Review of Previous Seminar
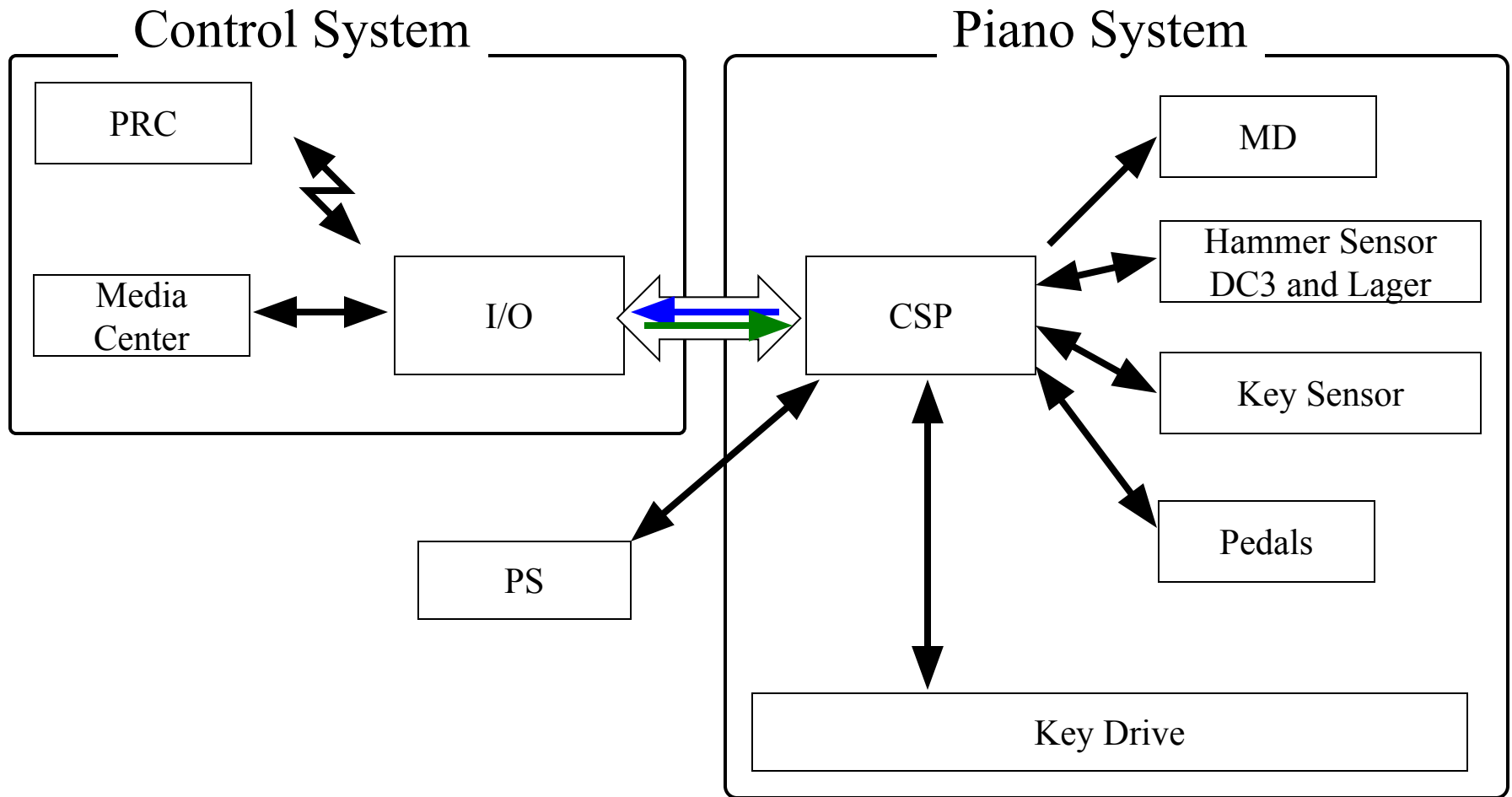
1. Overall diagram

2. Boot up sequence

3. Tools for servicing
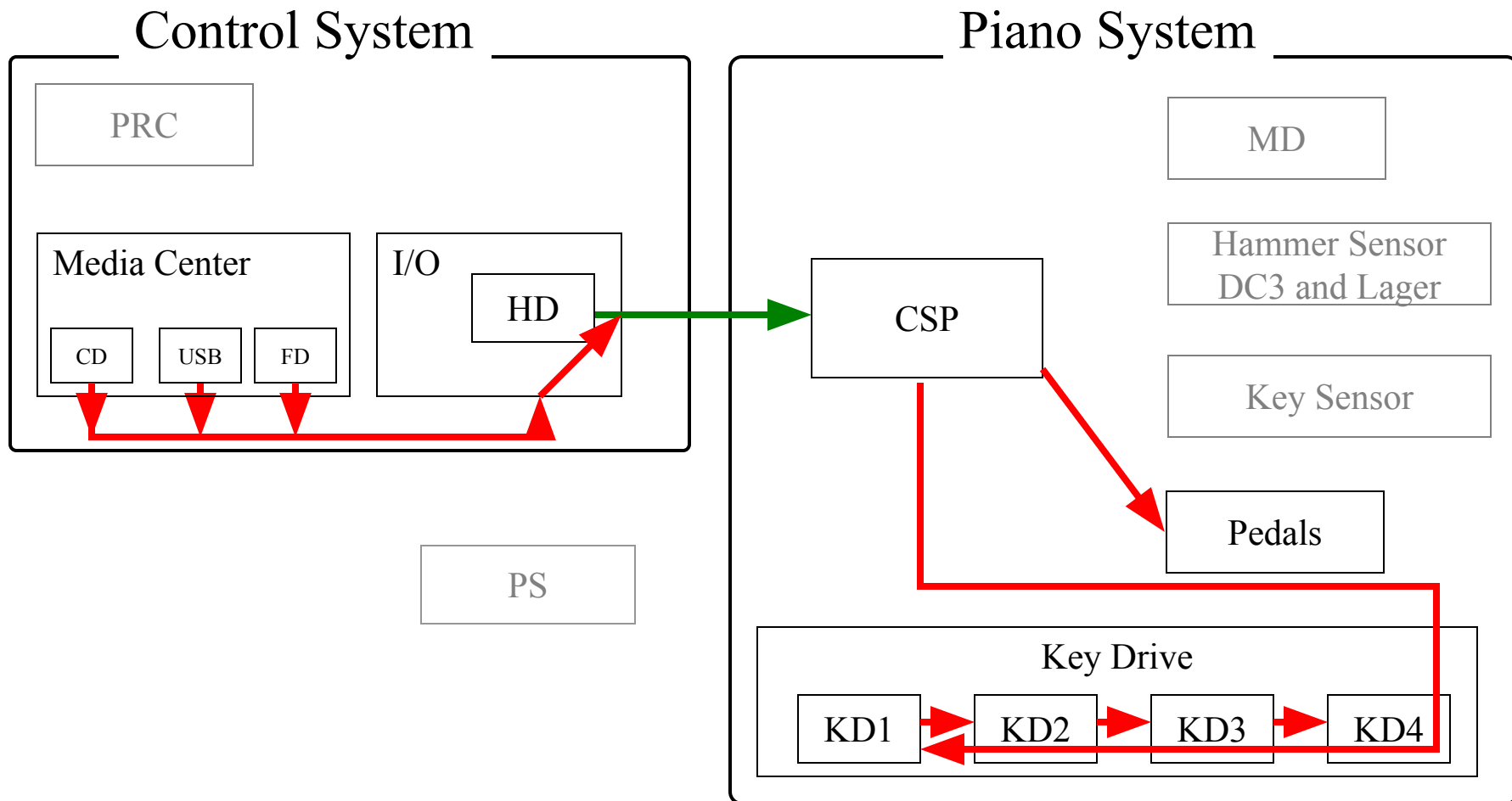
YCJ E.P.S.D. (CS planning div.) Yokoyama Sep.27

Overall Diagram

Control System

PRC

Media Center

I/O

PS

Piano System

MD

Hammer Sensor DC3 and Lager

CSP

Key Sensor

Pedals

Key Drive

Record Flow Chart

Control System

PRC

Media Center

CD   USB   FD

I/O

HD

Piano System

MD

CSP

Hammer Sensor
DC3 and Lager

Key Sensor

Pedals

Key Drive

PS

→ Record Signal

→ Save Only

Playback Flow Chart

Control System

PRC

Media Center

| CD | USB | FD |

I/O

HD

Piano System

MD

Hammer Sensor
DC3 and Lager

CSP

Key Sensor

Pedals

PS

Key Drive

| KD1 | KD2 | KD3 | KD4 |

Quiet Mode Flow Chart

Operation System

PRC

Media Center
🔵 Quiet

I/O

PS

Piano System

MD

Hammer Sensor DC3 and Lager

CSP

Key Sensor

Pedals

Key Drive

→ Control Signal

Boot up Sequence

Boot Procedure 0

PRC

MD

No Power

No Power

Hammer Sensor
DC3 and Lager

Media Center

⟷

I/O

CSP

Key Sensor

PS

Pedals

Key Drive

Boot Procedure 1

PRC

MD

Booting

Standby

Hammer Sensor
DC3 and Lager

Media
Center

I/O

CSP

Key Sensor

Green LED blinks

Pedals

PS

5VSB

AC100V

Key Drive

Boot Procedure 2

PRC

MD

Standby

Standby

Media Center

I/O

CSP

Hammer Sensor DC3 and Lager

Green LED dims

Key Sensor

PS

Pedals

5VSB

AC100V

Key Drive

Boot Procedure 3

PRC

MD

Active

Booting

Hammer Sensor
DC3 and Lager

Media Center

I/O

CSP

Key Sensor

Green LED lights

PS

Pedals

SPDIF Clock

Active Signal

Key Drive

Boot Procedure 4

PRC

Active

Active

Media Center

Green LED lights

I/O

CSP

MD

Hammer Sensor DC3 and Lager

Key Sensor

Pedals

PS

12V

Key Drive

Boot Procedure 5

PRC

Active

Active

Negotiation

Media Center

I/O

CSP

MD

Hammer Sensor DC3 and Lager

Key Sensor

Pedals

PS

Green LED lights

Communication

Key Drive

Boot Procedure 6

PRC

Active

Media Center

Green LED lights

I/O

Normal

Active

CSP

MD

Hammer Sensor DC3 and Lager

Key Sensor

Pedals
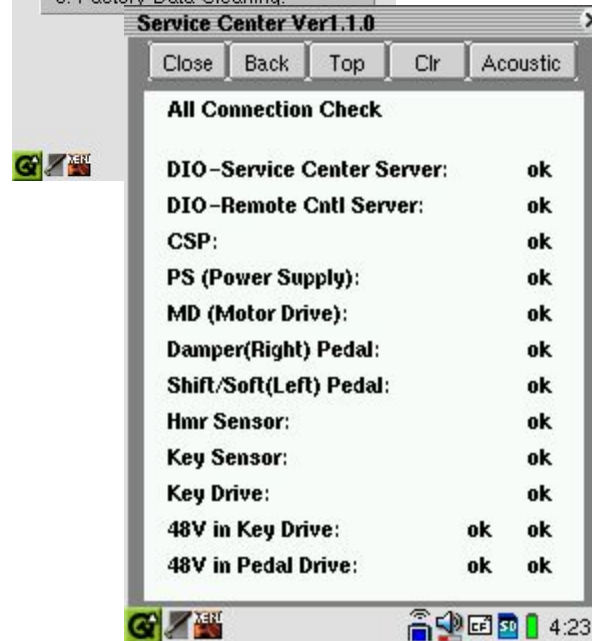
PS

48V

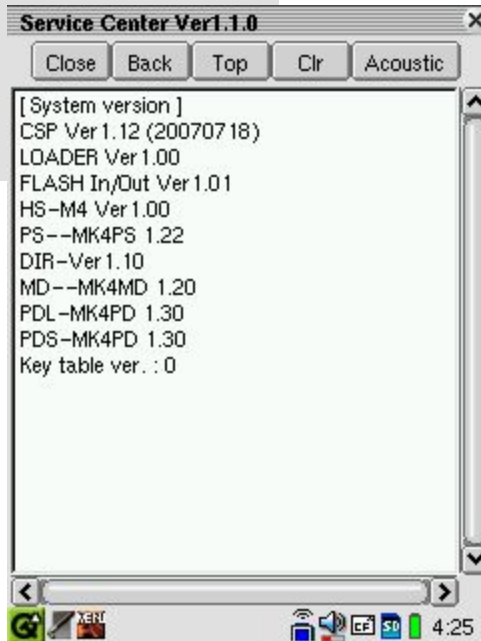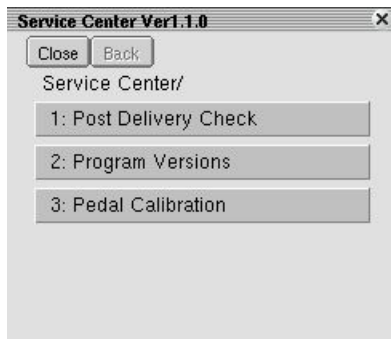Key Drive

Tools for Servicing

1. Maintenance Mode

2. LED Diagnostics

3. Start up Message of I/O Center

How to Enter Maintenance Mode
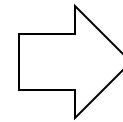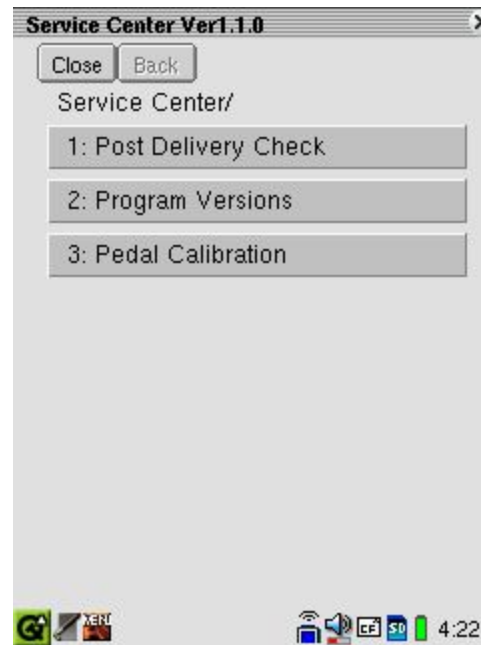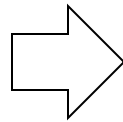
Press and hold keys [D], [M], and [P] in sequence within a second.

Important Maintenance Mode

Service Center Ver1.1.0 ✕

Close | Back

Service Center/

1: Post Delivery Check

2: Program Versions

3: Pedal Calibration

Service Center Ver1.1.0 ✕

Close | Back | Top | Clr | Acoustic

Maintenance Mode/

1: Check All Connection.

2: Disklavier Piano System/

3: <Database>/

4: Disklavier Control System/

5: Audio Thru.

6: Factory Data Cleaning.

Service Center Ver1.1.0 ✕

Close | Back | Top | Clr | Acoustic

Disklavier Control System/

1: Controller Testmode.

2: Controller I/O Check.

3: Controller Test Play.

Service Center Ver1.1.0 ✕

Close | Back | Top | Clr | Acoustic

```
[ System version ]
CSP Ver 1.12 (20070718)
LOADER Ver 1.00
FLASH In/Out Ver 1.01
HS-M4 Ver 1.00
PS--MK4PS 1.22
DIR-Ver 1.10
MD--MK4MD 1.20
PDL-MK4PD 1.30
PDS-MK4PD 1.30
Key table ver. : 0
```

4:25

Service Center Ver1.1.0 ✕

Close | Back | Top | Clr | Acoustic

All Connection Check

DIO-Service Center Server:		ok
DIO-Remote Cntl Server:		ok
CSP:		ok
PS (Power Supply):		ok
MD (Motor Drive):		ok
Damper(Right) Pedal:		ok
Shift/Soft(Left) Pedal:		ok
Hmr Sensor:		ok
Key Sensor:		ok
Key Drive:		ok
48V in Key Drive:	ok	ok
48V in Pedal Drive:	ok	ok

4:23

Service Center Ver1.1.0 ✕

Close | Back | Top | Clr | Acoustic

```
1: Motherboard and Mediacenter
2: Synthesizer card
3: Audio process card
q: End
>
```

4:26

Failure Diagnostics Using LED

1.PS Unit

2.CSP Unit

LED on the PS Unit

| Ref No.	Printed	What	Normal		
LD10 (1)	CPU ACTIVE	CPU running state	**Lighting/Blinking pattern**		
			① Piano Standby Status		once / 3sec
			② Time elapsing from status 1 to status 3.		Fast blinking
			③ On Status		once /1.5sec
			� 2 times /3 sec blinking or more during abnormal time.		
LD11 (2)	---	Power 5VSB (standby) output on	Lighting (green) When primary SW is ON,5VSB is alive. NOTE: In override mode,it is orange. ●(override mode is made by pushing the Test SW, and Primary SW ON))		
LD5 (3)	+12VOUT	12V output	Lighting (green)		
LD3 (4)	+48VIN	48V output	Lighting (red) When some errors occured,system will shutdown 48V intet. � Off during abnormal time, but it takes some time until the LED is turned off because a large-volume chemical capacitor is connected.		

PS Unit

*(Test SW)

1 2 3 4

2004.Aug
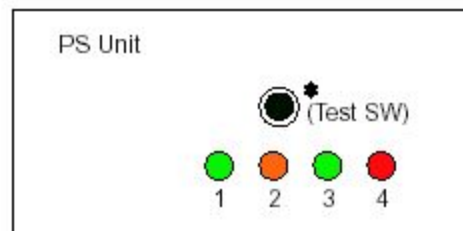
LED on the CSP

Ref No.	Printed	What	Normal
LD1	12Von		Lighting (green)
LD2	5VSBon		Lighting (green)
LD3	---		Lighting (green)
			Program started at DSP on CSP.
LD4	---		Blinking (green)
			Data on start-up is exchanged between CSP and other units.
			Lighting (green)
			Above-mentioned data exchange is completed.
LD6	---	For design	
LD9	DSPrun		Blinking (green)
			DSP on CSP is working normally.
LD10	DIR-H8run		Blinking with shorter light on time (green)
			No signal is coming from I/O center. Power of the piano is turned off.
			Blinking with the same lighting time as the extinguished time (light on time and light off time are 50%/50%) (green)
			Receiving signal from I/O center. Power of the piano is turned on.
LD12	3.3VSBon	+3.3VSB	Lighting (green)
LD13	5Von	+5V	Lighting (green)
LD14	3.3Von	+3.3V	Lighting (green)
LD15	1.26Von	+1.26V	Lighting (green)
LD16	DIR-ALIVE	For design	

CSP Board (Component Side)
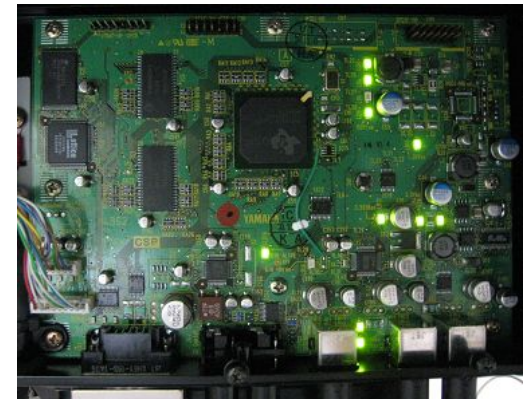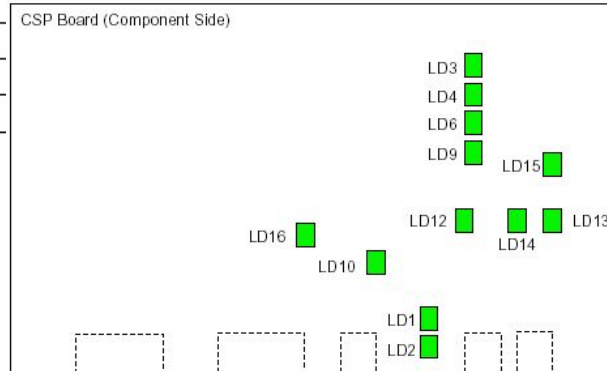
Start up message of I/O Center
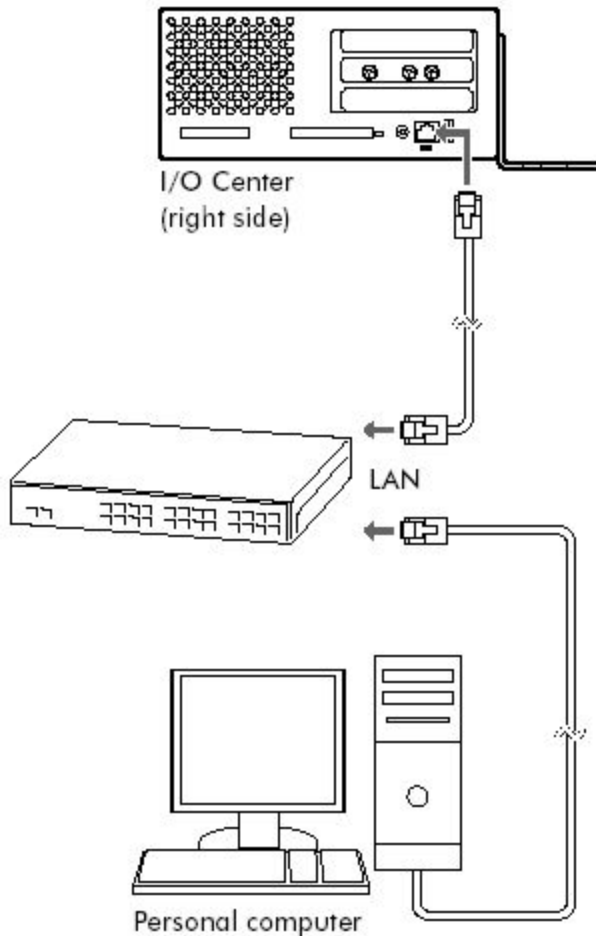
Connection with I/O Center
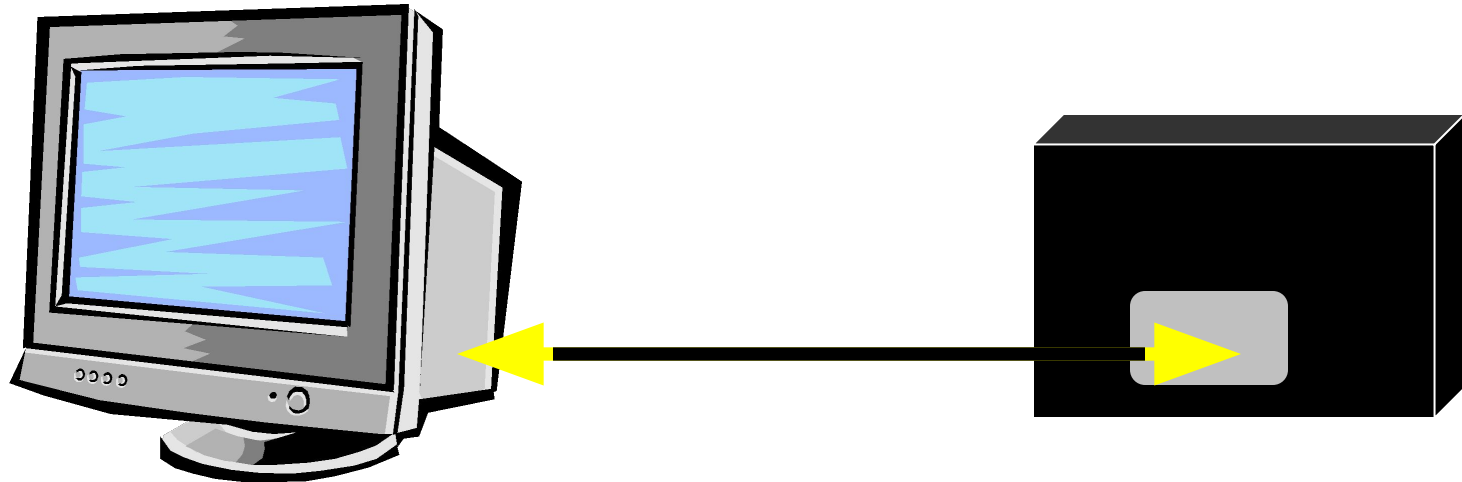
RGB cable or RCA cable

Thank you for your attention

Let's have a 15min break.

From/To PC

From/To PC

- Connect the I/O Center to a LAN
- [Start] -> [My Network Places]
- Open [DKV****] folder.
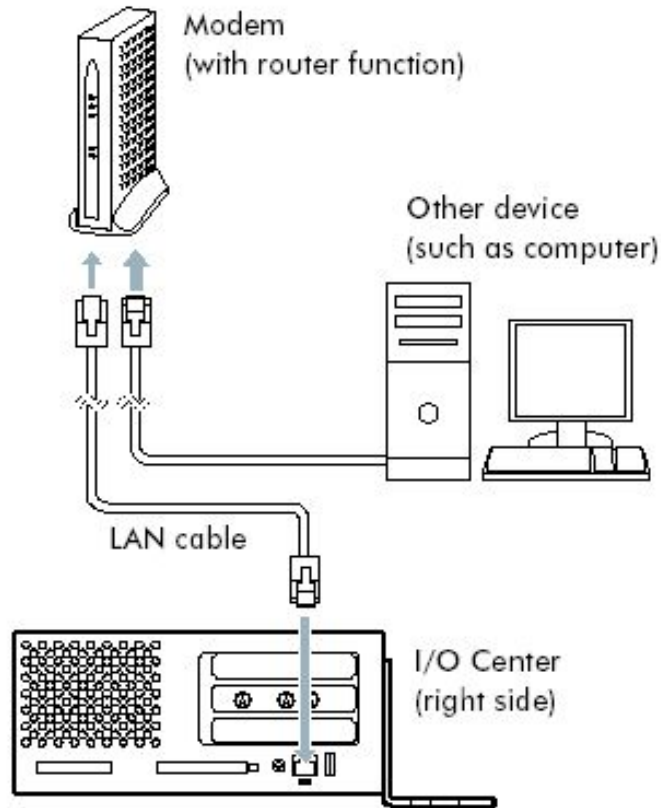- Copy the song files to [FromToPC] folder

Basic Internet Connection

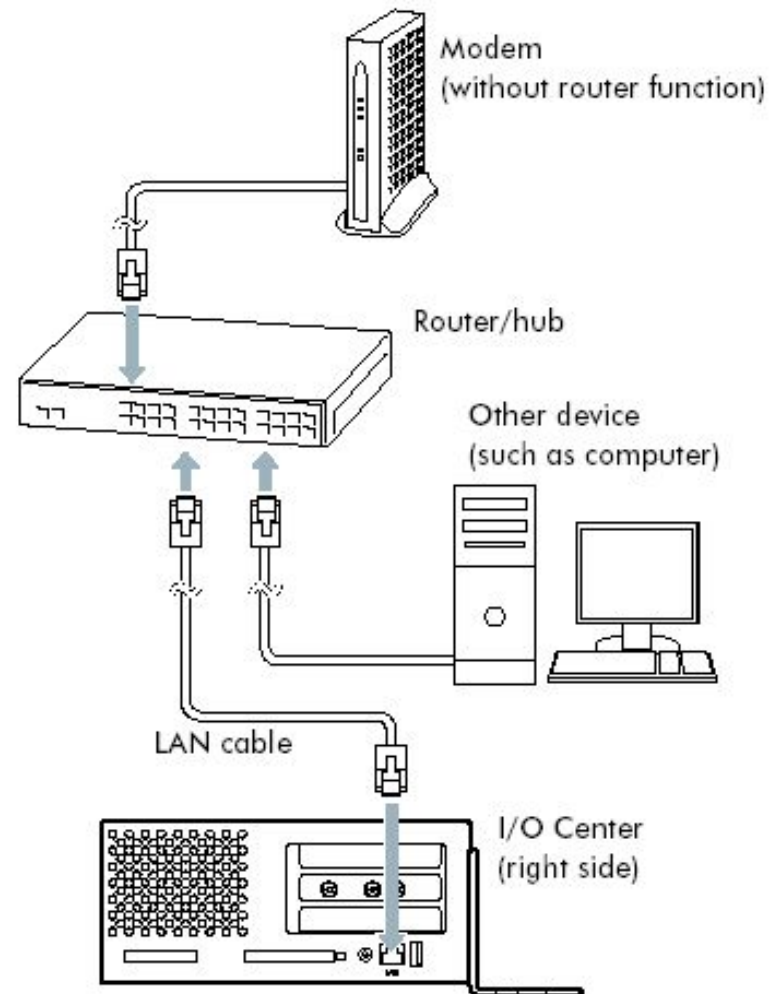# Connecting the Disklavier to the Internet
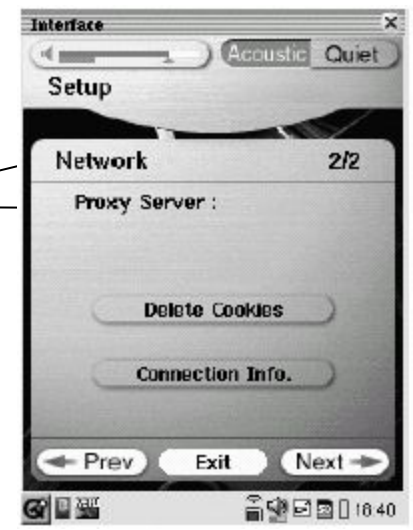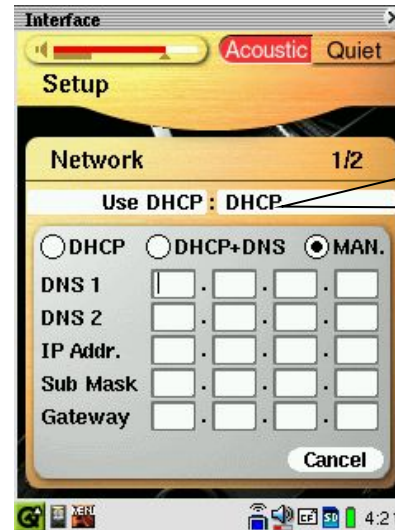
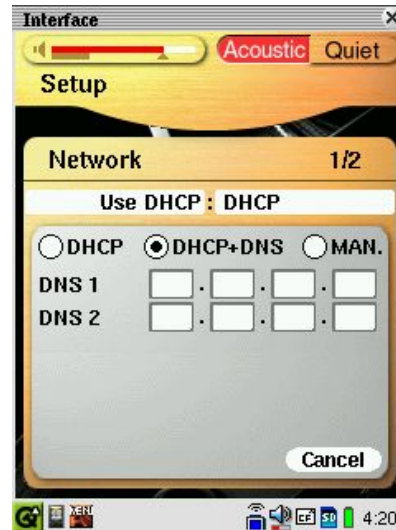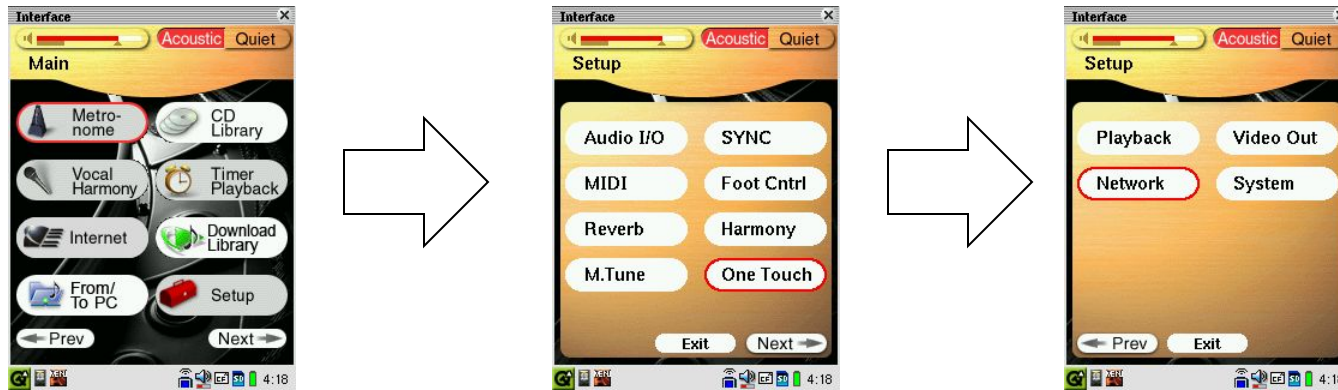**Connection example 1:**

Using a modem with router function

Modem
(with router function)

Other device
(such as computer)

LAN cable

I/O Center
(right side)

Connection example 2:

Using a modem without router function

Modem
(without router function)

Router/hub

Other device
(such as computer)

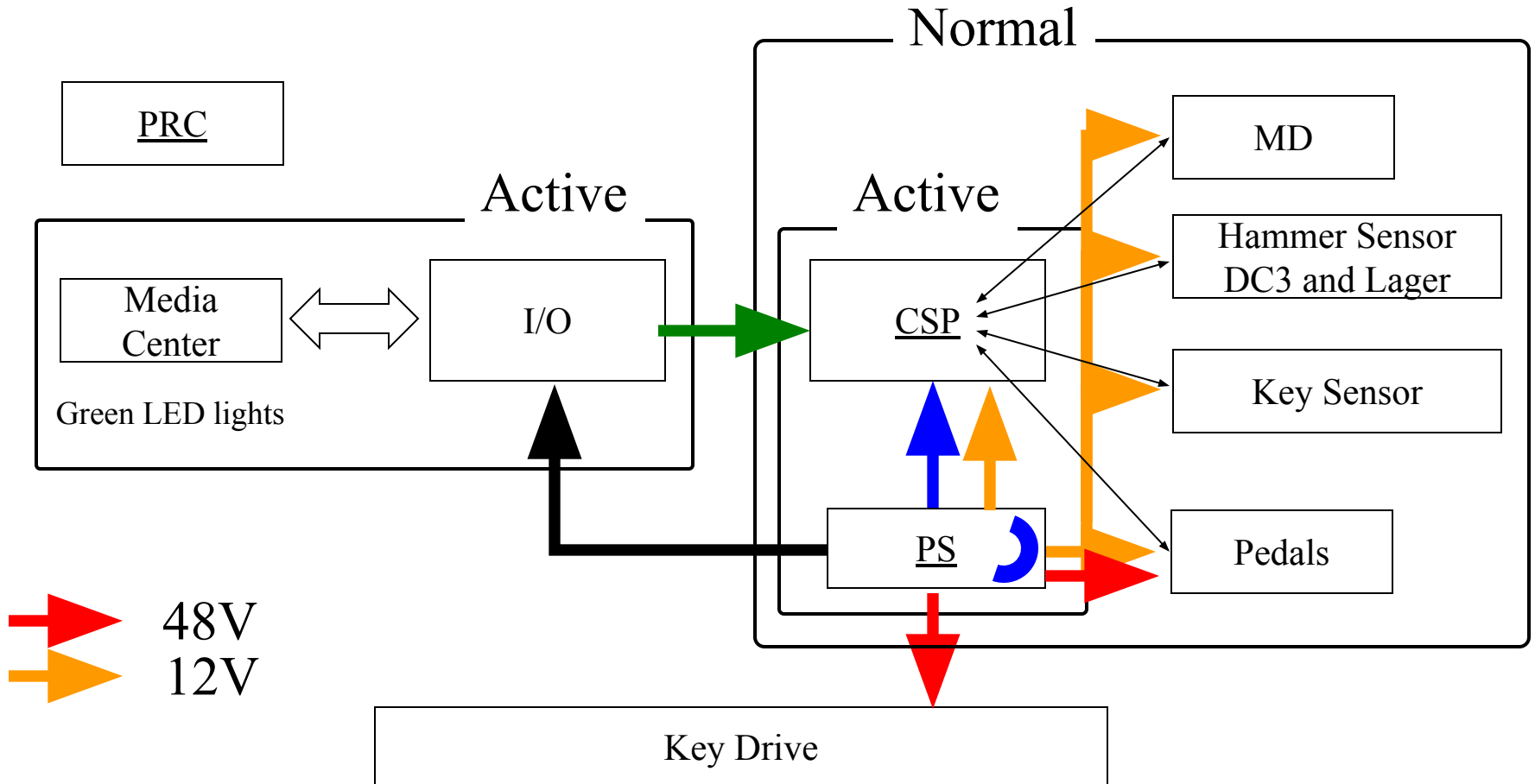LAN cable

I/O Center
(right side)

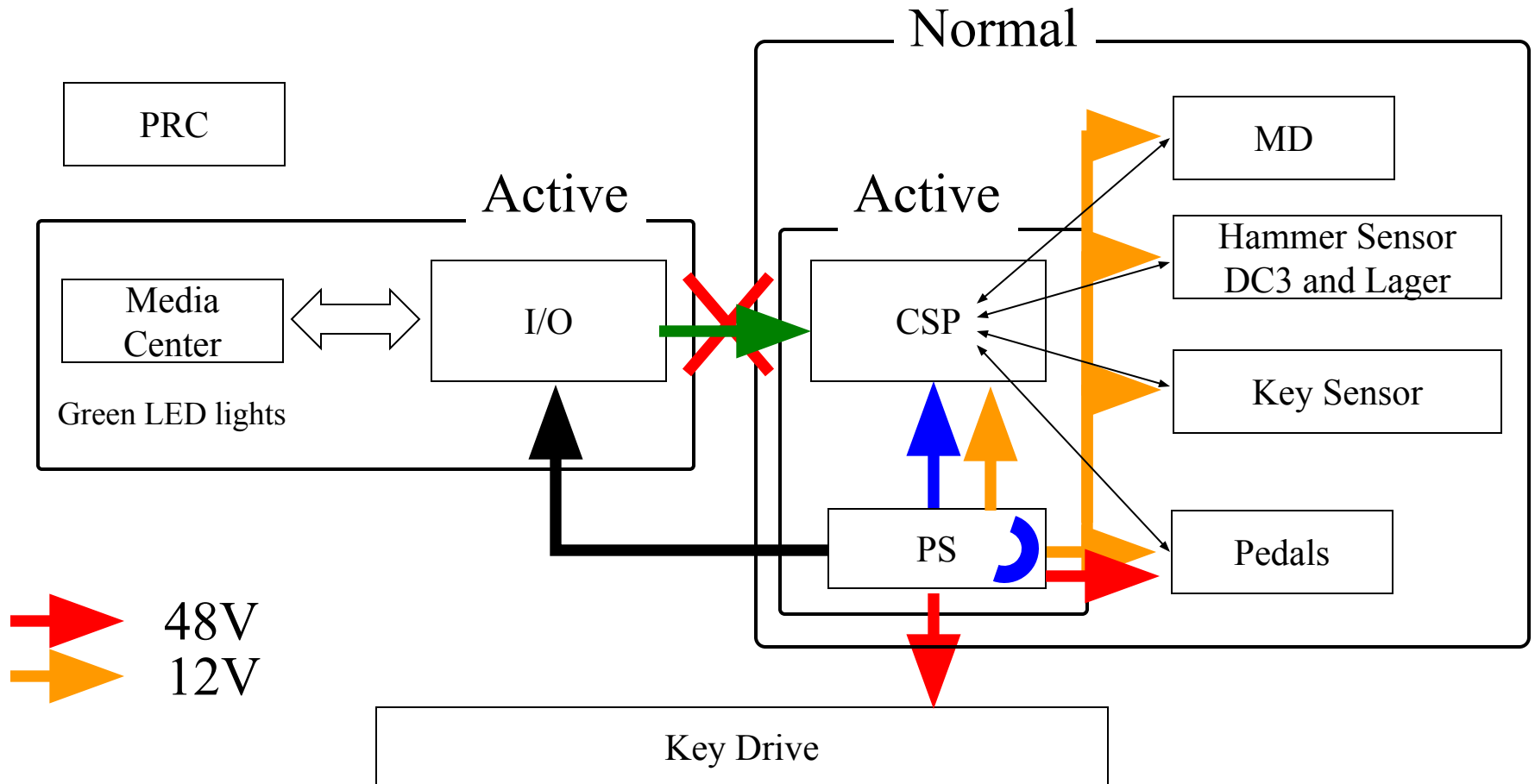# Setting Up the Disklavier for Internet Connection

Field Case Analysis

- I/O - No booting up
- No Disklavier
  - No Recording, No Playback, No Quiet Mode
- Power Supply (PS) - click noise
- PRC - unresponsive touch screen
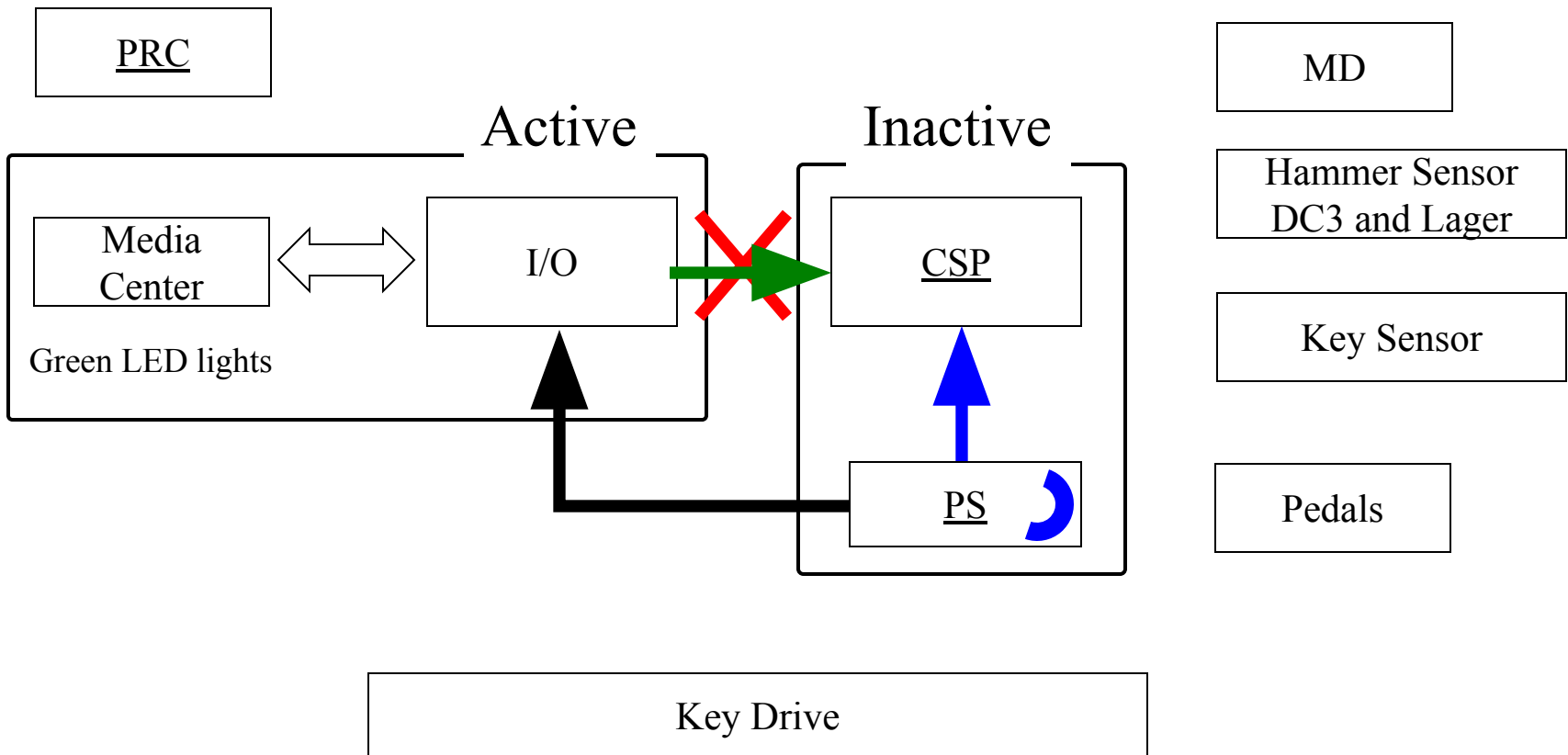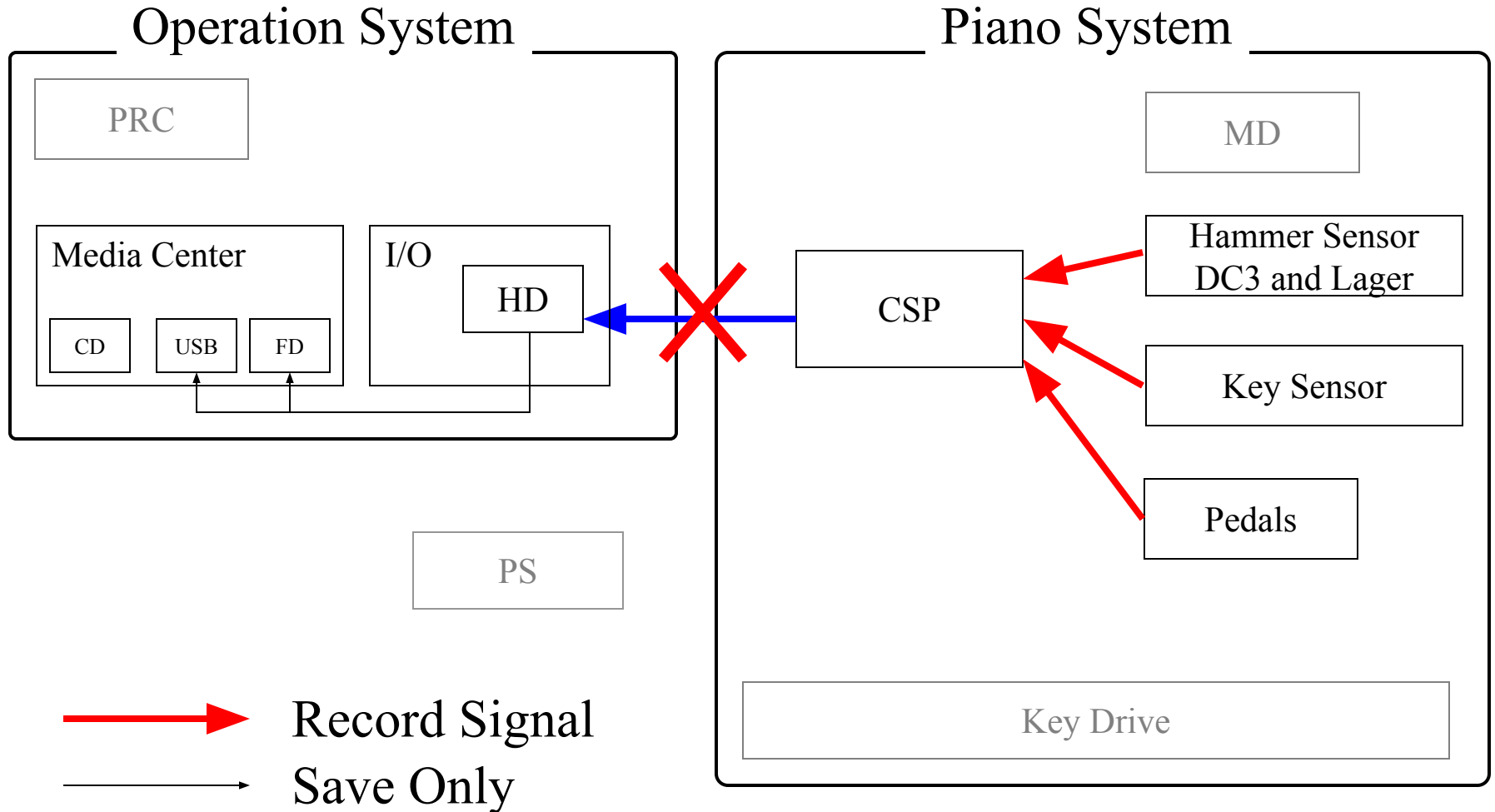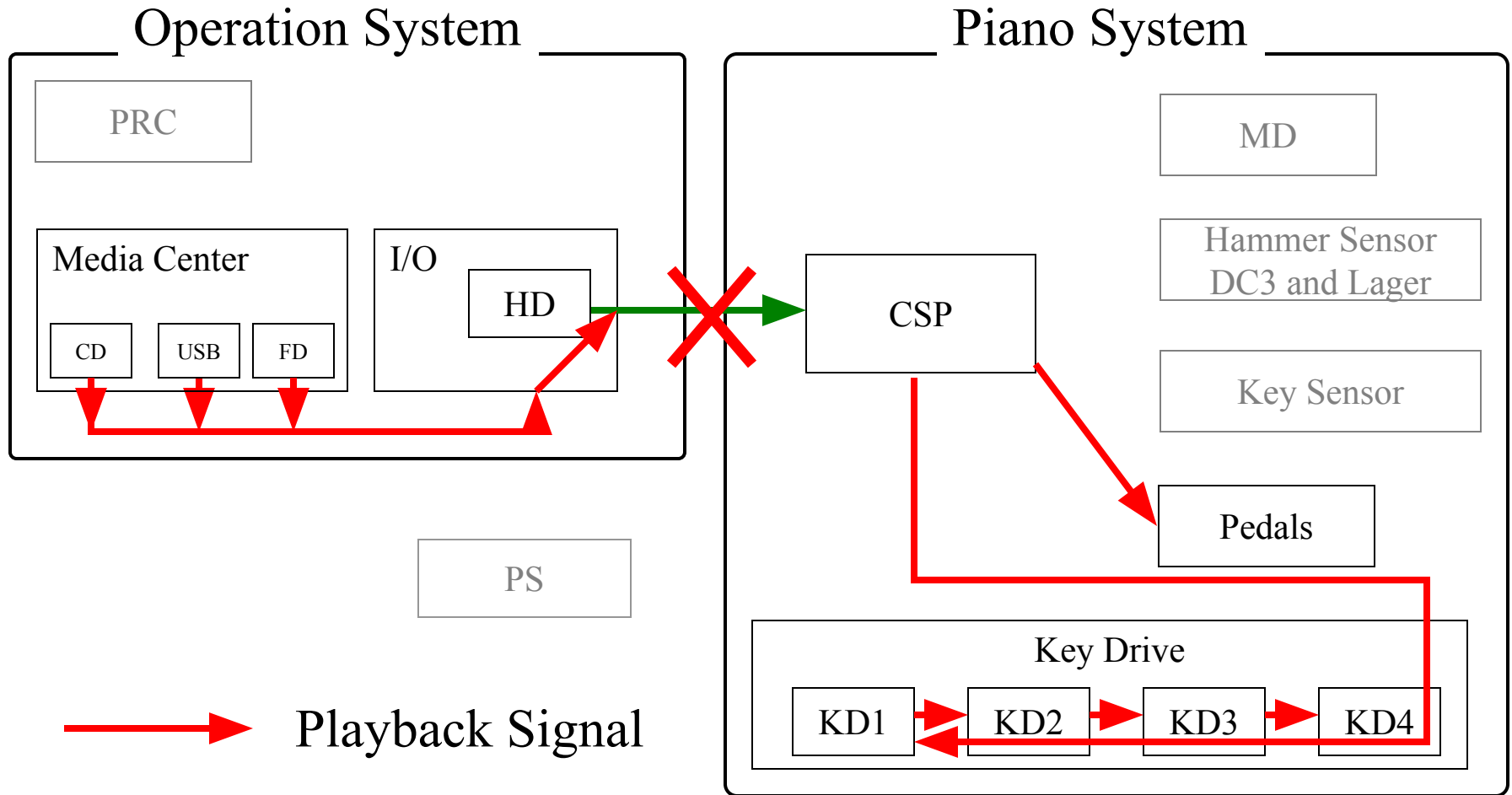- PRC - reinstalling the OS
- etc

Normal Situation

PRC

Active

Media Center

I/O

Green LED lights

Normal

Active

CSP

MD

Hammer Sensor DC3 and Lager

Key Sensor

Pedals

PS

Key Drive

48V
12V

Abnormal Situation

PRC

Active

Normal

Active

MD

Hammer Sensor
DC3 and Lager

Media
Center

I/O

CSP

Key Sensor

Green LED lights

Pedals

PS

48V

12V

Key Drive

Abnormal Situation

PRC

MD

Active

Inactive

Hammer Sensor
DC3 and Lager

Media
Center

I/O

CSP

Key Sensor

Green LED lights

Pedals

PS

Key Drive

Record Flow Chart

Operation System

PRC

Media Center

CD   USB   FD

I/O

HD

PS

Piano System

MD

CSP

Hammer Sensor DC3 and Lager

Key Sensor

Pedals

Key Drive

→ Record Signal

→ Save Only

Playback Flow Chart

Operation System

PRC

Media Center
| CD | USB | FD |

I/O
HD

PS

Piano System

MD

Hammer Sensor
DC3 and Lager

CSP

Key Sensor

Pedals

Key Drive
| KD1 | KD2 | KD3 | KD4 |

Playback Signal

Quiet Mode Flow Chart

Operation System

PRC

Media Center
● Quiet

I/O

PS

Piano System

MD

Hammer Sensor
DC3 and Lager

Key Sensor

Pedals

CSP

Key Drive

→ Control Signal

RCA cable

- The Green RCA cable is most important for working of the CSP - Piano System - .
- The Blue RCA cable is important for transmission of the signal from Piano System to I/O Center, especially in the recording mode.
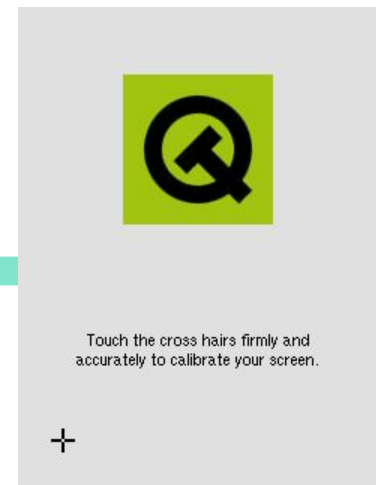
Digital Audio Connection

PRC

Digital Audio Player (HDD)

Delay

MD

Ensemble

Media Center

CD USB FD

I/O

HD

Hammer Sensor
DC3 and Lager

CSP

Key Sensor

Pedals

PS

Key Drive

KD1 KD2 KD3 KD4

→ Playback Signal
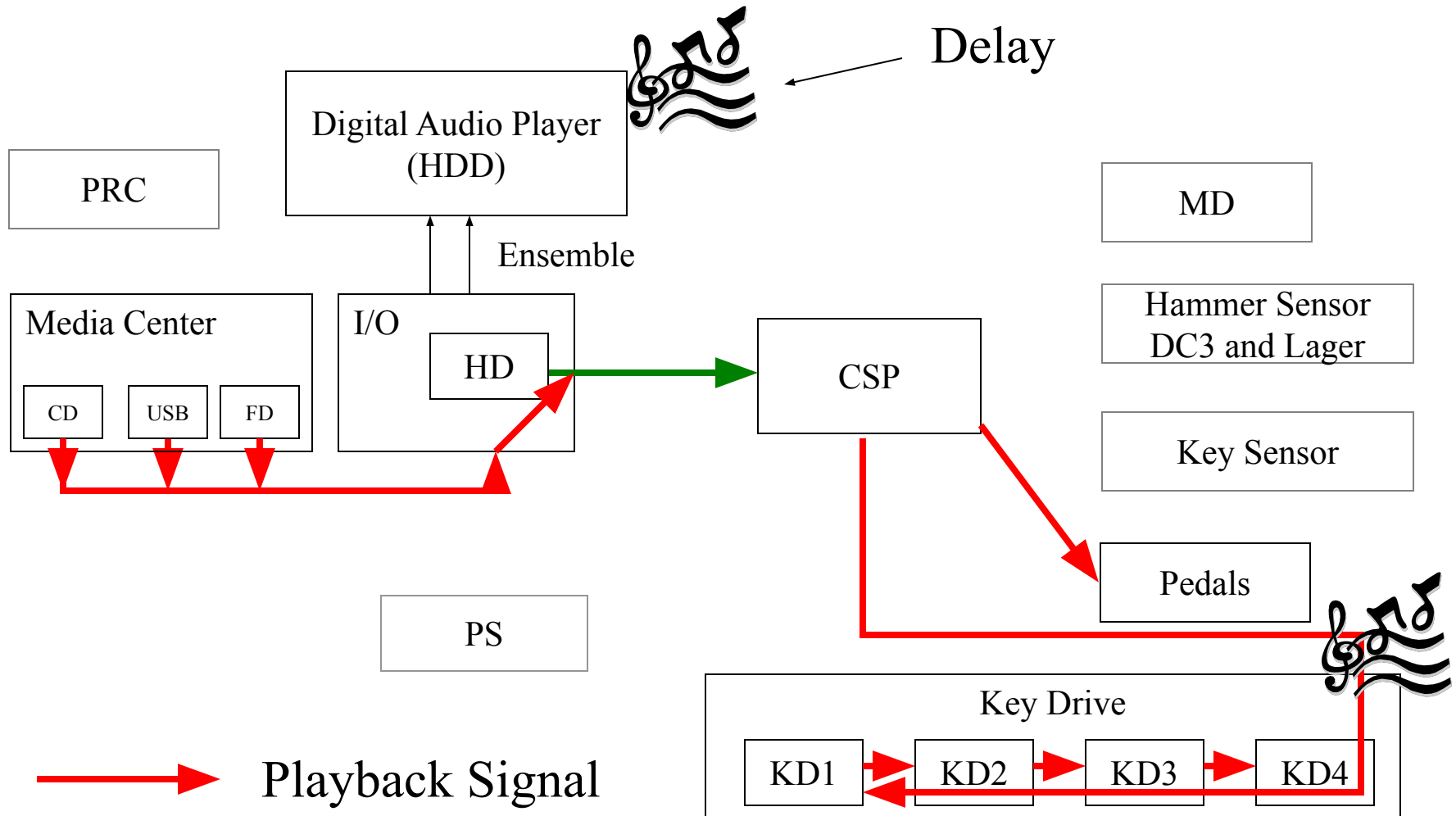
PRC-100

Fixing the unresponsive Screen

- This procedure is done when the screen does not respond or tapping a specific icon gives us a different result.
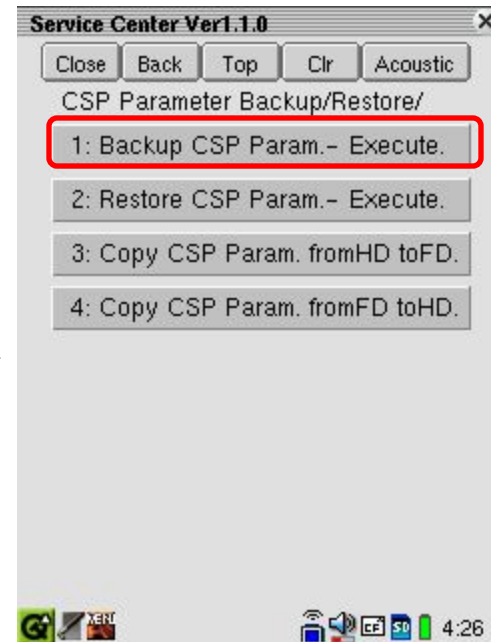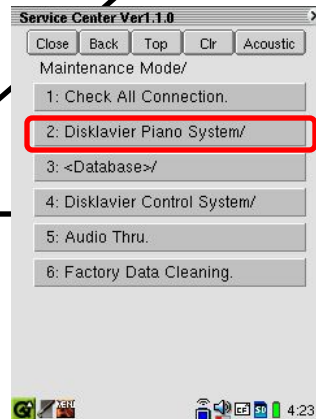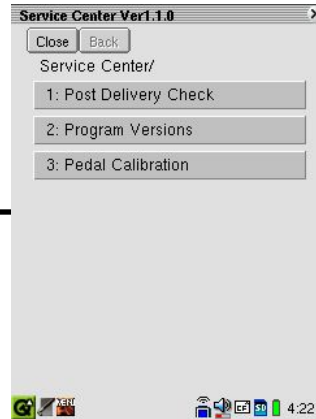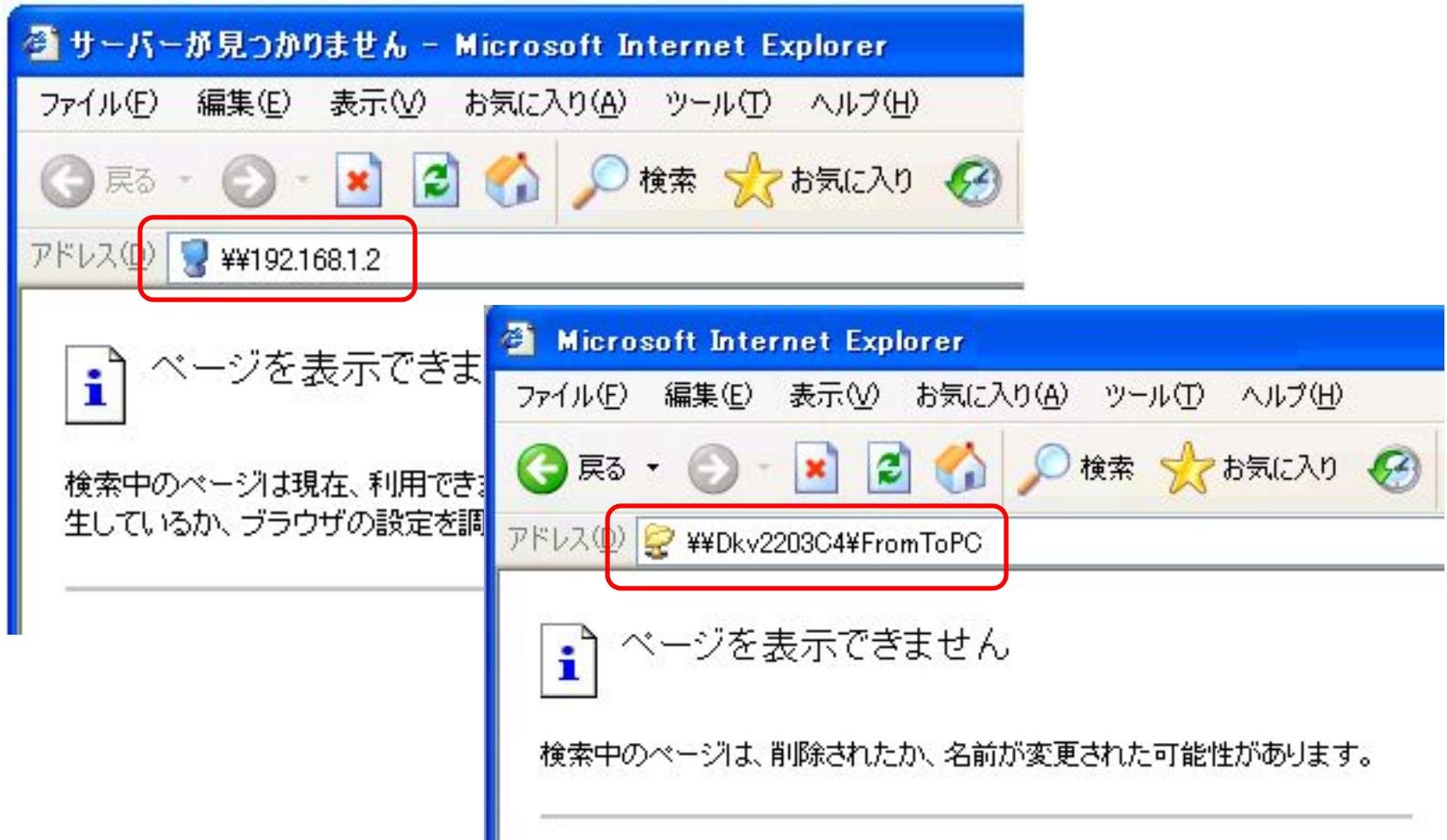
Press
[Q][F][I]

Press
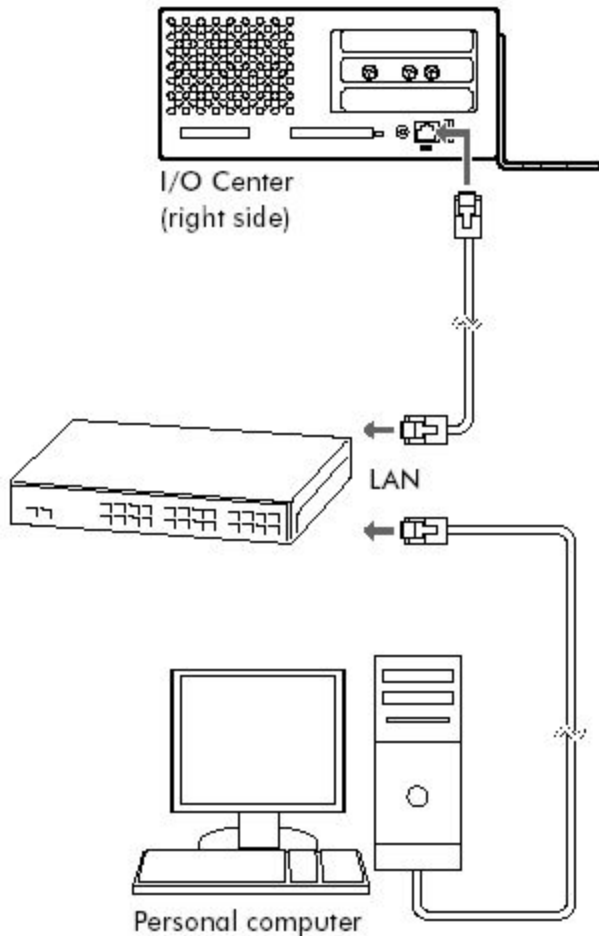[R]

Thank you for your attention

Replacing the CSP Board

Hold keys [D], [M], and [P] in sequence within a half second.

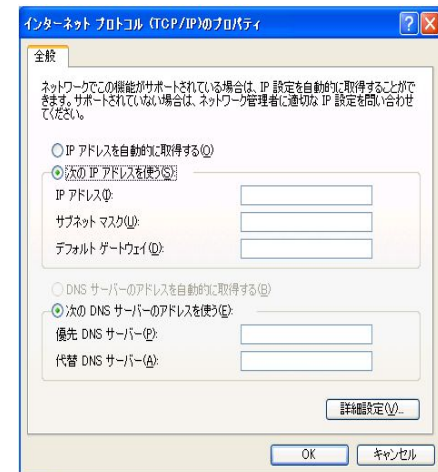# Direct Connection Between I/O and PC

Direct Connection Between I/O and PC

I/O Center
(right side)
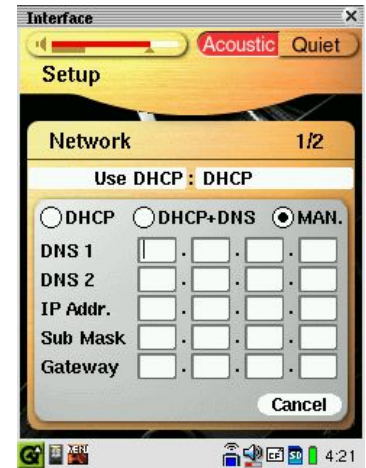
LAN

Personal computer

Example
DNS1   :192.168.1.1
DNS2   :192.168.1.1
IP   :192.168.1.**2**
Sub Mask   :255.255.255.0
Gateway   :192.168.1.1

Example
DNS1   :192.168.1.1
DNS2   :192.168.1.1
IP   :192.168.1.**1**
Sub Mask   :255.255.255.0
Gateway   :192.168.1.1

LEDs on the HS

Ref No.	Printed	What	Normal
LD1	+12VIN	+12V Power Income	lighting(green)
LD2	+3.3DIN	+3.3V Digital Power Income	lighting(green)
LD3	+3.3AIN	+3.3V Analog Power Income	lighting(green)
LD4	DSPCHK	DSP Running	blinking(green)

MK4-HS Board (Component Side)
LD2 (+3.3VDIN)
LD1 (+12VIN)
LD3 (+3.3VAIN)
LD4 (DSP CHK)