

PCG-GRX670/GRX690

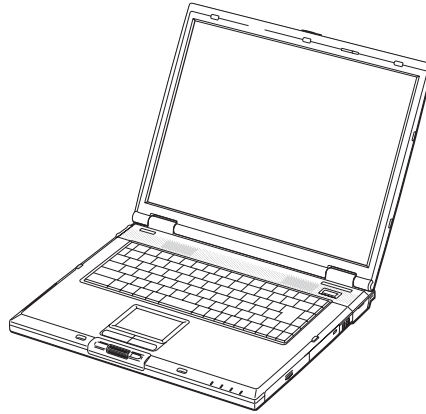
SERVICE MANUAL

Ver 1-2002J

Revision History

For American Area

*US Model
Canadian Model*



Lineup : PCG-GRX670
PCG-GRX690

Illust : PCG-GRX690



Confidential

- Design and specifications are subject to change without notice.

NOTEBOOK COMPUTER

SONY®

Information in this document is subject to change without notice.

Sony, VAIO and CLIE are trademarks or registered trademarks of Sony. Microsoft, Windows, Windows Media, Outlook, Bookshelf and other Microsoft products are trademarks or registered trademarks of Microsoft Corporation in the United States and other countries. The word Bluetooth and the Bluetooth logo are trademarks of Bluetooth SIG, Inc. AMD, AMD logo, AMD Duron and combinations thereof, 3DNow!, are trademarks of Advanced Micro Devices, Inc. Intel Inside logo, Pentium and Celeron are trademarks or registered trademarks of Intel Corporation. Transmeta, the Transmeta logo, Crusoe Processor, the Crusoe logo and combinations thereof are trademarks of Transmeta Corporation in the USA and other countries. Graffiti, HotSync, PalmModem, and Palm OS are resistered trademarks, and the Hotsync logo and Palm are trademarks of Palm, Inc. or its subsidiaries. (M) and Motrola are trademarks of Motrora, Inc. Other Motrola products and services with (R) mark like Dragomball are the trademarks of Motrola, Inc.

All other names of systems, products and services in this manual are trademarks or registered trademarks of their respective owners. In this manual, the (TM) or (R) mark are not specified.

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.

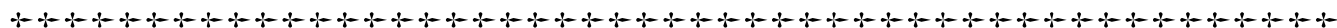
CAUTION: Danger of explosion if battery is incorrectly replaced. Replace only with the same or equivalent type recommended by the manufacturer. Discard used batteries according to the manufacturer’s instructions.

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 Δ 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 Δ 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.

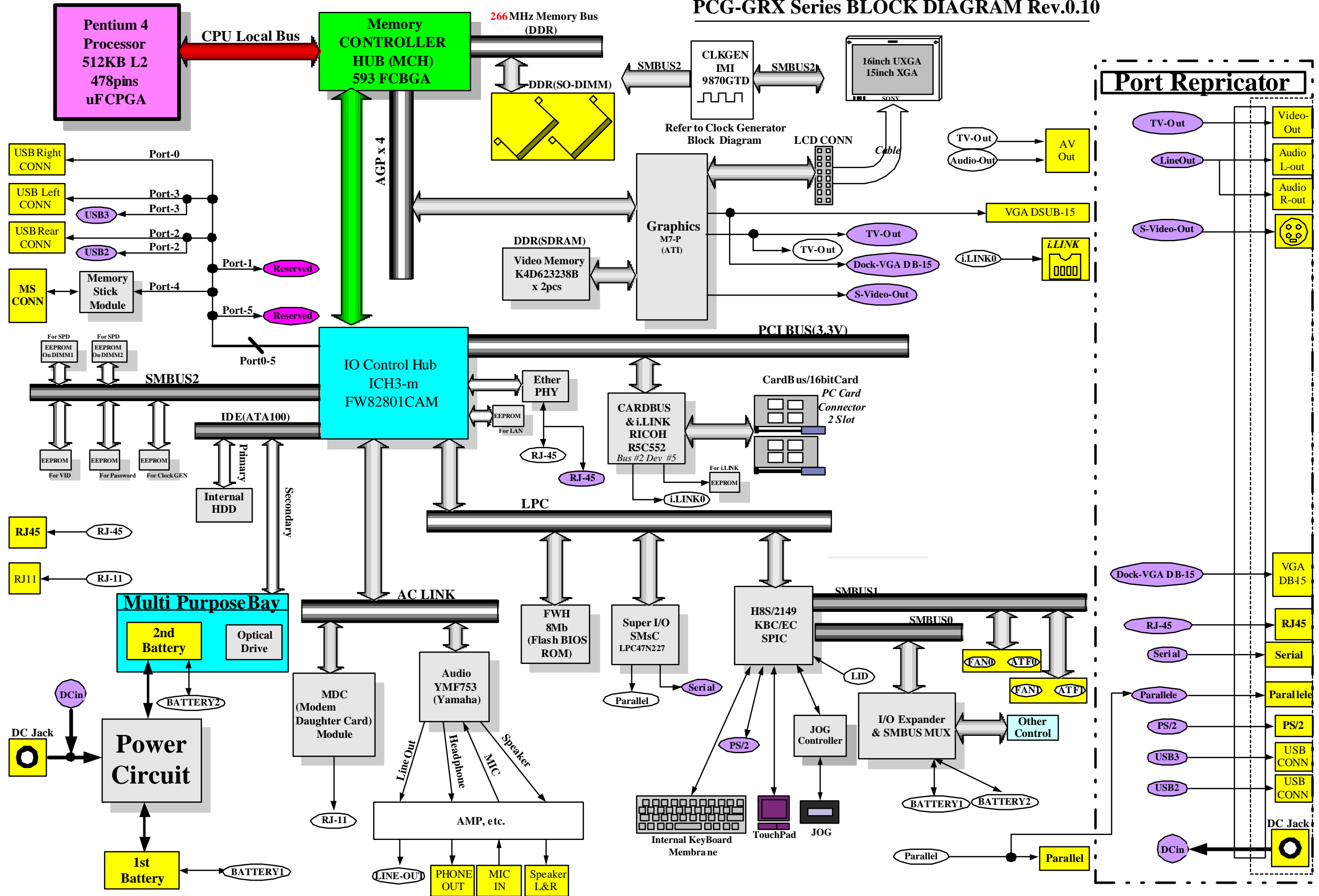
TABLE OF CONTENTS

<u>Section</u>	<u>Title</u>	<u>Page</u>
CHAPTER 1. BLOCK DIAGRAM		1-1
		(to 1-2)
CHAPTER 2. FRAME HARNESS DIAGRAM		2-1
		(to 2-2)
CHAPTER 3. EXPLODED VIEWS AND PARTS LIST		3-1
3-1. Main Section		3-3
3-2. LCD Section – Made by HI –		3-7
3-3. Connector Section (CH Type only)		3-9
		(to 3-10)
CHAPTER 4. OTHERS		
4-1. Replacing the CPU		4-1
1. Removing the CPU		4-1
2. Installing the CPU		4-1

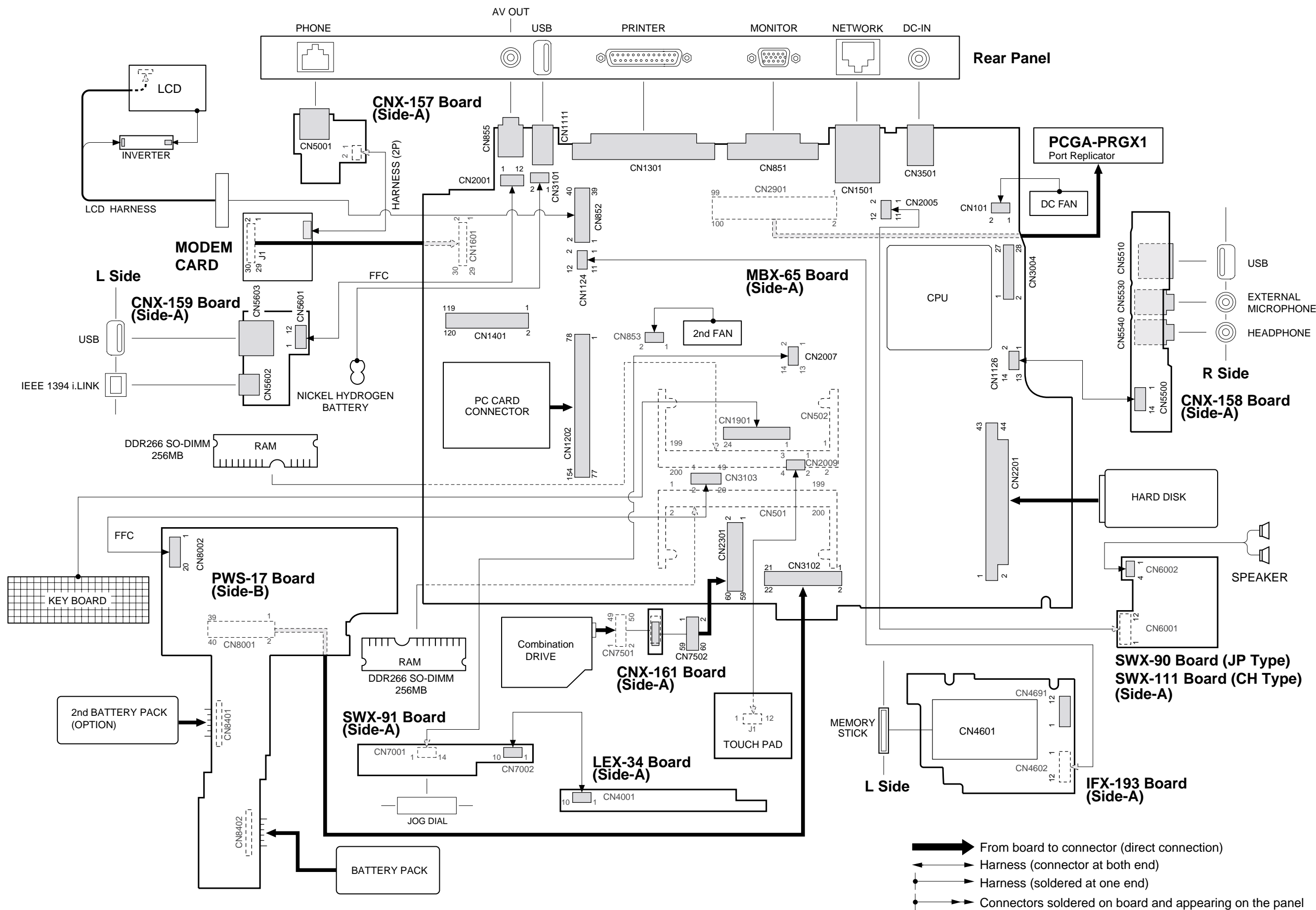
History of the changes is shown as the
“Revision History” at the end of this data.

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、基板上の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 Δ or dotted line with mark Δ are critical for safety. Replace only with part number specified.

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

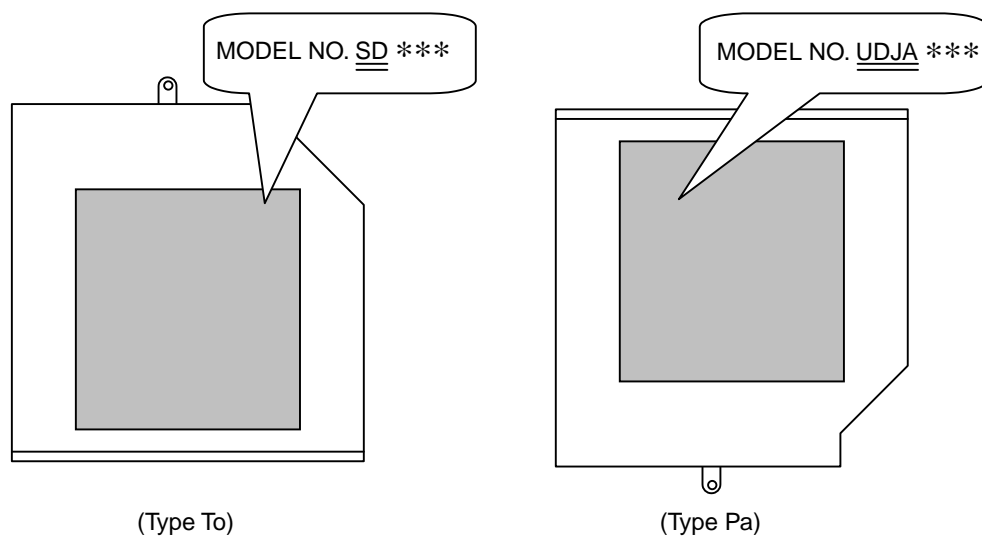
Δ 印の部品、または Δ 印付きの点線で囲まれた部品は、安全性を維持するために重要な部品です。従って交換時は、必ず指定の部品を使用してください。

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]



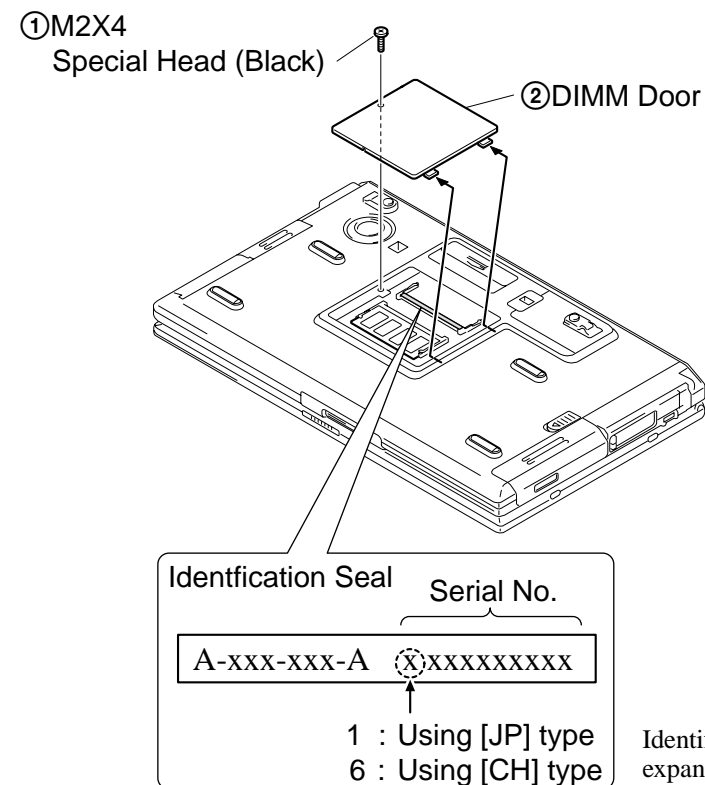
[Example of showing in repair part list]

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]



[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.

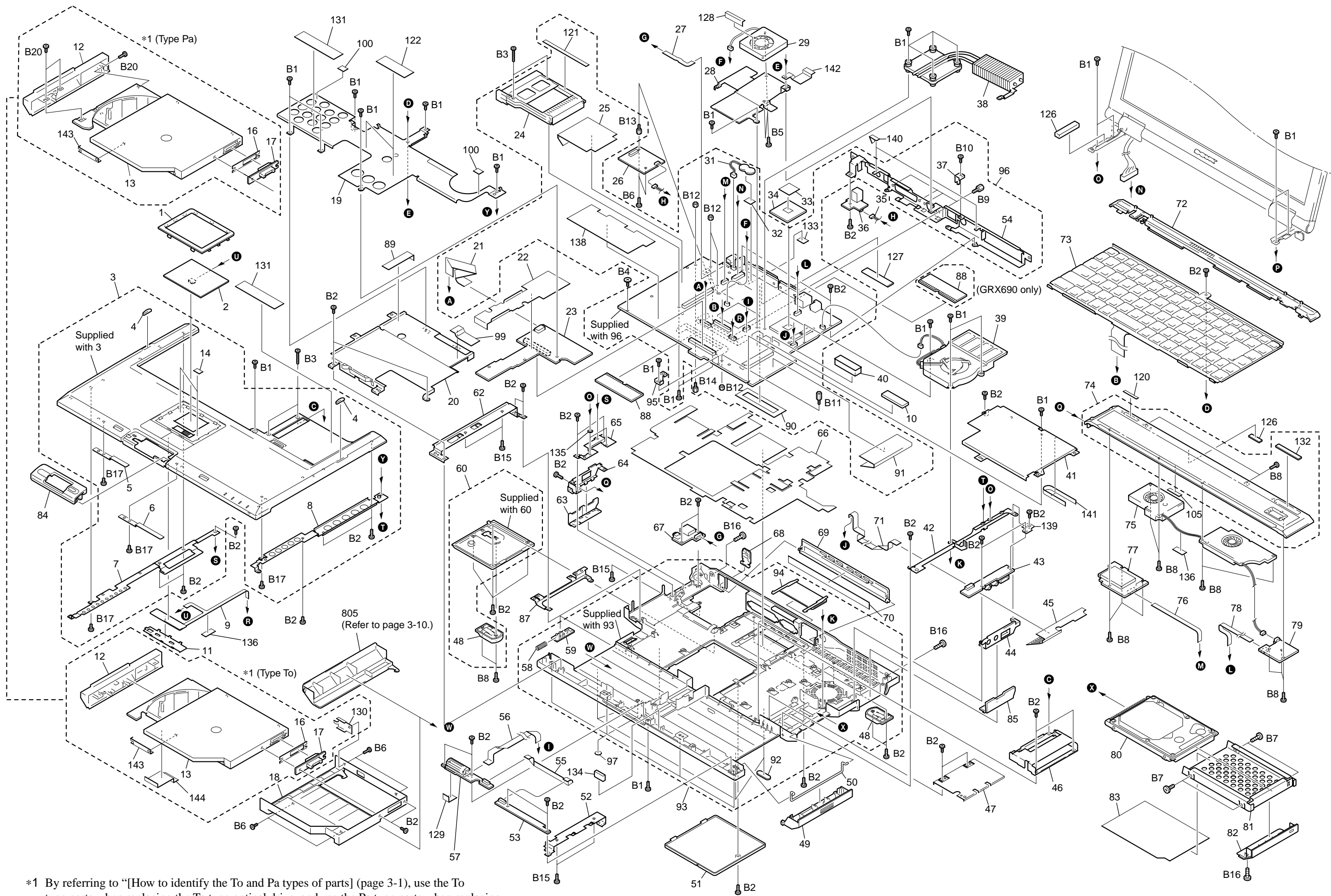
JP type... Component level service is possible. Refer to this manual for details.

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.

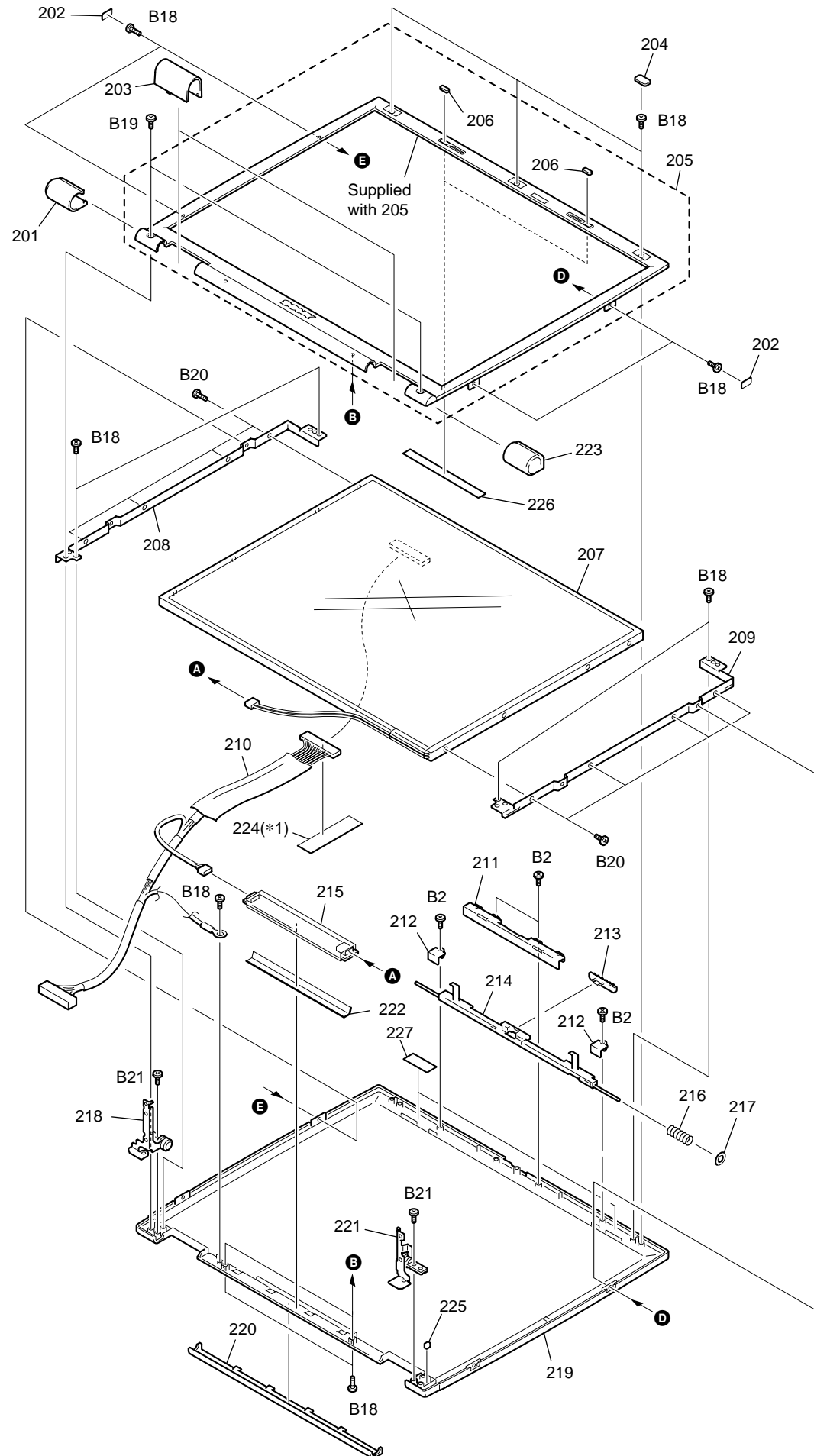
3-1. Main Section

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)... ASSY HDD 40GB (T,20,F) (S)	B12	7-622-205-05	NUT M2 TYPE2
13	1-796-480-11 \$ #	W-DVD (UJDA-810) (Pa)	80	A-8111-359-A \$ #	(GRX690)... ASSY HDD 60GB (T,30,F) (S)	* 81	4-653-799-02	BRACKET HDD	B13	4-651-989-01	SPACER (MBX)
14	4-661-451-01	ADHESIVE TAPE TOUCHPAD	82	X-4624-536-3	ASSY DOOR HDD	83	4-653-801-02	SHEET HDD	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)	* 87	4-660-449-02	SUB-FRAME BOTTOM LEFT	88	6-600-093-01	IC M470L3224DT0-CB0 (DDR266 SO-DIMM 256MB)	B16	4-654-811-01	SCREW M3
18	4-660-860-03	CASE BAY	88	6-600-116-01	IC HYMD232M6466-H (DDR266 SO-DIMM 256MB)	89	4-662-961-01	SHEET BLIND L	B17	4-657-192-01	SCREW, TAPPING, SPECIAL
19	X-4624-533-3	ASSY PLATE KEYBOARD	90	4-654-953-01	SHEET PORT	91	4-662-926-02	INSULATOR HDD PWB	B20	4-645-177-01	SCREW (M1.7X3.5)
20	X-4624-528-2	ASSY BRACKET BAY	92	4-660-868-01	FOOT FRONT	93	X-4624-527-5	ASSY BOTTOM			
21	1-823-721-12	CABLE, FLEXIBLE FLAT	94	4-660-866-02	DOOR PORT	95	4-662-798-01	PLATE GND PWS			
22	4-661-289-01	INSULATOR PWS	96	A-8067-706-A \$ #	MBX-65AP3 (C) ASSY (S)	97	4-654-380-21	CAP BAY			
23	A-8067-712-A \$	PWS-17 ASSY (C) (S)	99	4-664-547-01	SHEET FPC	100	4-664-632-01	SPACER K			
24	1-815-594-21	CONNECTOR, PC CARD(EJECT,RIGHT)	105	4-664-561-01	ADHESIVE TAPE	105	4-664-561-01	ADHESIVE TAPE			
25	4-660-831-01	INSULATOR PCMCIA	120	4-666-800-21	(GRX690)...LABEL ID (U)	120	4-666-800-41	(GRX670)...LABEL ID (U)			
26	1-761-380-23 #	CARD, MODEM	121	4-663-828-02	SPACER PC CARD	122	4-663-827-01	CUSHION KEYBOARD			
27	1-761-519-11	PWB, FLEXIBLE PRINT	122	4-663-827-01	CUSHION KEYBOARD	126	4-663-230-02	CUSHION HOOD			
* 28	4-660-852-02	HEATSINK GHC	127	4-663-227-01	CUSHION IO	128	4-664-048-01	INSULATOR FAN			
* 29	1-763-828-11	2ND FAN	129	4-664-308-21	SHEET JOG	130	4-655-927-03	SPRING (DVD-ROM) (To)			
31	1-756-281-11	BATTERY, NICKEL HYDROGEN	131	4-664-285-01	CUSHION KEYBOARD R	132	4-661-644-01	SHEET, EYE CONVERTER			
32	4-642-711-01	SHEET (BATTERY), ADHESIVE	133	4-664-362-01	CUSHION IO LEFT	134	4-664-363-21	CUSHION SPRING BLIND R			
33	4-660-835-01	THERMAL SHEET CPU	135	4-664-482-01	FILAMENT TAPE (W12X30) (*1)	135	4-664-482-01	SPACER HINGE L			
34	6-703-333-01	IC RH80532GC041512-2 (P4 2000MHz)	136								
35	1-960-827-61	HARNES (2 PIN)									
36	A-8067-474-A \$	CNX-157 ASSY (C) (S)									
37	4-660-876-01	PLATE DC JACK									
38	4-660-853-01	THERMAL FIN									
* 39	1-763-829-11	CPU FAN									
40	4-668-737-02	THERMAL SHEET COIL									
41	4-660-445-03	BRACKET BATTERY									
* 42	X-4624-936-1	ASSY (SUBFRAME) (BOTTOM) (RIGHT)									
43	A-8067-475-A \$	CNX-158 ASSY (C) (S)									
44	4-660-823-02	BRACKET DOOR R									
45	4-661-272-02	INSULATOR BOARD AUDIO									
* 46	4-660-905-01	HOLDER HDD									
* 47	4-660-451-01	PLATE GND HDD									
48	4-663-115-01	FOOT REAR FIXED									
49	4-660-861-02	DOOR BATTERY									
50	4-660-443-01	SPRING DOOR BATTERY									
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.

3-2. LCD Section – Made by HI –

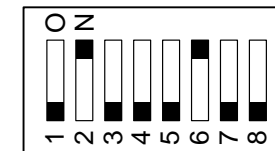


Ref.No.	Part No.	Description
201	4-660-847-01	CAP LCD L
202	4-660-851-01	LCD SCREW COVER S
203	4-660-897-02	COVER HINGE
204	4-660-850-02	LCD SCREW COVER T
205	X-4624-525-4	ASSY BEZEL
206	4-660-846-02	LATCH RUBBER
207	A-8059-922-A \$ #	ASSY LCD 16U (SH) (S)
* 208	4-660-839-02	BRACKET LCD L
* 209	4-660-840-02	BRACKET LCD R
210	1-961-573-13	HARNESS (LCD)
211	4-660-844-02	LATCH HOLDER LCD
212	4-660-828-01	LATCH GUIDE
213	4-660-907-01	LATCH_BOTTON
214	4-660-843-02	LATCH LEVER
215	1-477-101-11	INVERTER UNIT
216	4-663-929-02	SPRING (LCD) (16)
217	4-663-477-02	SPACER LATCH
* 218	X-4624-534-2	ASSY HINGE L
219	X-4624-847-1	ASSY DISPLAY (F)
220	4-660-849-02	CAP LCD C
* 221	X-4624-535-2	ASSY HINGE R
222	4-662-783-03	INSULATOR INVERTER
223	4-660-848-01	CAP LCD R
224		FILAMENT TAPE (W19X50) (*1)
225	4-664-545-01	SPACER (HINGE) (16) (R)
226	4-664-314-01	SHEET (LCD) (BEZEL UP)
227	4-664-062-01	SHEET LCD LATCH
B2	4-641-726-12	SCREW (M2), SPECIAL HEAD
B18	4-645-214-61	GRIP, M2
B19	4-644-637-01	GRIP, M2 EG
B20	7-621-259-25	SCREW +P 2.6X4
B21	4-663-482-11	M2 SCREW (HARDENING)

*1 Use the FILAMENT TAPE.

NOTE :

Set the DIP switch on the MBX-65 board (Main board) to match with the LCD that is used in this computer.



The upper position where ON indication is shown is the ON position . The lower position is the OFF position.

No.	1	2	3	4	5	6	7	8
ON/OFF	1	0	1	1	1	0	1	1

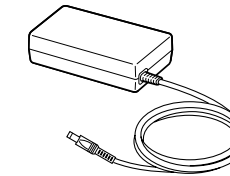
0 : ON 1: OFF

Ref.No.	Part No.	Description
		ACCESSORIES

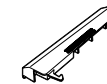
△ 801	1-477-205-42 \$	ADAPTOR, AC
802	A-8067-482-A \$ #	BP2NX SKD (U) ASSY (S)
△ 803	1-757-562-21	CORD, POWER
804	4-660-884-02	WEIGHT SAVER
		(Refer to page 3-5.)
	4-668-105-01	QUICK START
	4-668-104-01	SPECIFICATION SHEET
	4-646-847-11	W2K FIRST STEP GUIDE
		LOOK AT EXPLODED VIES OF THE PARTS

805	A-8023-271-A	(GRX690)...
		WIRELESS LAN PC CARD ASSY
806	X-4624-277-1	(GRX690)...CASE ASSY, PC CARD

801
AC Adaptor (1)



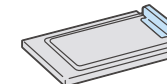
804
Weight Saver (1)



802
Battery Pack (1)



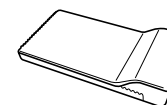
805
Wireless LAN PC Card (1)
(GRX690 Model)



803
Power Cord (1)



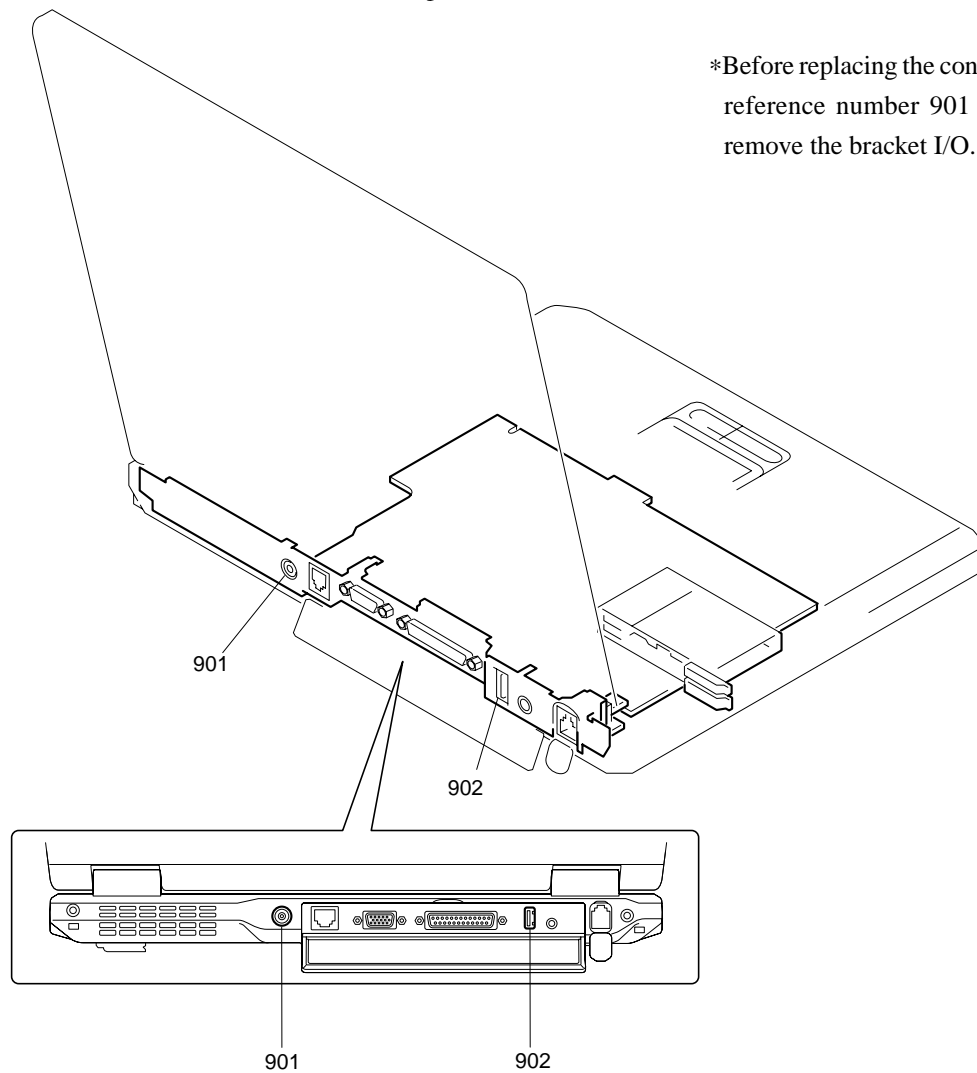
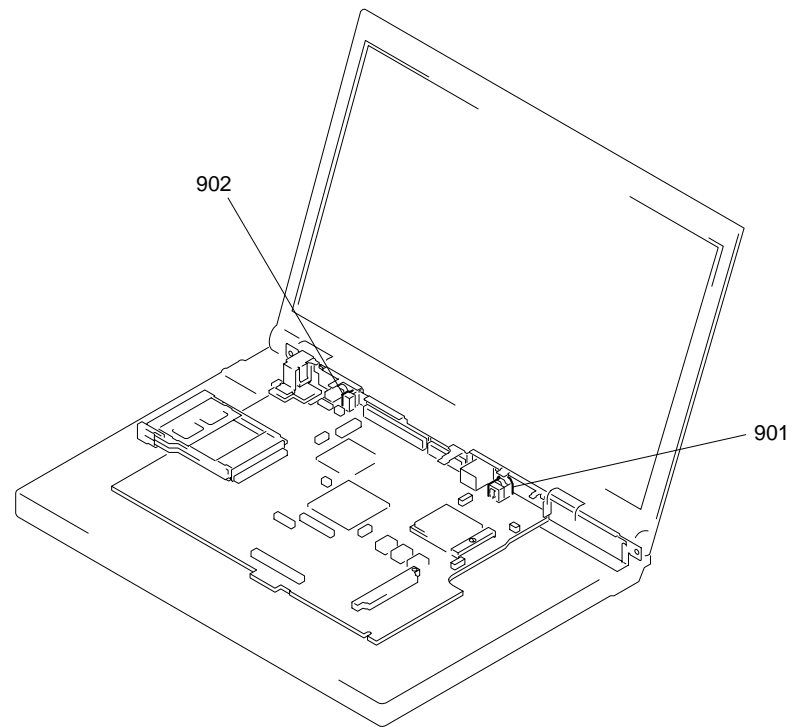
806
Wireless LAN
PC Card Case (1)
(GRX690 Model)



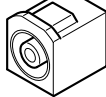
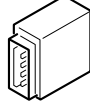
The components identified by mark △ or dotted line with mark △ are critical for safety. Replace only with part number specified.

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

3-3. Connector Section (CH Type only)



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

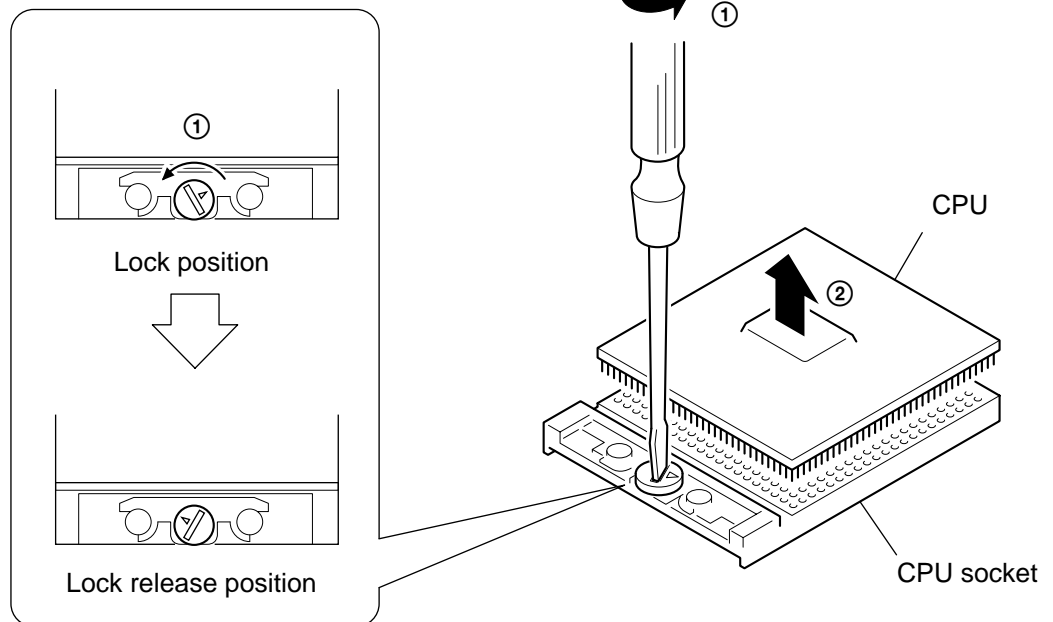
Ref.No.	Fig.	Part No.	Description
901		1-779-745-21	[CH]...JACK, DC DC IN connector
902		1-815-221-22	[CH]...USB CONNECTOR (VERTICAL) USB connector

* 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

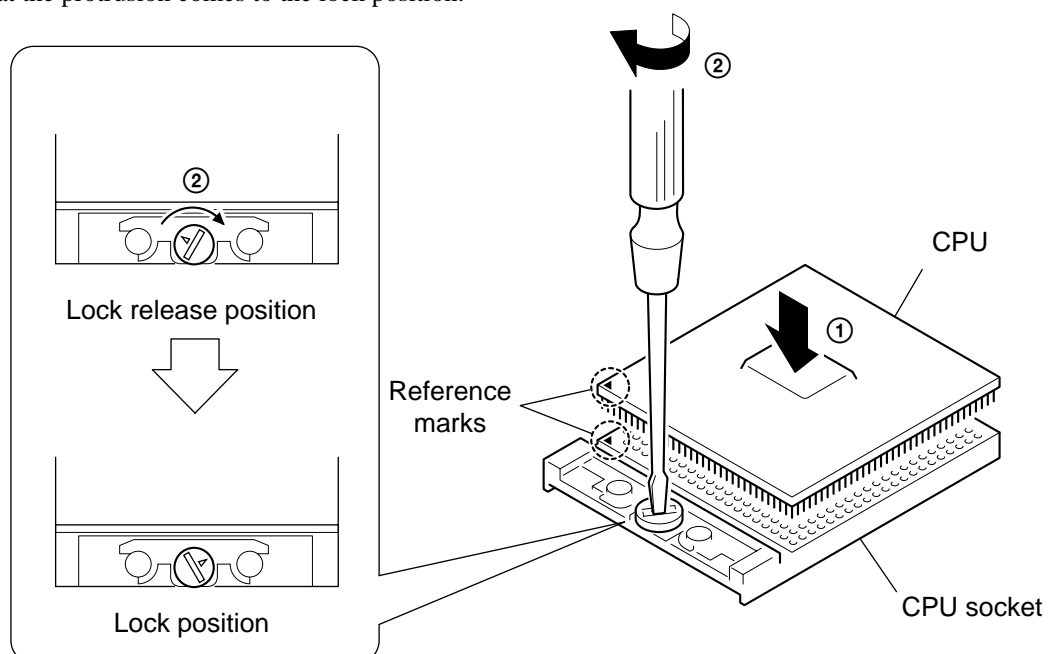
1. Removing the CPU

- 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

This manual and the constituent data may not be replicated, copied nor reprinted in whole or in part without prior written authorization of Sony Corporation.

Revision History

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