

# DSC-W70

## SERVICE MANUAL

**LEVEL 3**

**Ver 1.0 2006.03**

**Revision History**

**How to use  
Acrobat Reader**

**Internal memory  
ON BOARD**



Photo: Silver

*US Model  
Canadian Model  
AEP Model  
UK Model  
E Model  
Australian Model  
Hong Kong Model  
Chinese Model  
Korea Model  
Argentine Model  
Tourist Model*

### Link

[SERVICE NOTE](#)

[PRINTED WIRING BOARDS](#)

[REPAIR PARTS LIST](#)

[SCHEMATIC DIAGRAMS](#)

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.

**DIGITAL STILL CAMERA**

**SONY®**

**CAUTION**

Danger of explosion if battery is incorrectly replaced.  
Replace only with the same or equivalent type.

**SAFETY-RELATED COMPONENT WARNING!!**

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

**ATTENTION AU COMPOSANT AYANT RAPPORT  
À LA SÉCURITÉ!**

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

## SAFETY CHECK-OUT

After correcting the original service problem, perform the following safety checks before releasing the set to the customer.

1. Check the area of your repair for unsoldered or poorly-soldered connections. Check the entire board surface for solder splashes and bridges.
2. Check the interboard wiring to ensure that no wires are "pinched" or contact high-wattage resistors.
3. Look for unauthorized replacement parts, particularly transistors, that were installed during a previous repair. Point them out to the customer and recommend their replacement.
4. Look for parts which, through functioning, show obvious signs of deterioration. Point them out to the customer and recommend their replacement.
5. Check the B+ voltage to see it is at the values specified.
6. FLEXIBLE Circuit Board Repairing
  - Keep the temperature of the soldering iron around 270°C during repairing.
  - Do not touch the soldering iron on the same conductor of the circuit board (within 3 times).
  - Be careful not to apply force on the conductor when soldering or unsoldering.

### Unleaded solder

Boards requiring use of unleaded solder are printed with the lead-free mark (LF) indicating the solder contains no lead. (Caution: Some printed circuit boards may not come printed with the lead free mark due to their particular size.)



### : LEAD FREE MARK

Unleaded solder has the following characteristics.

- Unleaded solder melts at a temperature about 40°C higher than ordinary solder.  
Ordinary soldering irons can be used but the iron tip has to be applied to the solder joint for a slightly longer time.  
Soldering irons using a temperature regulator should be set to about 350°C.  
Caution: The printed pattern (copper foil) may peel away if the heated tip is applied for too long, so be careful!
- Strong viscosity  
Unleaded solder is more viscous (sticky, less prone to flow) than ordinary solder so use caution not to let solder bridges occur such as on IC pins, etc.
- Usable with ordinary solder  
It is best to use only unleaded solder but unleaded solder may also be added to ordinary solder.

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# 1. SERVICE NOTE

## 1-3. METHOD FOR COPYING OR ERASING THE DATA IN INTERNAL MEMORY

The data can be copied/erased by the operations on the Setup screen. (When erasing the data, execute formatting the internal memory.)

**Note 1:** When replacing the SY-156 board, erase the data in internal memory of the board before replacement.

**Note 2:** When replacing the SY-156 board, execute formatting and initialize the internal memory after replacement.

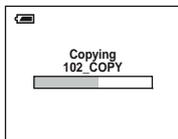
### Method for Copying the Data in Internal Memory

#### Copy

Copies all images in the internal memory to a “Memory Stick Duo”.

	OK	See the following procedure.
✓	Cancel	Cancels the copying.

- ① Insert a “Memory Stick Duo” having 64 MB or larger capacity.
- ② Select [OK] with ▲ on the control button, then press ●.  
The message “All data in internal memory will be copied Ready?” appears.
- ③ Select [OK] with ▲, then press ●.  
Copying starts.



- Use a fully charged battery pack or the AC Adaptor (not supplied). If you attempt to copy image files using a battery pack with little remaining charge, the battery pack may run out, causing copying to fail or possibly corrupting the data.
- You cannot copy individual images.
- The original images in the internal memory are retained even after copying. To delete the contents of the internal memory, remove the “Memory Stick Duo” after copying, then execute the [Format] command in  (Internal Memory Tool).
- You cannot select a folder copied on a “Memory Stick Duo”.
- Even if you copy data, a  (Print order) mark is not copied.

### Method for Formatting the Internal Memory

This item does not appear when a “Memory Stick Duo” is inserted in the camera.  
The default settings are marked with ✓.

#### Format

Formats the internal memory.

- Note that formatting irrevocably erases all data in the internal memory, including even protected images.

	OK	See the following procedure.
✓	Cancel	Cancels the formatting.

- ① Select [OK] with ▲ on the control button, then press ●.  
The message “All data in internal memory will be erased Ready?” appears.
- ② Select [OK] with ▲, then press ●.  
The format is complete.

## 4-2. SCHEMATIC DIAGRAMS

### Link

<ul style="list-style-type: none"><li>• SY-156 BOARD (1/7) (CCD SIGNAL PROCESS)</li></ul>	<ul style="list-style-type: none"><li>• SY-156 BOARD (5/7) (LCD DRIVE)</li></ul>
<ul style="list-style-type: none"><li>• SY-156 BOARD (2/7) (CAMERA DSP)</li></ul>	<ul style="list-style-type: none"><li>• SY-156 BOARD (6/7) (AUDIO, VIDEO)</li></ul>
<ul style="list-style-type: none"><li>• SY-156 BOARD (3/7) (LENS DRIVE)</li></ul>	<ul style="list-style-type: none"><li>• SY-156 BOARD (7/7) (DC/DC CONVERTER)</li></ul>
<ul style="list-style-type: none"><li>• SY-156 BOARD (4/7) (SDRAM, SUPER AND)</li></ul>	

- COMMON NOTE FOR SCHEMATIC DIAGRAMS

## 4-2. SCHEMATIC DIAGRAMS

### 4. PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS

#### 4-2. SCHEMATIC DIAGRAMS

**THIS NOTE IS COMMON FOR SCHEMATIC DIAGRAMS**  
**(In addition to this, the necessary note is printed in each block)**

**(For schematic diagrams)**

- All capacitors are in  $\mu\text{F}$  unless otherwise noted.  $\text{pF}$  :  $\mu$   $\mu\text{F}$ . 50 V or less are not indicated except for electrolytics and tantalums.
- Chip resistors are 1/10 W unless otherwise noted.  $\text{k}\Omega=1000 \Omega$ ,  $\text{M}\Omega=1000 \text{k}\Omega$ .
- Caution when replacing chip parts.  
New parts must be attached after removal of chip.  
Be careful not to heat the minus side of tantalum capacitor, Because it is damaged by the heat.
- Some chip part will be indicated as follows.

	C541	L452	
	22U	10UH	
	TA A	2520	
Kinds of capacitor			External dimensions (mm)
			Case size

- Constants of resistors, capacitors, ICs and etc with XX indicate that they are not used.  
In such cases, the unused circuits may be indicated.
- Parts with  $\star$  differ according to the model/destination. Refer to the mount table for each function.
- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.
- Signal name  
XEDIT  $\rightarrow$  EDIT      PB/XREC  $\rightarrow$  PB/REC
- : non flammable resistor
- : fusible resistor
- : panel designation
- : B+ Line
- : B- Line
- : IN/OUT direction of (+,-) B LINE.
- : adjustment for repair.
- : not use circuit

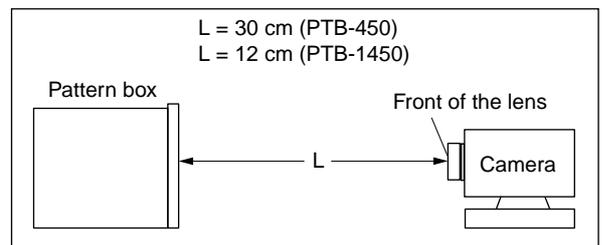
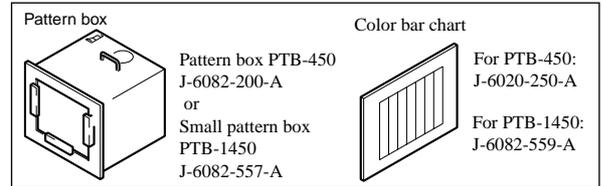
**(Measuring conditions voltage and waveform)**

- Voltages and waveforms are measured between the measurement points and ground when camera shoots color bar chart of pattern box. They are reference values and reference waveforms.  
(VOM of DC 10 M $\Omega$  input impedance is used)
- Voltage values change depending upon input impedance of VOM used.)

**Precautions for Replacement of Imager**

- If the imager has been replaced, carry out all the adjustments for the camera section.
- As the imager may be damaged by static electricity from its structure, handle it carefully like for the MOS IC.  
In addition, ensure that the receiver is not covered with dusts nor exposed to strong light.

**1. Connection**



**2. Adjust the distance so that the output waveform of Fig. a and the Fig. b can be obtain.**

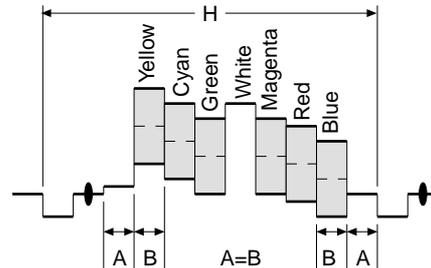


Fig. a (Video output terminal output waveform)

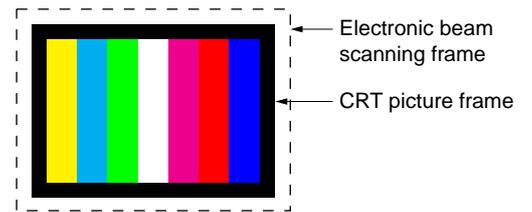


Fig.b (Picture on monitor TV)

When indicating parts by reference number, please include the board name.

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

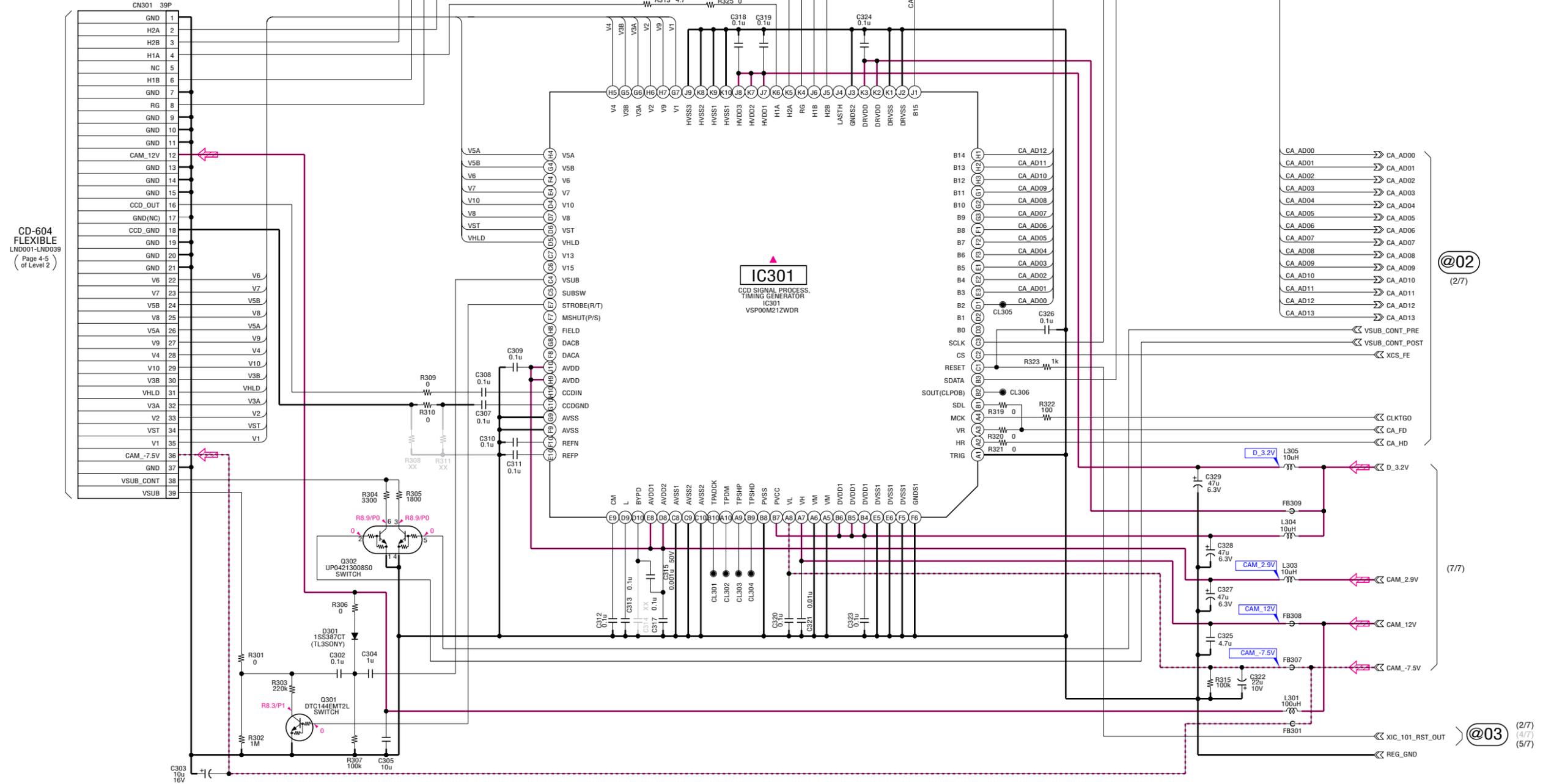
Les composants identifiés par une marque  $\triangle$  sont critiques pour la sécurité.  
Ne les remplacer que par une pièce portant le numéro spécifié.

# SY-156 BOARD (1/7)

## CCD SIGNAL PROCESS

XX MARK:NO MOUNT  
 NO MARK:REG/PB MODE  
 R:REG MODE  
 P:PB MODE

▲: Voltage measurement of the CSP ICs and the Transistors with ▲ mark, are not possible.



CD-604 FLEXIBLE LND001-LND039 (Page 4-5 of Level 2)

A  
B  
C  
D  
E  
F  
G  
H  
I

@01 (2/7) (5/7) (6/7)

@02 (2/7)

@03 (2/7) (4/7) (5/7)

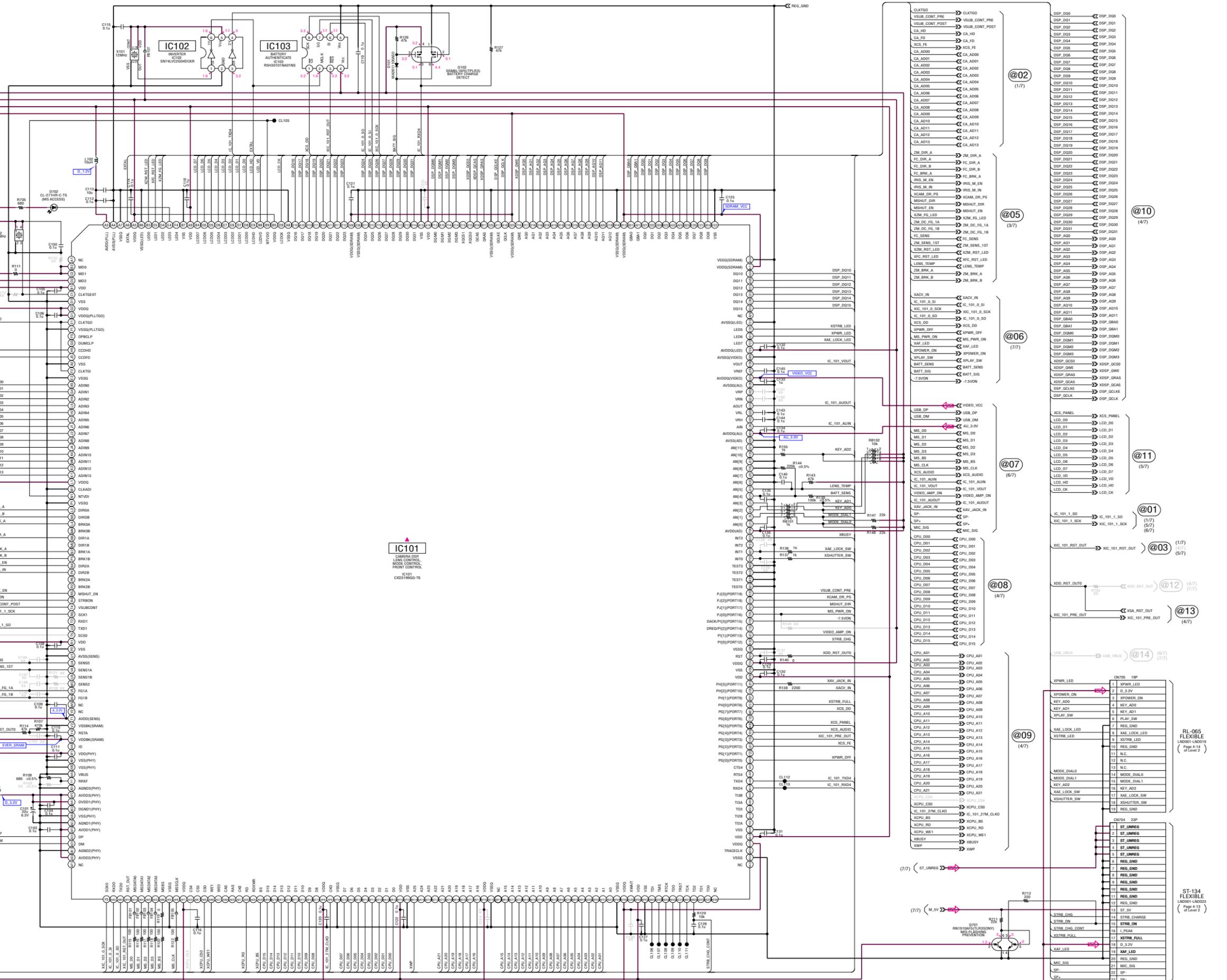
# SY-156 BOARD (2/7)

## CAMERA DSP

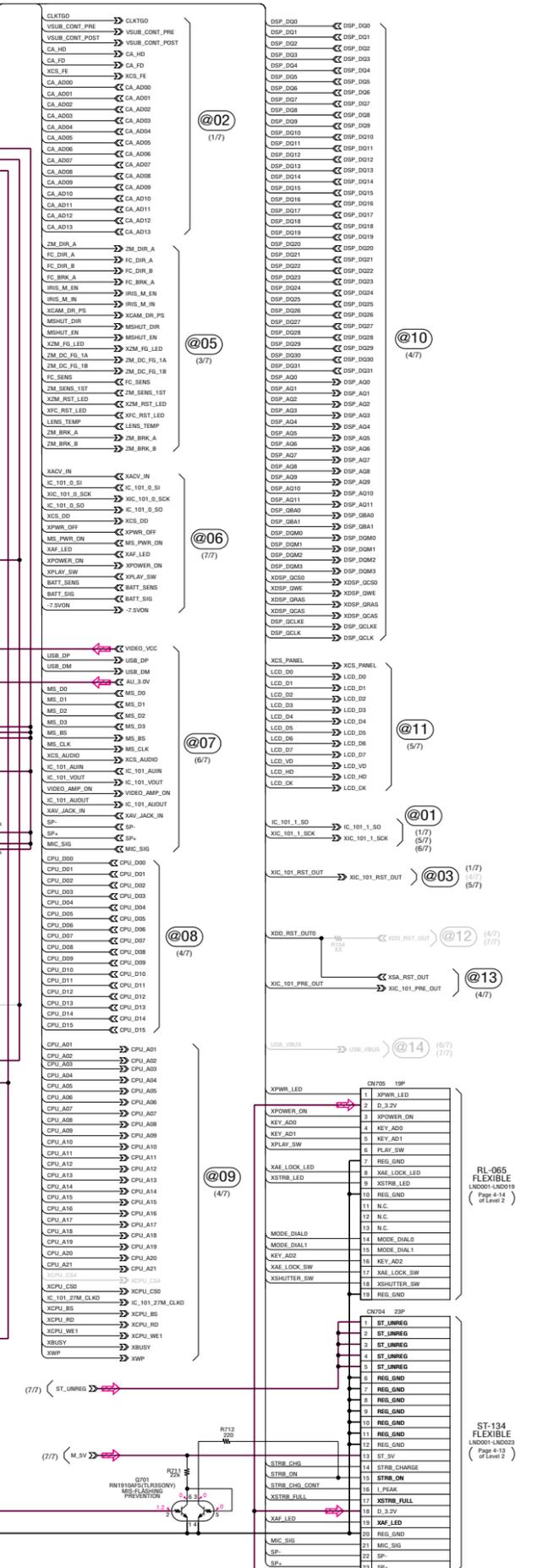
XX MARK: NO MOUNT  
NO MARK: REC/PS MODE

▲ Voltage measurement of the CSP ICs and the Transistors with ▲ mark, are not possible.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
M  
N  
O  
P  
Q  
R



**IC101**  
CAMERA DSP LENS CONTROL MODE CONTROL FRONT CONTROL  
IC101 1995G-76



**@02**  
(1/7)

**@05**  
(3/7)

**@06**  
(7/7)

**@07**  
(6/7)

**@08**  
(4/7)

**@09**  
(4/7)

**@10**  
(4/7)

**@11**  
(5/7)

**@01**  
(1/7)  
(5/7)  
(6/7)

**@03**  
(1/7)  
(5/7)

**@12**  
(6/7)  
(7/7)

**@13**  
(4/7)

**@14**  
(6/7)  
(7/7)

**RL-065 FLEXIBLE**  
L80001-00016  
(Page 4-12 of Level 2)

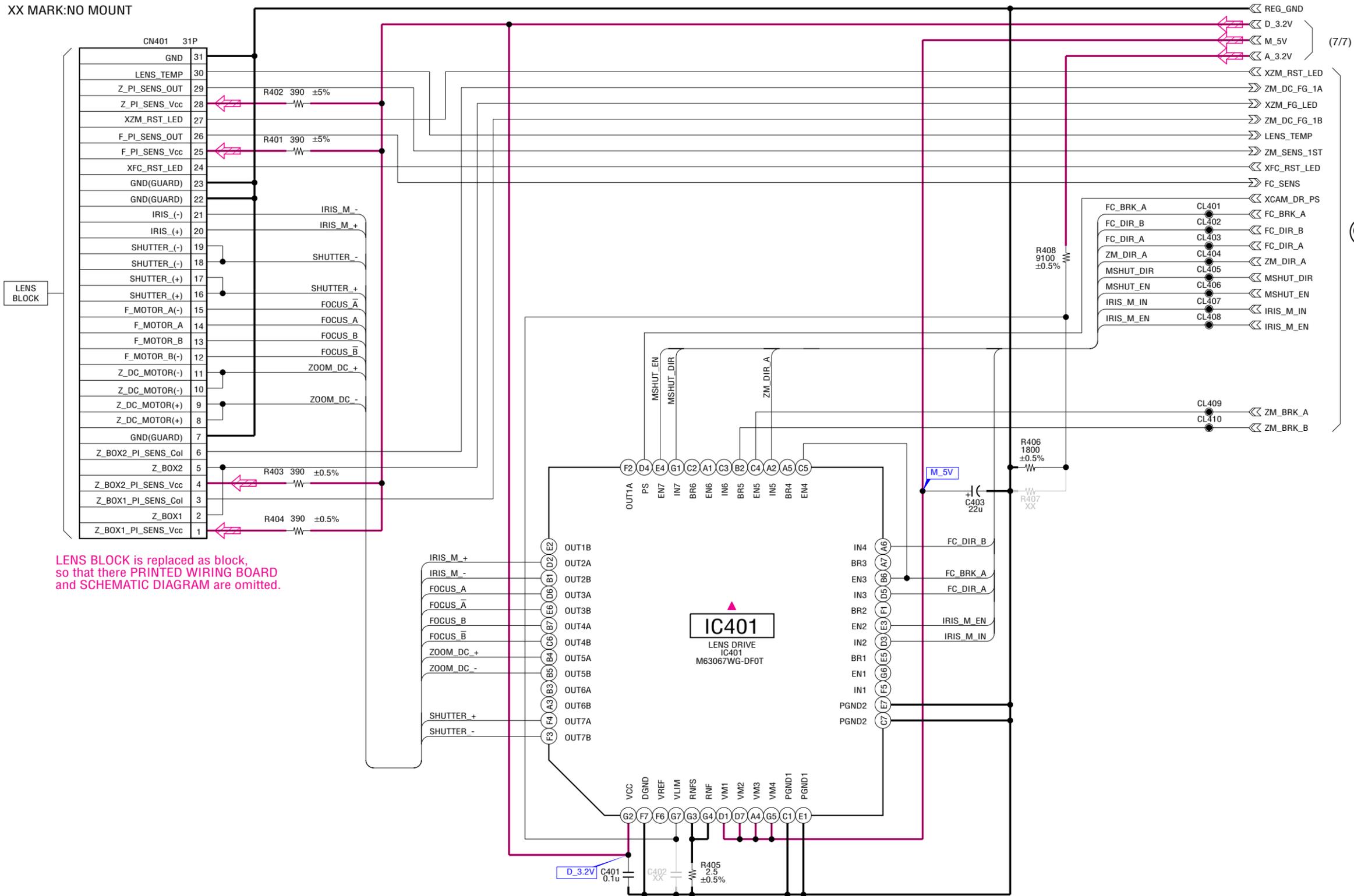
**ST-134 FLEXIBLE**  
L80001-00023  
(Page 4-12 of Level 2)

# SY-156 BOARD (3/7)

## LENS DRIVE

XX MARK:NO MOUNT

▲: Voltage measurement of the CSP ICs and the Transistors with ▲ mark, are not possible.



LENS BLOCK is replaced as block, so that there PRINTED WIRING BOARD and SCHEMATIC DIAGRAM are omitted.

@05 (2/7)

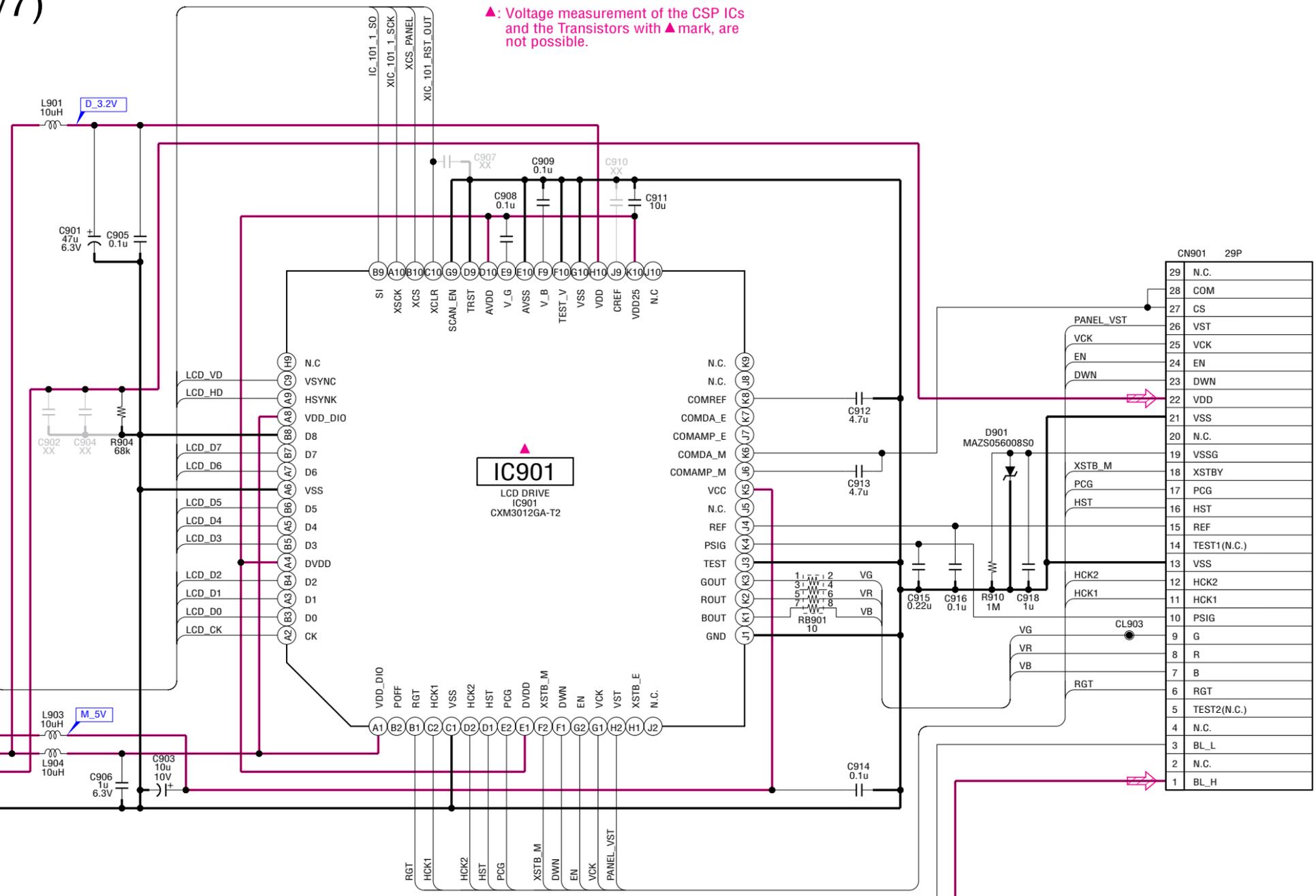
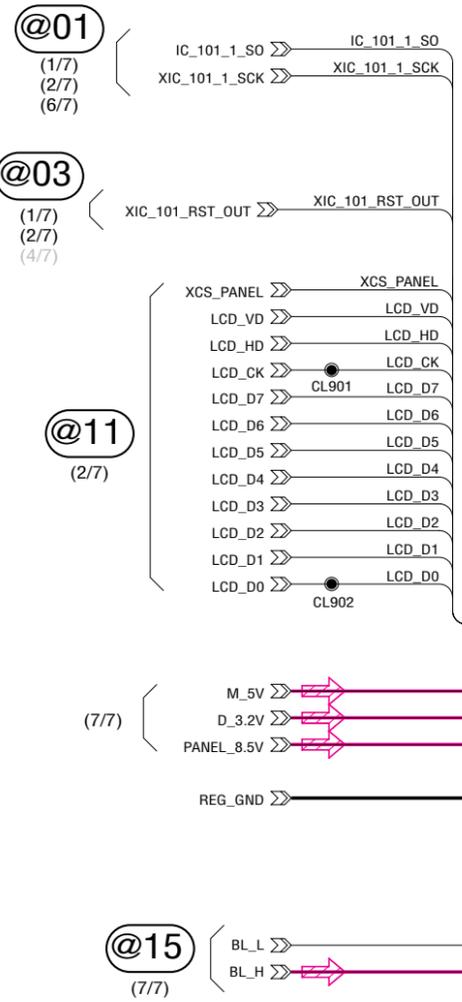


# SY-156 BOARD (5/7)

LCD DRIVE  
XX MARK:NO MOUNT

▲: Voltage measurement of the CSP ICs and the Transistors with ▲ mark, are not possible.

A  
B  
C  
D  
E  
F  
G



CN901	29P
29	N.C.
28	COM
27	CS
26	VST
25	VCK
24	EN
23	DWN
22	VDD
21	VSS
20	N.C.
19	VSSG
18	XSTBY
17	PCG
16	HST
15	REF
14	TEST1(N.C.)
13	VSS
12	HCK2
11	HCK1
10	PSIG
9	G
8	R
7	B
6	RGT
5	TEST2(N.C.)
4	N.C.
3	BL_L
2	N.C.
1	BL_H

JK-303 FLEXIBLE LND101-LND129 (Page 4-15 of Level 2)





## 4-3. PRINTED WIRING BOARDS

### Link

• SY-156 BOARD

• COMMON NOTE FOR PRINTED WIRING BOARDS

• MOUNTED PARTS LOCATION

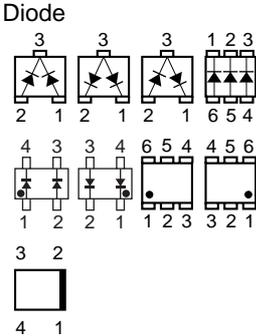
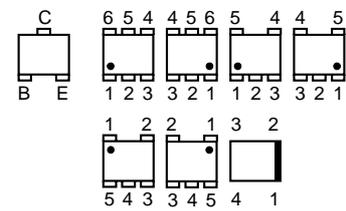
# 4-3. PRINTED WIRING BOARDS

## 4-3. PRINTED WIRING BOARDS

**THIS NOTE IS COMMON FOR PRINTED WIRING BOARDS**

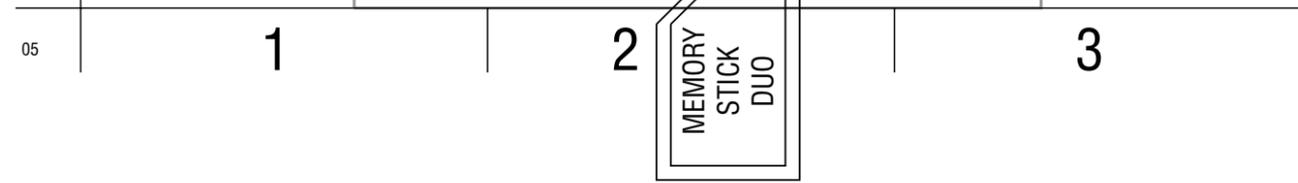
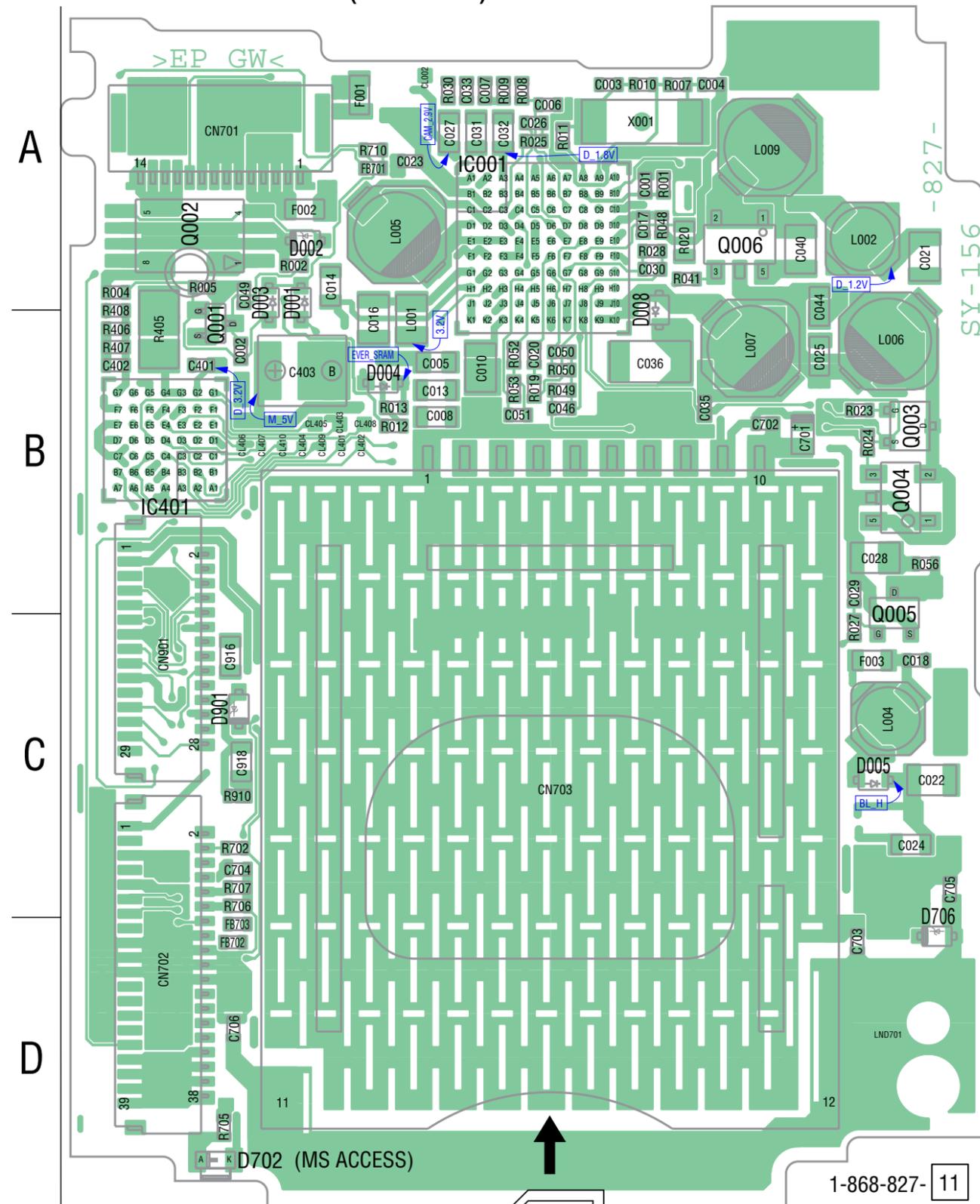
-  : Uses unleaded solder.
-  : Circuit board
-  : Flexible board
-  : Pattern from the side which enables seeing.
-  : pattern of the rear side  
(The other layers' patterns are not indicated)
- Through hole is omitted.
- There are a few cases that the part printed on diagram isn't mounted in this model.
-  : panel designation

- Chip parts.

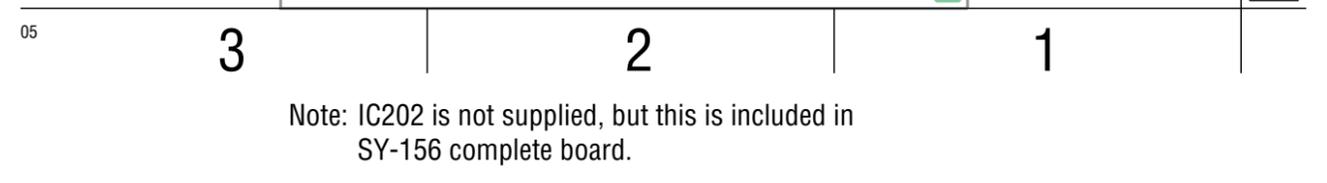
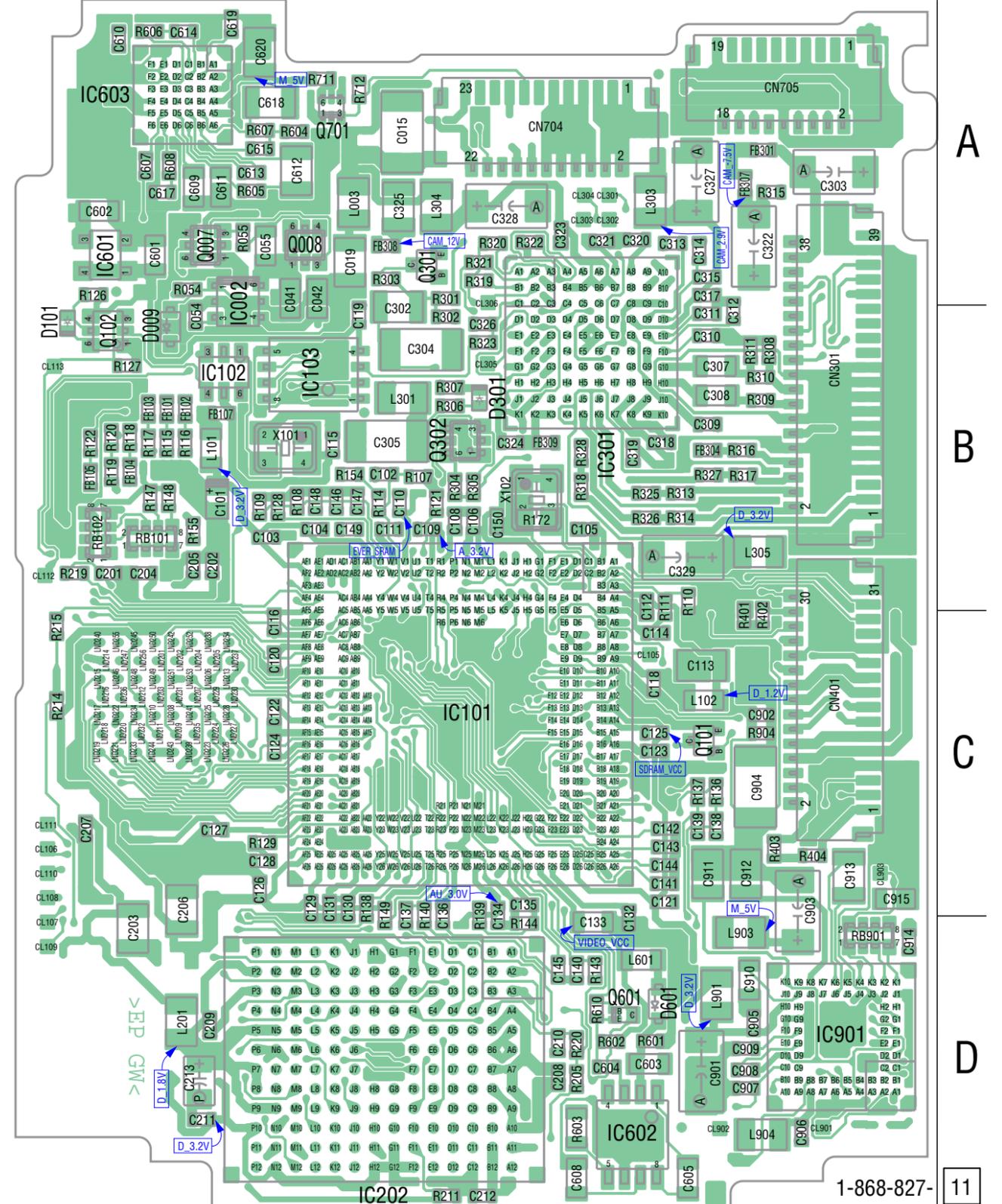


 : Uses unleaded solder.

# SY-156 BOARD (SIDE A)



# SY-156 BOARD (SIDE B)



Note: IC202 is not supplied, but this is included in SY-156 complete board.

## 4-3. PRINTED WIRING BOARDS

### 4-4. MOUNTED PARTS LOCATION

no mark : side A  
\* mark : side B

#### SY-156 BOARD

C001	A-2	* C307	B-1	* FB101	B-3	R053	B-2
C002	B-1	* C308	B-1	* FB102	B-3	* R054	A-3
C003	A-2	* C309	B-1	* FB103	B-3	* R055	A-3
C004	A-3	* C310	B-1	* FB104	B-3	* R107	B-2
C005	B-2	* C311	B-1	* FB105	B-3	* R108	B-3
C006	A-2	* C312	B-1	* FB107	B-3	* R111	B-1
C007	A-2	* C313	A-1	* FB301	A-1	* R114	B-2
C008	B-2	* C315	A-1	* FB304	B-1	* R115	B-3
C010	B-2	* C317	A-1	* FB307	A-1	* R116	B-3
C013	B-2	* C318	B-1	* FB308	A-2	* R117	B-3
C014	A-1	* C319	B-1	* FB309	B-2	* R118	B-3
* C015	A-2	* C320	A-1	FB701	A-2	* R119	B-3
C016	B-2	* C321	A-2	FB702	D-1	* R120	B-3
C017	A-2	* C322	A-1	FB703	D-1	* R122	B-3
C018	C-3	* C323	A-2			* R126	A-3
* C019	A-2	* C324	B-2	IC001	A-2	* R127	B-3
C020	B-2	* C325	A-2	* IC002	B-3	* R129	C-3
C021	A-3	* C326	B-2	* IC101	C-2	* R136	C-1
C022	C-3	* C327	A-1	* IC102	B-3	* R137	C-1
C023	A-2	* C328	A-2	* IC103	B-3	* R138	C-2
C024	C-3	* C329	B-1	* IC202	D-2	* R139	C-2
C025	B-3	C401	B-1	* IC301	B-2	* R140	C-2
C027	A-2	C403	B-1	IC401	B-1	* R143	D-2
C028	B-3	* C601	A-3	* IC601	A-3	* R144	D-2
C029	B-3	* C602	A-3	* IC602	D-1	* R147	B-3
C030	A-2	* C603	D-1	* IC603	A-3	* R148	B-3
C031	A-2	* C604	D-2	* IC901	D-1	* R155	B-3
C032	A-2	* C605	D-1			* R220	D-2
C035	B-3	* C607	A-3	L001	B-2	* R301	A-2
C036	B-2	* C608	D-2	L002	A-3	* R302	B-2
C040	A-3	* C609	A-3	* L003	A-2	* R303	A-2
* C041	A-3	* C610	A-3	L004	C-3	* R304	B-2
* C042	A-3	* C611	A-3	L005	A-2	* R305	B-2
C044	B-3	* C612	A-3	L006	B-3	* R306	B-2
C046	B-2	* C613	A-3	L007	B-3	* R307	B-2
C049	A-1	* C614	A-3	L009	A-3	* R309	B-1
C050	B-2	* C615	A-3	* L101	B-3	* R310	B-1
C051	B-2	* C617	A-3	* L102	C-1	* R313	B-1
* C054	B-3	* C618	A-3	* L201	D-3	* R314	B-1
* C055	A-3	* C619	A-3	* L301	B-2	* R315	A-1
* C101	B-3	* C620	A-3	* L303	A-1	* R316	B-1
* C103	B-3	C702	B-3	* L304	A-2	* R317	A-1
* C104	B-3	C703	D-3	* L305	B-1	* R318	B-2
* C105	B-2	C704	C-1	* L601	D-1	* R319	A-2
* C106	B-2	C705	C-3	* L901	D-1	* R320	A-2
* C108	B-2	* C901	D-1	* L903	D-1	* R321	A-2
* C109	B-2	* C903	D-1	* L904	D-1	* R322	A-2
* C110	B-2	* C905	D-1			* R323	B-2
* C111	B-2	* C906	D-1	Q001	B-1	* R325	B-1
* C112	B-1	* C908	D-1	Q002	A-1	* R326	B-1
* C113	C-1	* C909	D-1	Q003	B-3	* R327	B-1
* C114	C-1	* C911	C-1	Q004	B-3	* R328	B-2
* C115	B-2	* C912	C-1	Q005	C-3	* R401	C-1
* C116	C-3	* C913	C-1	Q006	A-3	* R402	C-1
* C118	C-1	* C914	D-1	* Q007	A-3	* R403	C-1
* C119	B-2	* C915	C-1	* Q008	A-3	* R404	C-1
* C120	C-3	C916	C-1	* Q102	B-3	R405	B-1
* C121	C-1	C918	C-1	* Q301	A-2	R406	B-1
* C122	C-3			* Q302	B-2	R408	B-1
* C125	C-1	* CN301	B-1	* Q701	A-2	* R601	D-1
* C127	C-3	* CN401	C-1			* R603	D-2
* C128	C-3	CN701	A-1	R001	A-2	* R604	A-3
* C129	C-3	CN702	D-1	R002	A-1	* R605	A-3
* C130	C-2	CN703	C-2	R004	A-1	* R606	A-3
* C131	C-2	* CN704	A-2	R005	A-1	* R607	A-3
* C132	D-1	* CN705	A-1	R007	A-3	* R608	A-3
* C133	D-2	CN901	C-1	R008	A-2	* R610	D-2
* C134	C-2			R009	A-2	R702	C-1
* C135	C-2	D001	A-1	R010	A-2	R705	D-1
* C136	C-2	D002	A-1	R011	A-2	R706	C-1
* C140	D-2	D003	A-1	R012	B-2	R707	C-1
* C143	C-1	D004	B-2	R013	B-2	R710	A-2
* C144	C-1	D005	C-3	R019	B-2	* R711	A-2
* C145	D-2	D008	B-2	R020	A-3	* R712	A-2
* C150	B-2	* D101	B-3	R023	B-3	* R904	C-1
* C208	D-2	* D301	B-2	R024	B-3	R910	C-1
* C209	D-3	* D601	D-1	R027	C-3		
* C211	D-3	D702	D-1	R028	A-2	* RB101	B-3
* C212	D-2	D901	C-1	R030	A-2	* RB102	B-3
* C213	D-3			R041	A-3	* RB901	D-1
* C302	B-2	F001	A-1	R048	A-2		
* C303	A-1	F002	A-1	R049	B-2	X001	A-2
* C304	B-2	F003	C-3	R050	B-2	* X101	B-3
* C305	B-2			R052	B-2	* X102	B-2

## 5. REPAIR PARTS LIST

**NOTE:**

- -XX, -X mean standardized parts, so they may have some differences from the original one.
- 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.
- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- CAPACITORS:  
uF:  $\mu$ F
- COILS  
uH:  $\mu$ H
- RESISTORS  
All resistors are in ohms.  
METAL: metal-film resistor  
METAL OXIDE: Metal Oxide-film resistor  
F: nonflammable
- SEMICONDUCTORS  
In each case, u:  $\mu$ , for example:  
uA...:  $\mu$ A... , uPA... ,  $\mu$ PA... ,  
uPB... ,  $\mu$ PB... ,  $\mu$ PC... ,  $\mu$ PC... ,  
uPD... ,  $\mu$ PD...
- Abbreviation  
AR : Argentine model  
AUS : Australian model  
BR : Brazilian model  
CH : Chinese model  
CND : Canadian model  
EE : East European model  
HK : Hong Kong model  
J : Japanese model  
JE : Tourist model  
KR : Korea model  
NE : North European model  
TW : Taiwan model

When indicating parts by reference number, please include the board name.

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

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

• **Language that can be selected about SY-156 board**

	Area	Japanese	English	French	German	Spanish	Italian	Portugal	Simplified Chinese	Traditional Chinese	Arabic	Dutch	Russian	Swedish	Korean	Norwegian	Danish	Finnish	Polish	Hungarian	Czech	Persian	Thai
GP1	J	●																					
GP2	US CND AUS Vietnam		●	●		●	●		●	●													
GP3	AEP UK		●	●	●	●	●	●				●	●	●		●	●	●	●	●	●		
GP4	E AR BR TW JE HK CH KR		●			●		●	●	●	●				●							●	●

**5-2. ELECTRICAL PARTS LIST**

Ref. No.	Part No.	Description
	A-1191-616-A	SY-156 BOARD, COMPLETE (SERVICE) (GP2)
	A-1191-617-A	SY-156 BOARD, COMPLETE (SERVICE) (GP3)
	A-1191-615-A	SY-156 BOARD, COMPLETE (SERVICE) (GP4)

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(Refer to the table of page 5-1 about language of SY-156 board.)

(IC202 is not supplied, but this is included in SY-156 complete board.)

< CAPACITOR >

C001	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C002	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C003	1-164-850-11	CERAMIC CHIP	10PF	0.5PF	50V
C004	1-164-852-11	CERAMIC CHIP	12PF	5%	50V
C005	1-165-908-11	CERAMIC CHIP	1uF	10%	10V
C006	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C007	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C008	1-115-467-11	CERAMIC CHIP	0.22uF	10%	10V
C010	1-100-966-91	CERAMIC CHIP	10uF	20%	10V
C013	1-115-467-11	CERAMIC CHIP	0.22uF	10%	10V
C014	1-100-735-91	CERAMIC CHIP	10uF	20%	4V
C015	1-100-881-91	CERAMIC CHIP	47uF	20%	6.3V
C016	1-100-611-91	CERAMIC CHIP	22uF	20%	6.3V
C017	1-100-506-91	CERAMIC CHIP	1uF	20%	6.3V
C018	1-100-506-91	CERAMIC CHIP	1uF	20%	6.3V
C019	1-100-611-91	CERAMIC CHIP	22uF	20%	6.3V
C020	1-164-933-11	CERAMIC CHIP	220PF	10%	50V
C021	1-137-710-11	CERAMIC CHIP	10uF	20%	6.3V
C022	1-100-591-91	CERAMIC CHIP	1uF	10%	25V
C023	1-100-506-91	CERAMIC CHIP	1uF	20%	6.3V
C024	1-100-566-91	CERAMIC CHIP	0.1uF	10%	25V
C025	1-125-837-91	CERAMIC CHIP	1uF	10%	6.3V
C027	1-100-735-91	CERAMIC CHIP	10uF	20%	4V
C028	1-137-710-11	CERAMIC CHIP	10uF	20%	6.3V
C029	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C030	1-107-819-11	CERAMIC CHIP	0.022uF	10%	16V
C031	1-125-837-91	CERAMIC CHIP	1uF	10%	6.3V
C032	1-100-735-91	CERAMIC CHIP	10uF	20%	4V
C035	1-100-506-91	CERAMIC CHIP	1uF	20%	6.3V
C036	1-100-671-11	CERAMIC CHIP	4.7uF	20%	25V
C040	1-100-670-11	CERAMIC CHIP	4.7uF	20%	16V
C041	1-100-352-91	CERAMIC CHIP	1uF	20%	16V
C042	1-100-352-91	CERAMIC CHIP	1uF	20%	16V
C044	1-165-908-11	CERAMIC CHIP	1uF	10%	10V
C046	1-164-937-11	CERAMIC CHIP	0.001uF	10%	50V
C049	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C050	1-164-935-11	CERAMIC CHIP	470PF	10%	50V
C051	1-119-923-11	CERAMIC CHIP	0.047uF	10%	10V
C054	1-164-943-81	CERAMIC CHIP	0.01uF	10%	16V
C055	1-127-715-91	CERAMIC CHIP	0.22uF	10%	16V
C101	1-100-962-91	TANTAL. CHIP	22uF		6.3V
C103	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C104	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C105	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C106	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C108	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C109	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C110	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C111	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V

Ref. No.	Part No.	Description			
C112	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C113	1-165-989-11	CERAMIC CHIP	10uF	10%	6.3V
C114	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C115	1-100-505-91	CERAMIC CHIP	0.1uF	20%	16V
C116	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C118	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C119	1-100-505-91	CERAMIC CHIP	0.1uF	20%	16V
C120	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C121	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C122	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C125	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C127	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C128	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C129	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C130	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C131	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C132	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C133	1-125-837-91	CERAMIC CHIP	1uF	10%	6.3V
C134	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C135	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C136	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C140	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C143	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C144	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C145	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C150	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C208	1-100-505-91	CERAMIC CHIP	0.1uF	20%	16V
C209	1-100-505-91	CERAMIC CHIP	0.1uF	20%	16V
C211	1-100-505-91	CERAMIC CHIP	0.1uF	20%	16V
C212	1-100-505-91	CERAMIC CHIP	0.1uF	20%	16V
C213	1-100-786-91	TANTAL. CHIP	22uF	20%	6.3V
C302	1-115-339-11	CERAMIC CHIP	0.1uF	10%	50V
C303	1-137-910-11	TANTAL. CHIP	10uF	20%	16V
C304	1-137-988-91	CERAMIC CHIP	1uF	10%	35V
C305	1-100-672-11	CERAMIC CHIP	10uF	20%	16V
C307	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C308	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C309	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C310	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C311	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C312	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C313	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C315	1-164-937-11	CERAMIC CHIP	0.001uF	10%	50V
C317	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C318	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C319	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C320	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C321	1-164-943-81	CERAMIC CHIP	0.01uF	10%	16V
C322	1-165-897-11	TANTAL. CHIP	22uF	20%	10V
C323	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C324	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C325	1-100-670-11	CERAMIC CHIP	4.7uF	20%	16V
C326	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C327	1-100-539-91	TANTAL. CHIP	47uF	20%	6.3V
C328	1-100-539-91	TANTAL. CHIP	47uF	20%	6.3V
C329	1-100-539-91	TANTAL. CHIP	47uF	20%	6.3V

Ref. No.	Part No.	Description	Ref. No.	Part No.	Description
C401	1-125-777-11	CERAMIC CHIP	D601	8-719-056-23	DIODE MA2S111-(K8).SO
C403	1-100-663-11	TANTAL. CHIP	D702	6-501-216-01	DIODE CL-271HR-C-TS (MS ACCESS)
C601	1-125-837-91	CERAMIC CHIP	D901	6-500-941-01	DIODE MAZS056008SO
C602	1-125-837-91	CERAMIC CHIP			< FUSE >
C603	1-100-735-91	CERAMIC CHIP	△F001	1-576-851-21	FUSE (2A/32V)
C604	1-100-506-91	CERAMIC CHIP	△F002	1-576-851-21	FUSE (2A/32V)
C605	1-125-837-91	CERAMIC CHIP	△F003	1-576-570-21	FUSE, MICRO (1608 TYPE) (0.63A/32V)
C607	1-125-777-11	CERAMIC CHIP			< FERRITE BEAD >
C608	1-125-837-91	CERAMIC CHIP	FB101	1-469-580-11	INDUCTOR, FERRITE BEAD (1005)
C609	1-125-837-91	CERAMIC CHIP	FB102	1-469-580-11	INDUCTOR, FERRITE BEAD (1005)
C610	1-100-506-91	CERAMIC CHIP	FB103	1-469-580-11	INDUCTOR, FERRITE BEAD (1005)
C611	1-164-227-11	CERAMIC CHIP	FB104	1-469-580-11	INDUCTOR, FERRITE BEAD (1005)
C612	1-107-725-11	CERAMIC CHIP	FB105	1-469-580-11	INDUCTOR, FERRITE BEAD (1005)
C613	1-164-943-81	CERAMIC CHIP	FB107	1-469-080-11	INDUCTOR, FERRITE BEAD (1005)
C614	1-164-943-81	CERAMIC CHIP	FB301	1-400-331-11	FERRITE, EMI (SMD) (1005)
C615	1-164-943-81	CERAMIC CHIP	FB304	1-400-620-21	INDUCTOR, FERRITE BEAD (1005)
C617	1-164-943-81	CERAMIC CHIP	FB307	1-400-331-11	FERRITE, EMI (SMD) (1005)
C618	1-137-710-11	CERAMIC CHIP	FB308	1-400-331-11	FERRITE, EMI (SMD) (1005)
C619	1-100-415-11	CERAMIC CHIP	FB309	1-400-331-11	FERRITE, EMI (SMD) (1005)
C620	1-165-989-11	CERAMIC CHIP	FB701	1-400-331-11	FERRITE, EMI (SMD) (1005)
C702	1-125-777-11	CERAMIC CHIP	FB702	1-469-581-21	INDUCTOR, FERRITE BEAD (1005)
C703	1-164-943-81	CERAMIC CHIP	FB703	1-469-581-21	INDUCTOR, FERRITE BEAD (1005)
C704	1-125-777-11	CERAMIC CHIP			< IC >
C705	1-125-777-11	CERAMIC CHIP	* IC001	6-709-120-01	IC SC901571VOR2
C901	1-100-539-91	TANTAL. CHIP	* IC002	6-709-332-01	IC TK70685HCL-G
C903	1-104-851-11	TANTAL. CHIP	* IC101	8-753-251-12	IC CXD3199GG-T6
C905	1-125-777-11	CERAMIC CHIP	* IC102	6-703-108-01	IC SN74LVC2G04DCKR
C906	1-100-506-91	CERAMIC CHIP	IC103	6-805-947-01	IC R5H30101NA01NS
C908	1-125-777-11	CERAMIC CHIP	* IC202	(Not supplied)	IC M6MGK4Z7B2ZGWG-1
C909	1-125-777-11	CERAMIC CHIP	* IC301	6-709-616-01	IC VSP00M21ZWDR
C911	1-137-710-11	CERAMIC CHIP	IC401	6-708-033-01	IC M63067WG-DF0T
C912	1-112-300-91	CERAMIC CHIP	* IC601	6-708-445-01	IC R1114Q291D-TR-FA
C913	1-127-760-11	CERAMIC CHIP	IC602	6-707-834-01	IC BH76812FVM-TR
C914	1-125-777-11	CERAMIC CHIP	IC603	6-707-336-01	IC BH6414GLU-E2
C915	1-115-467-11	CERAMIC CHIP	IC901	8-753-228-25	IC CXM3012GA-T2
C916	1-107-826-11	CERAMIC CHIP			< COIL >
C918	1-165-908-11	CERAMIC CHIP	L001	1-400-588-11	INDUCTOR 10uH
		< CONNECTOR >	L002	1-457-066-21	INDUCTOR 4.7uH
* CN301	1-817-942-51	CONNECTOR, FPC (ZIF) 39P	L003	1-400-676-11	INDUCTOR 22uH
* CN401	1-817-391-51	CONNECTOR, FPC (ZIF) 31P	L004	1-457-066-21	INDUCTOR 4.7uH
* CN701	1-816-645-51	FFC/FPC CONNECTOR (LIF) 14P	L005	1-456-995-22	INDUCTOR 4.7uH
* CN702	1-817-942-51	CONNECTOR, FPC (ZIF) 39P	L006	1-456-995-22	INDUCTOR 4.7uH
CN703	1-817-913-41	MEMORY STICK DUO CONNECTOR	L007	1-456-995-22	INDUCTOR 4.7uH
* CN704	1-819-659-51	CONNECTOR, FPC (ZIF) 23P	L009	1-456-995-22	INDUCTOR 4.7uH
* CN705	1-817-697-51	CONNECTOR, FPC (ZIF) 19P	L101	1-400-137-11	INDUCTOR 10uH
* CN901	1-818-818-51	CONNECTOR, FPC (ZIF) 29P	L102	1-400-137-11	INDUCTOR 10uH
		< DIODE >	L201	1-400-588-11	INDUCTOR 10uH
D001	8-719-069-29	DIODE RB520S-30TE61	L301	1-400-678-11	INDUCTOR 100uH
D002	8-719-056-59	DIODE MAZS120008SO	L303	1-400-588-11	INDUCTOR 10uH
D003	8-719-069-29	DIODE RB520S-30TE61	L304	1-400-588-11	INDUCTOR 10uH
D004	8-719-069-29	DIODE RB520S-30TE61	L305	1-400-675-11	INDUCTOR 10uH
D005	8-719-069-29	DIODE RB520S-30TE61	L601	1-400-137-11	INDUCTOR 10uH
D008	8-719-069-29	DIODE RB520S-30TE61	L901	1-400-588-11	INDUCTOR 10uH
D101	6-500-784-01	DIODE MA2611100ASO			
D301	6-501-106-01	DIODE 1SS387CT (TL3SONY)			

\* Refer to page 5-1 for mark △.

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Ref. No.	Part No.	Description			
L903	1-400-588-11	INDUCTOR	10uH		
L904	1-400-588-11	INDUCTOR	10uH		
< TRANSISTOR >					
Q001	8-729-047-68	TRANSISTOR	SSM3K03FE (TPL3)		
Q002	6-550-844-01	TRANSISTOR	FDW2508P/GNL		
Q003	8-729-056-01	TRANSISTOR	MCH3405-TL-E		
Q004	6-550-351-01	TRANSISTOR	CPH5812-S-TL-E		
Q005	6-551-304-01	TRANSISTOR	MTM231230LSO		
Q006	8-729-053-76	TRANSISTOR	CPH5802-TL-E-S		
Q007	6-550-508-01	TRANSISTOR	RN1907FE (TPLR3)		
Q008	6-550-509-01	TRANSISTOR	RN2907FE (TPLR3)		
Q102	6-551-345-01	TRANSISTOR	SSM6L16FE (TPLR3)		
Q301	6-550-119-01	TRANSISTOR	DTC144EMT2L		
Q302	8-729-054-47	TRANSISTOR	UP04213008S0		
* Q701	6-551-208-01	TRANSISTOR	RN1910AFS (TLR3SONY)		
< RESISTOR >					
R001	1-218-961-11	RES-CHIP	4.7K	5%	1/16W
R002	1-218-985-11	RES-CHIP	470K	5%	1/16W
R004	1-218-985-11	RES-CHIP	470K	5%	1/16W
R005	1-218-989-11	RES-CHIP	1M	5%	1/16W
R007	1-218-983-11	RES-CHIP	330K	5%	1/16W
R008	1-218-953-11	RES-CHIP	1K	5%	1/16W
R009	1-218-953-11	RES-CHIP	1K	5%	1/16W
R010	1-245-604-11	METAL CHIP	10M	5%	1/16W
R011	1-218-990-81	SHORT CHIP	0		
R012	1-218-935-11	RES-CHIP	33	5%	1/16W
R013	1-218-949-11	RES-CHIP	470	5%	1/16W
R019	1-218-990-81	SHORT CHIP	0		
R020	1-211-969-11	METAL CHIP	10	0.5%	1/10W
R023	1-218-929-11	RES-CHIP	10	5%	1/16W
R024	1-218-935-11	RES-CHIP	33	5%	1/16W
R027	1-218-977-11	RES-CHIP	100K	5%	1/16W
R028	1-218-989-11	RES-CHIP	1M	5%	1/16W
R030	1-208-935-11	METAL CHIP	100K	0.5%	1/16W
R041	1-218-929-11	RES-CHIP	10	5%	1/16W
R048	1-218-990-81	SHORT CHIP	0		
R049	1-208-927-11	METAL CHIP	47K	0.5%	1/16W
R050	1-208-911-11	METAL CHIP	10K	0.5%	1/16W
R052	1-208-911-11	METAL CHIP	10K	0.5%	1/16W
R053	1-218-989-11	RES-CHIP	1M	5%	1/16W
R054	1-218-977-11	RES-CHIP	100K	5%	1/16W
R055	1-218-974-11	RES-CHIP	56K	5%	1/16W
R107	1-218-985-11	RES-CHIP	470K	5%	1/16W
R108	1-208-679-11	METAL CHIP	680	0.5%	1/16W
R111	1-218-990-81	SHORT CHIP	0		
R114	1-218-973-11	RES-CHIP	47K	5%	1/16W
R115	1-218-941-81	RES-CHIP	100	5%	1/16W
R116	1-218-941-81	RES-CHIP	100	5%	1/16W
R117	1-218-941-81	RES-CHIP	100	5%	1/16W
R118	1-218-941-81	RES-CHIP	100	5%	1/16W
R119	1-218-990-81	SHORT CHIP	0		
R120	1-218-941-81	RES-CHIP	100	5%	1/16W
R122	1-218-941-81	RES-CHIP	100	5%	1/16W
R126	1-218-973-11	RES-CHIP	47K	5%	1/16W
R127	1-218-973-11	RES-CHIP	47K	5%	1/16W
R129	1-218-965-11	RES-CHIP	10K	5%	1/16W

Ref. No.	Part No.	Description			
R136	1-218-953-11	RES-CHIP	1K	5%	1/16W
R137	1-218-953-11	RES-CHIP	1K	5%	1/16W
R138	1-218-957-11	RES-CHIP	2.2K	5%	1/16W
R139	1-208-935-11	METAL CHIP	100K	0.5%	1/16W
R140	1-218-990-81	SHORT CHIP	0		
R143	1-218-973-11	RES-CHIP	47K	5%	1/16W
R144	1-208-943-11	METAL CHIP	220K	0.5%	1/16W
R147	1-218-969-11	RES-CHIP	22K	5%	1/16W
R148	1-218-969-11	RES-CHIP	22K	5%	1/16W
R155	1-218-953-11	RES-CHIP	1K	5%	1/16W
R220	1-218-990-81	SHORT CHIP	0		
R301	1-218-990-81	SHORT CHIP	0		
R302	1-218-989-11	RES-CHIP	1M	5%	1/16W
R303	1-218-981-11	RES-CHIP	220K	5%	1/16W
R304	1-218-959-11	RES-CHIP	3.3K	5%	1/16W
R305	1-218-956-11	RES-CHIP	1.8K	5%	1/16W
R306	1-218-990-81	SHORT CHIP	0		
R307	1-218-977-11	RES-CHIP	100K	5%	1/16W
R309	1-218-990-81	SHORT CHIP	0		
R310	1-218-990-81	SHORT CHIP	0		
R313	1-220-803-81	RES-CHIP	4.7	5%	1/16W
R314	1-220-803-81	RES-CHIP	4.7	5%	1/16W
R315	1-218-977-11	RES-CHIP	100K	5%	1/16W
R316	1-218-937-11	RES-CHIP	47	5%	1/16W
R317	1-220-803-81	RES-CHIP	4.7	5%	1/16W
R318	1-220-803-81	RES-CHIP	4.7	5%	1/16W
R319	1-218-990-81	SHORT CHIP	0		
R320	1-218-990-81	SHORT CHIP	0		
R321	1-218-990-81	SHORT CHIP	0		
R322	1-218-941-81	RES-CHIP	100	5%	1/16W
R323	1-218-953-11	RES-CHIP	1K	5%	1/16W
R325	1-218-990-81	SHORT CHIP	0		
R326	1-218-990-81	SHORT CHIP	0		
R327	1-218-990-81	SHORT CHIP	0		
R328	1-218-990-81	SHORT CHIP	0		
R401	1-218-948-11	RES-CHIP	390	5%	1/16W
R402	1-218-948-11	RES-CHIP	390	5%	1/16W
R403	1-218-948-11	RES-CHIP	390	5%	1/16W
R404	1-218-948-11	RES-CHIP	390	5%	1/16W
R405	1-245-558-11	METAL CHIP	2.5	0.5%	1/2W
R406	1-208-893-11	METAL CHIP	1.8K	0.5%	1/16W
R408	1-208-910-11	METAL CHIP	9.1K	0.5%	1/16W
R601	1-218-929-11	RES-CHIP	10	5%	1/16W
R603	1-216-807-11	METAL CHIP	68	5%	1/10W
R604	1-218-948-11	RES-CHIP	390	5%	1/16W
R605	1-218-985-11	RES-CHIP	470K	5%	1/16W
R606	1-218-966-11	RES-CHIP	12K	5%	1/16W
R607	1-218-956-11	RES-CHIP	1.8K	5%	1/16W
R608	1-218-959-11	RES-CHIP	3.3K	5%	1/16W
R610	1-218-990-81	SHORT CHIP	0		
△ R702	1-218-965-11	RES-CHIP	10K	5%	1/16W
R705	1-218-951-11	RES-CHIP	680	5%	1/16W
R706	1-218-990-81	SHORT CHIP	0		
R707	1-218-990-81	SHORT CHIP	0		
R710	1-218-953-11	RES-CHIP	1K	5%	1/16W
R711	1-218-969-11	RES-CHIP	22K	5%	1/16W
R712	1-218-945-11	RES-CHIP	220	5%	1/16W

• Refer to page 5-1 for mark △.

<u>Ref. No.</u>	<u>Part No.</u>	<u>Description</u>			
R904	1-218-975-11	RES-CHIP	68K	5%	1/16W
R910	1-218-989-11	RES-CHIP	1M	5%	1/16W

< COMPOSITION CIRCUIT BLOCK >

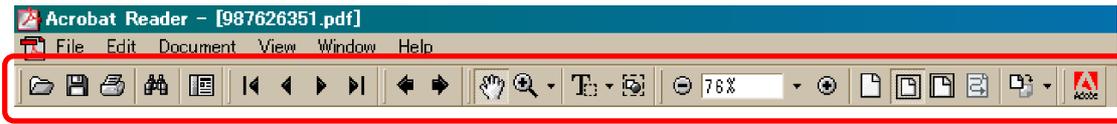
RB101	1-234-375-21	RES, NETWORK	1K (1005X4)
RB102	1-234-378-21	RES, NETWORK	10K (1005X4)
RB901	1-234-369-21	RES, NETWORK	10 (1005X4)

< VIBRATOR >

* X001	1-795-029-31	VIBRATOR, CRYSTAL (32.768kHz)
X101	1-813-403-41	QUARTZ CRYSTAL OSCILLATOR (12MHz)
* X102	1-813-712-21	QUARTZ CRYSTAL OSCILLATOR (33.75MHz)



**[Description of main button functions on toolbar of the Adobe Acrobat Reader Ver5.0 (for Windows)]**



Toolbar

**Printing a text**

1. Click the Print button .
2. Specify a printer, print range, number of copies, and other options, and then click [OK].

**Application of printing:**

To set a range to be printed within a page, select the graphic selection tool  and drag on the page to enclose a range to be printed, and then click the Print button.

**Reversing the screens displayed once**

- To reverse the previous screens (operation) one by one, click the .
- To advance the reversed screens (operation) one by one, click the .

**Application to the Service Manual:**

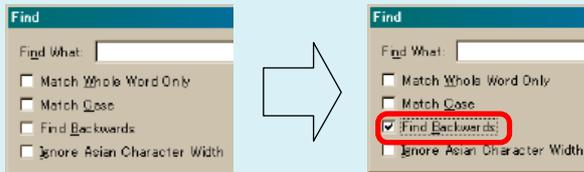
This function allows you to go and back between circuit diagram and printed circuit board diagram, and accordingly it will be convenient for the voltage check.

**Finding a text**

1. Click the Find button .
2. Enter a character string to be found into a text box, and click the [Find]. (Specify the find options as necessary)

**Application to the Service Manual:**

To execute “find” from current page toward the previous pages, select the check box “Find Backward” and then click the “Find”.



3. Open the find dialog box again, and click the [Find Again] and you can find the matched character strings displayed next. (Character strings entered previously are displayed as they are in the text box.)

**Application to the Service Manual:**

The parts on the drawing pages (block diagrams, circuit diagrams, printed circuit boards) and parts list pages in a text can be found using this find function. For example, find a Ref. No. of IC on the block diagram, and click the [Find Again] continuously, so that you can move to the Ref. No. of IC on the circuit diagram or printed circuit board diagram successively.

**Note:** The find function may not be applied to the Service Manual depending on the date of issue.

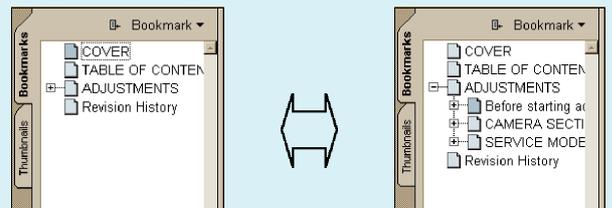
**Moving with link**

1. Select either palm tool , zoom tool , text selection tool , or graphic selection tool .
2. Place the pointer in the position in a text where the link exists (such as a button on cover and the table of contents page, or blue characters on the removal flowchart page or drawing page), and the pointer will change to the forefinger form .
3. Then, click the link. (You will go to the link destination.)

**Moving with bookmark:**

Click an item (text) on the bookmark pallet. and you can move to the link destination. Also, clicking  can display the hidden items.

(To go back to original state, click )



**Zooming or rotating the screen display**

**“Zoom in/out”**

- Click the triangle button in the zoom control box to select the display magnification. Or, you may click  or  for zooming in or out.



**“Rotate”**

- Click rotate tool , and the page then rotates 90 degrees each.

**Application to the Service Manual:**

The printed circuit board diagram you see now can be changed to the same direction as the set.

**Switching a page**

- To move to the first page, click the .
- To move to the last page, click the .
- To move to the previous page, click the .
- To move to the next page, click the .

# Revision History

Ver.	Date	History	Contents	S.M. Rev. issued
1.0	2006.03	Official Release	—	—