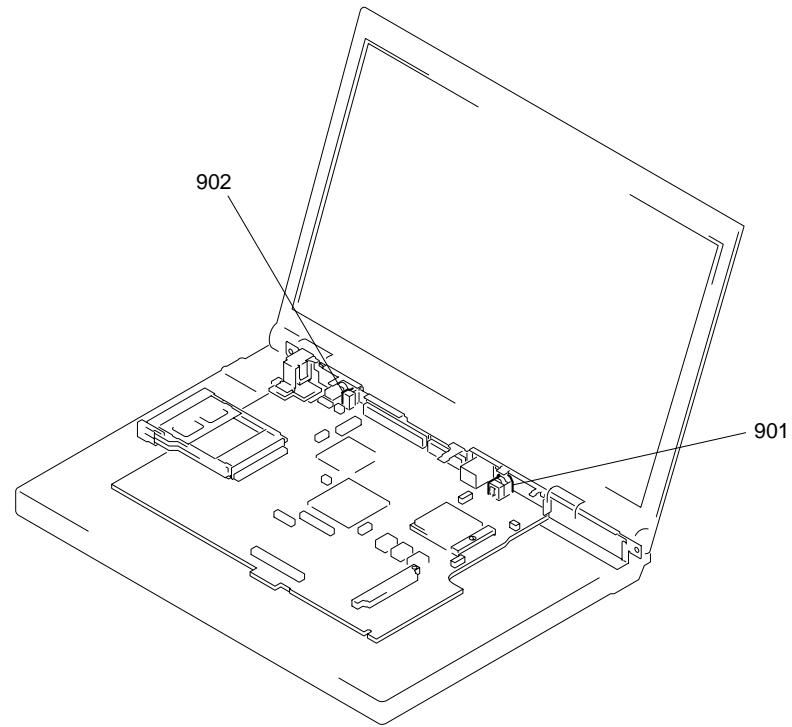
\*1 By referring to “[How to identify the To and Pa types of parts] (page 3-1), use the To type parts when replacing the To type optical drive, and use the Pa type parts when replacing the Pa type optical drive.

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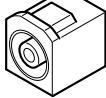
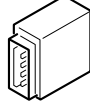




### 3-3. Connector Section (CH Type only)



\*Before replacing the connector of reference number 901 and 902 remove the bracket I/O.

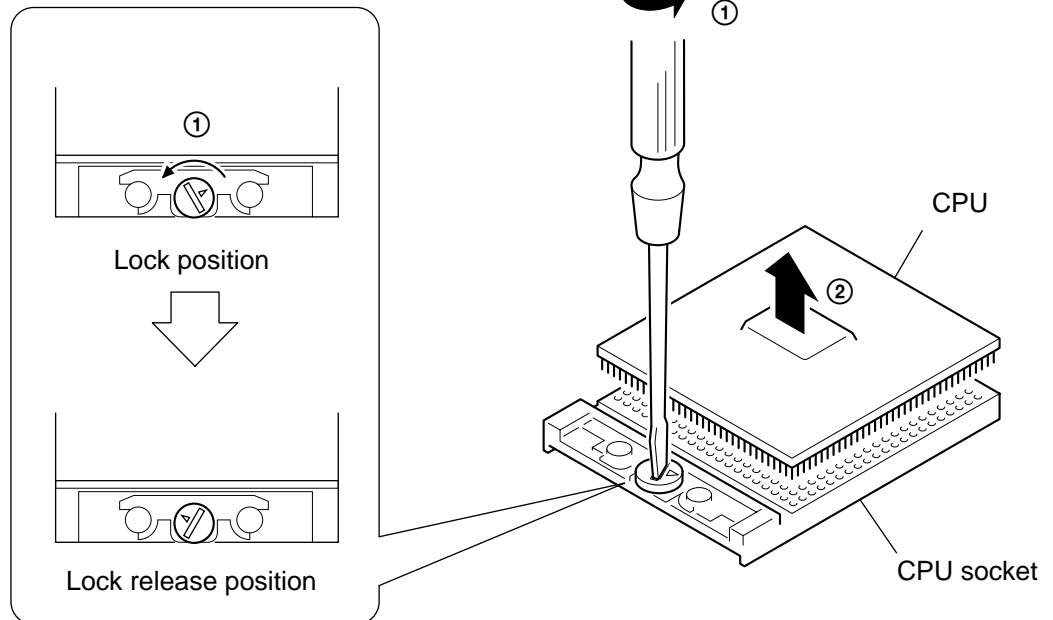
Ref.No.	Fig.	Part No.	Description
901		1-779-745-21	[CH]...JACK, DC DC IN connector
902		1-815-221-22	[CH]...USB CONNECTOR (VERTICAL) USB connector

\* Among the parts that are used on the boards of this model, only the connectors that are show in the list can be replaced.  
(The parts other that the specified connectors cannot be replaced.)

## 4-1. Replacing the CPU

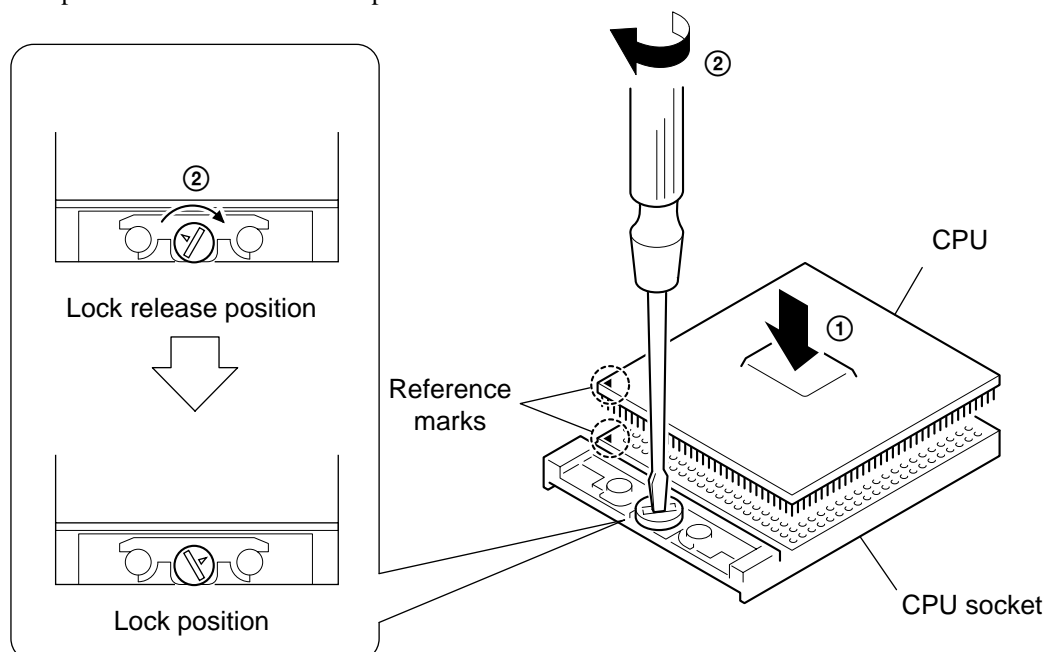
### 1. Removing the CPU

- ① Insert a flat-blade screwdriver into the notch as shown in the illustration and rotate it so that the protrusion comes to the lock release position.
- ② Pull the CPU gently upward to lift it out of the CPU socket.



### 2. Installing the CPU

- ① Align the triangle reference mark of the CPU with that of the CPU socket and insert all the pins of the CPU to the corresponding holes of the CPU socket.
- ② Insert a flat-blade screwdriver into the notch as shown in the illustration and rotate it so that the protrusion comes to the lock position.




**NOTE:**

Rotate a flat-blade screwdriver to the lock position securely. If not, the operation of the CPU may become unstable.

## List of PCG-GRX Series (As of October, 2002)

Model Name	Service Manual Part No.
PCG-GRX590 PCG-GRX570 PCG-GRX550 PCG-GRX510	9-874-524-03
PCG-GRX580P PCG-GRX580K PCG-GRX580 PCG-GRX560P PCG-GRX560K PCG-GRX560 PCG-GRX520P PCG-GRX520K PCG-GRX520 PCG-GRX650	9-874-542-02
PCG-GRX616 PCG-GRX717	9-874-581-01
PCG-GRX670 PCG-GRX690	9-876-012-01

 : Additional Models

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## Revision History

Suffix	Ver.	Date	Contents	QM No.
-01	Ver. 1	2002.10.07	First Edition	
< Remarks >				