

DIGITAL WORKSTATION MONITOR SPEAKER

Tyros3 / TRS-MS02

SERVICE MANUAL



Tyros3



TRS-MS02

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IMPORTANT NOTICE

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

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

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

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

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

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

WARNING: This product contains chemicals known to the State of California to cause cancer, or birth defects or other reproductive harm.

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

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

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

IMPORTANT NOTICE FOR THE UNITED KINGDOM

Connecting the Plug and Cord

WARNING: THIS APPARATUS MUST BE EARTHED
IMPORTANT. The wires in this mains lead are coloured in accordance with the following code:

GREEN-AND-YELLOW : EARTH
 BLUE : NEUTRAL
 BROWN : LIVE

As the colours of the wires in the mains lead of this apparatus may not correspond with the coloured markings identifying the terminals in your plug proceed as follows:

The wire which is coloured GREEN-and-YELLOW must be connected to the terminal in the plug which is marked by the letter E or by the safety earth symbol ⊕ or colored GREEN or GREEN-and-YELLOW.

The wire which is coloured BLUE must be connected to the terminal which is marked with the letter N or coloured BLACK.

The wire which is coloured BROWN must be connected to the terminal which is marked with the letter L or coloured RED.

• This applies only to products distributed by Yamaha-Kemble Music (U.K.) Ltd. (3 wires)

WARNING

Components having special characteristics are marked



and must be replaced with parts having specification equal to those originally installed.

SAVING DATA



Be sure to perform it

Saving and backing up your data

- The data of the types listed below are lost when you turn off the power to the instrument. Save the data to the User drive or appropriate external media.

- Created/Edited Voices
- Created/Edited Styles
- Memorized One Touch Settings
- Recorded/Edited Songs
- Created Multi Pads
- Edited MIDI Settings

Data in the User drive may be lost due to malfunction or incorrect operation. Save important data to an external media.

Data in the internal hard disk drive may be lost due to malfunction or incorrect operation. We recommend that you backup any necessary data to computer by using the USB Storage Mode.

Backing up the USB storage device/external media

- To protect against data loss through media damage, we recommend that you save your important data onto two USB storage devices/external media.

SPECIFICATIONS (Tyros3)

Keyboard	Keys	61 keys (C1–C6) Initial Touch/Aftertouch
	Type	Organ (FSX)
Voice	Polyphony (max)	128
	Layer	R1/R2/R3/L
	Split	Style (default point: F#2), Left (default point: F#2), Right 3 (default point: G2)
	Voices	749 Voices + 20 Organ Flutes + 480 XG Voices + 256 GM2 Voice + 35 Drum/SFX kits (And GS Voices for GS Song playback)
	MegaVoice	23
	S.Articulation2! (AEM technology)	11 [TRUMPET] JazzTrumpet / ClassicTrumpet [SAXOPHONE] JazzSax / BreathySax [FLUTE/CLARINET] Clarinet / BalladClarinet / RomanceClarinet / IrishPipeAir / IrishPipeDance [ACCORDION] Harmonica / BluesHarp
	S.Articulation!	53
	Sweet!	26
	Cool!	58
	Live!	70
	Live! Drums	12 (Included Live! SFX)
	Organ Flutes!	20 Presets
Voice Expandability	Custom Voices	Yes (Wave Addition: Normal Voices, Drum Voices)
	Premium Voices	Yes (optional DIMM memory is necessary)
	Voice Set	Yes
Style	Styles	450
	Format	SFF GE
	Control	SYNC STOP, SYNC START, START/STOP, AUTO FILL IN
	Section	Intro x 3, Ending x 3, Main x 4, Fill In x 4, Break
	Fingering	Single Finger, Fingered, Fingered On Bass, Multi Finger, AI Fingered, Full Keyboard, AI Full Keyboard
	Style Creator	Yes
RAM Capacity per a Style		approx. 120 KB
OTS (One Touch Setting)		4 for each Style
Music Finder	Preset Records	1850
	Music Finder Plus	Yes
Song	Preset Songs	5 Sample Songs
	Control	REC, STOP, PLAY/PAUSE, REW, FF, METRONOME
	Recording	Quick Recording, Multi Recording, Step Recording
	Tracks	16
	RAM Capacity per a Song	approx. 300 KB
	Lyric Display	Yes
	Score Display	Yes
	Song Position Jump	4 point / Loop
Style/Song Control		FADE IN/OUT, TAP TEMPO, TEMPO (5–500)
Data Compatibility		GM, XG, XF, SFF, SFF GE, GM2/GS (for Song Playback)
Hard Disk Recorder	Tracks	Play: 2 Stereo Track REC: 1 Stereo Track
	Control	REC, STOP, PLAY/PAUSE, PREV, NEXT, SELECT, SETTING
	File Format	Wave (16-bit, 44.1 kHz, stereo)
MultiPad	Preset	123 banks x 4 Pads
	Control	Pad 1–4, SELECT, STOP, SYNC START
Vocal Harmony		60 Preset + 10 user

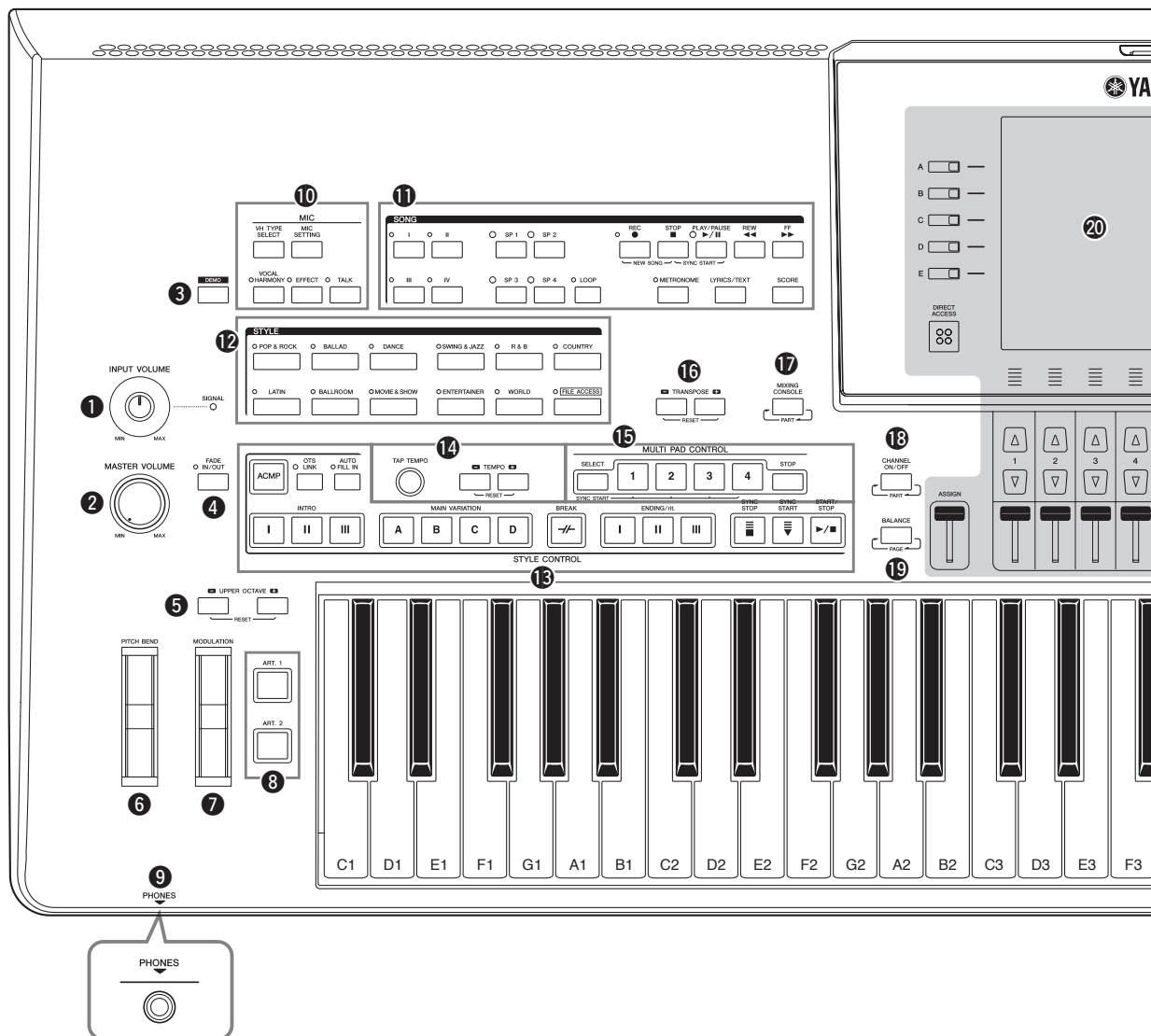
Effects	Reverb	42
	Chorus	106
	DSP1–DSP7	272
	DSP8–DSP9	272 (for Style)
	Master Compressor	5 presets + 5 user settings
	Master Equalizer	5 presets + 2 user settings
	Harmony/Echo	Yes
	Sustain Button	Yes
Registration Memory	Buttons	1–8
	Control	Bank select, Memory, Freeze, Registration Sequence
Control	Pitch Bend Wheel	Yes
	Modulation Wheel	Yes
	Articulation Switch	ART. 1, ART. 2
	Sliders	9 (including 1 assignable)
Transpose		-12–0–12 (Keyboard/Song/Master)
Tuning		414.8–440–466.8 Hz
Display		640 x 480 dots TFT VGA color 7.5 inch LCD
	Language	5 languages (English, German, French, Spanish, Italian)
	Text Viewer	Yes
	Wallpaper Customize	Yes
Storage		USB to Device
	Internal Flash	3.2MB
	Hard Disk (installable)	Yes
Terminals	USB TO HOST	USB 2.0 HighSpeed x 1
	USB TO DEVICE	USB 2.0 HighSpeed x 2 (Front/Back)
	MIDI	MIDI A (IN/OUT), MIDI B (IN/OUT)
	FOOT PEDAL	1 (SUSTAIN), 2 (ARTICULATION 1), 3 (VOLUME), Function Assignable
	Audio	LINE OUT MAIN (L/L+R, R)
		LINE OUT SUB (1, 2)
		LOOP SEND (L/L+R, R) / AUX OUT (Level Fixed): Selectable
		LOOP RETURN (L/L+R, R) / AUX IN (with TRIM control)
		MIC/LINE IN (with TRIM control)
		PHONES
	RGB OUT	Yes
	VIDEO OUT	NTSC / PAL Composit
	LAN	Yes (Internet Direct Connection)
	For Option Speaker	To Satellite Speaker (L/R), To Sub Woofer (L/R)
	Power Supply	AC IN
Dimensions [W x D x H] (without Music Rest)		1140 x 450 x 143 mm
Weight (without Music Rest)		15 kg
Included Accessories		AC power cord, Music rest and brackets, CD-ROM, Owner's Manual, Installation Guide, User Registration Card
Optional Accessories	Speaker	TRS-MS02
	Headphones	HPE-150
	Footswitch	FC4/FC5
	Foot Controller	FC7
	MIDI Foot Controller	MFC10
	Floppy Disk Drive	UD-FD01
	Keyboard Stand	L-7S

■ SPECIFICATIONS (TRS-MS02)

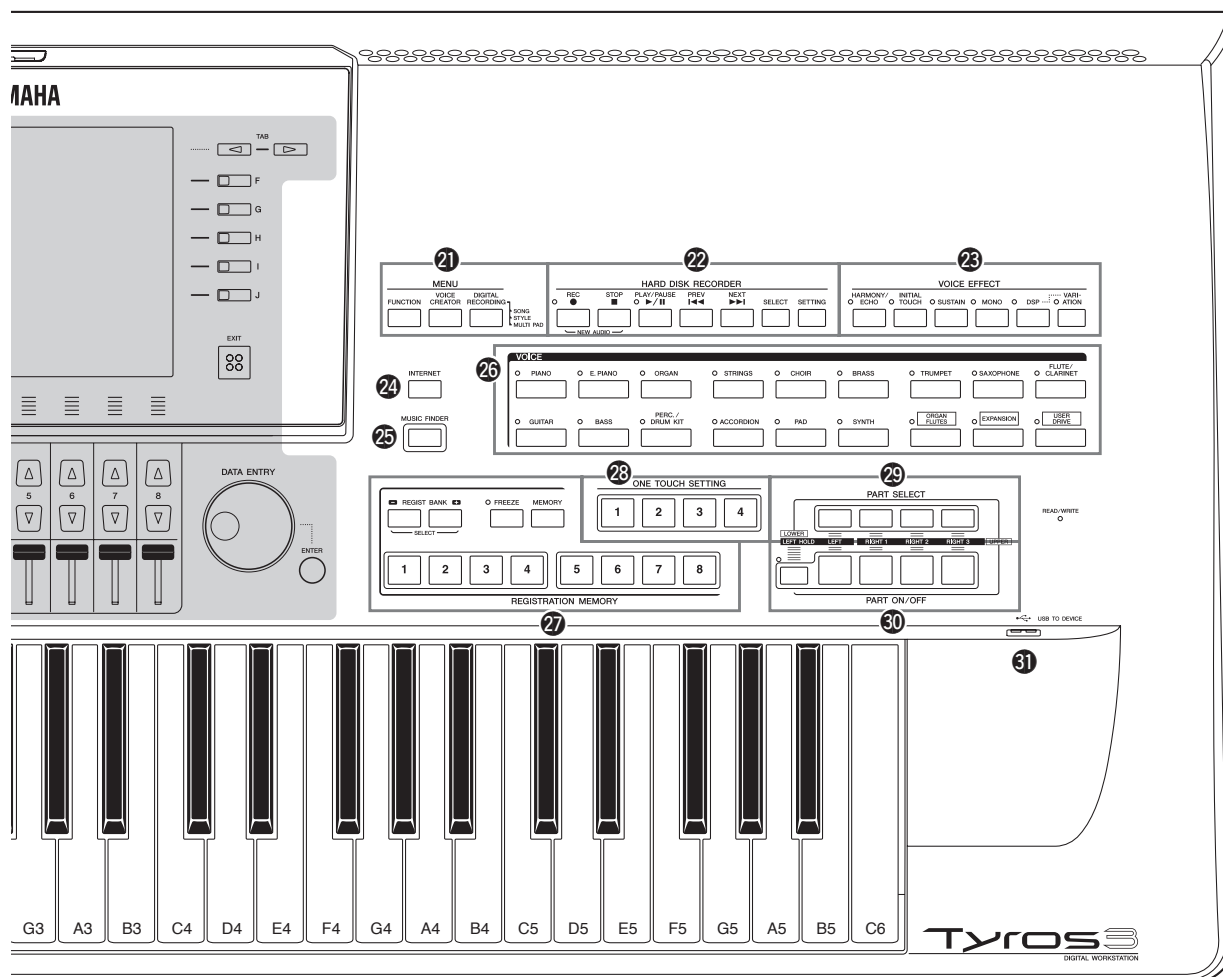
Type	Advanced Active Servo Technology
Output power	Satellite speakers..... 20 W + 20 W (1 kHz, 4 Ω at T.H.D.=10%) Subwoofer..... 40 W (100 Hz, 5 Ω at T.H.D.=10%)
Frequency response	32 Hz to 20 kHz
Speaker unit	Satellite speakers Tweeter..... 1.9 cm (3/4") dome, magnetic shielding Midrange..... 8 cm (3") cone, magnetic shielding Subwoofer..... 16 cm (6.5") cone, magnetic shielding
Power consumption	65W
Power supply	U.S.A. and Canada models.....AC 120 V, 60 Hz Australia model.....AC 240 V, 50 Hz U.K. and Europe models.....AC 230 V, 50 Hz
Dimensions (W x H x D)	Satellite speakers..... 97 (3.8") x 174 (6.9") x 178 (7")mm Subwoofer..... 350 (13.8") x 210 (8.3") x 321 (12.6") mm
Weight	Satellite speakers..... 0.7 kg (1 lb. 9 oz.) x 2 Subwoofer..... 8.0 kg (17 lbs. 10 oz.)
Accessories	Speaker brackets x 2, RCA pin cables x 2, RCA pin/8-pin combination cable x 1

PANEL LAYOUT (Tyros3)

• Top Panel

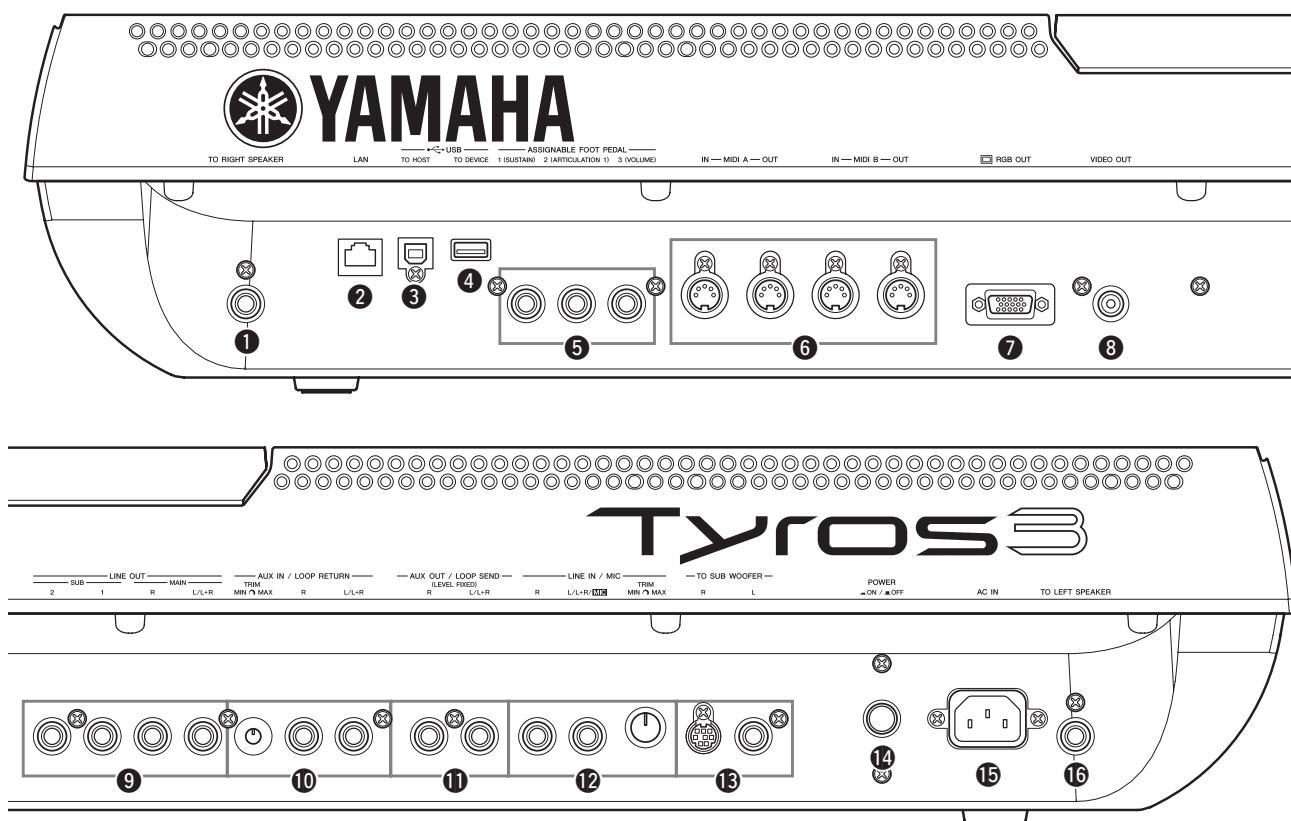


- | | |
|----------------------------------|--|
| 1 [INPUT VOLUME] control | 11 [SONG] buttons |
| 2 [MASTER VOLUME] control | 12 [STYLE] category selection buttons |
| 3 [DEMO] button | 13 [STYLE CONTROL] buttons |
| 4 [FADE IN/OUT] button | 14 [TEMPO] buttons |
| 5 [UPPER OCTAVE] buttons | 15 [MULTI PAD CONTROL] buttons |
| 6 [PITCH BEND] wheel | 16 [TRANSPOSE] buttons |
| 7 [MODULATION] wheel | 17 [MIXING CONSOLE] button |
| 8 [ART. 1/ART. 2] buttons | 18 [CHANNEL ON/OFF] button |
| 9 [PHONES] jack | 19 [BALANCE] button |
| 10 [MIC] buttons | 20 LCD and related controls |



- 21 [MENU] buttons
- 22 [HARD DISK RECORDER] buttons
- 23 [VOICE EFFECT] buttons
- 24 [INTERNET] button
- 25 [MUSIC FINDER] button
- 26 [VOICE] category selection buttons
- 27 [REGISTRATION MEMORY] buttons
- 28 [ONE TOUCH SETTING] buttons
- 29 [PART SELECT] buttons
- 30 [PART ON/OFF] buttons
- 31 [USB TO DEVICE] terminal

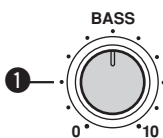
• Rear Panel



- | | |
|---------------------------------|------------------------------|
| ① [TO RIGHT SPEAKER] jack | ⑨ [LINE OUT] jacks |
| ② [LAN] terminal | ⑩ [AUX IN/LOOP RETURN] jacks |
| ③ [USB TO HOST] terminal | ⑪ [AUX OUT/LOOP SEND] jacks |
| ④ [USB TO DEVICE] terminal | ⑫ [LINE IN/MIC] jacks |
| ⑤ [ASSIGNABLE FOOT PEDAL] jacks | ⑬ [TO SUB WOOFER] jacks |
| ⑥ [MIDI] terminals | ⑭ [POWER ON/OFF] switch |
| ⑦ [RGB OUT] terminal | ⑮ [AC IN] terminal |
| ⑧ [VIDEO OUT] terminal | ⑯ [TO LEFT SPEAKER] jack |

■ PANEL LAYOUT (TRS-MS02)

SUBWOOFER FRONT



SUBWOOFER REAR



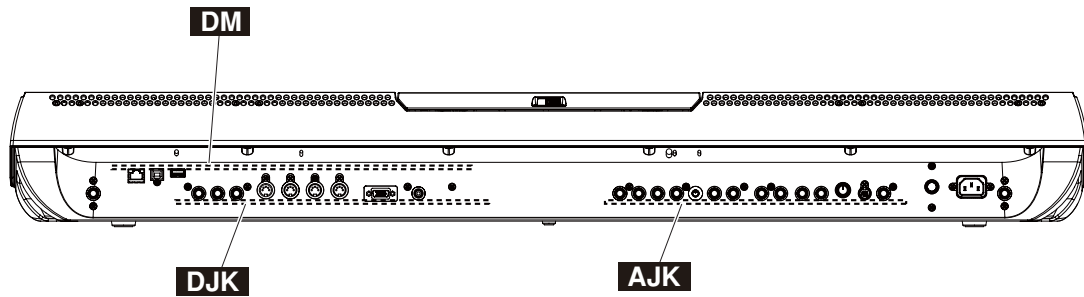
SATELLITE
SPEAKER REAR



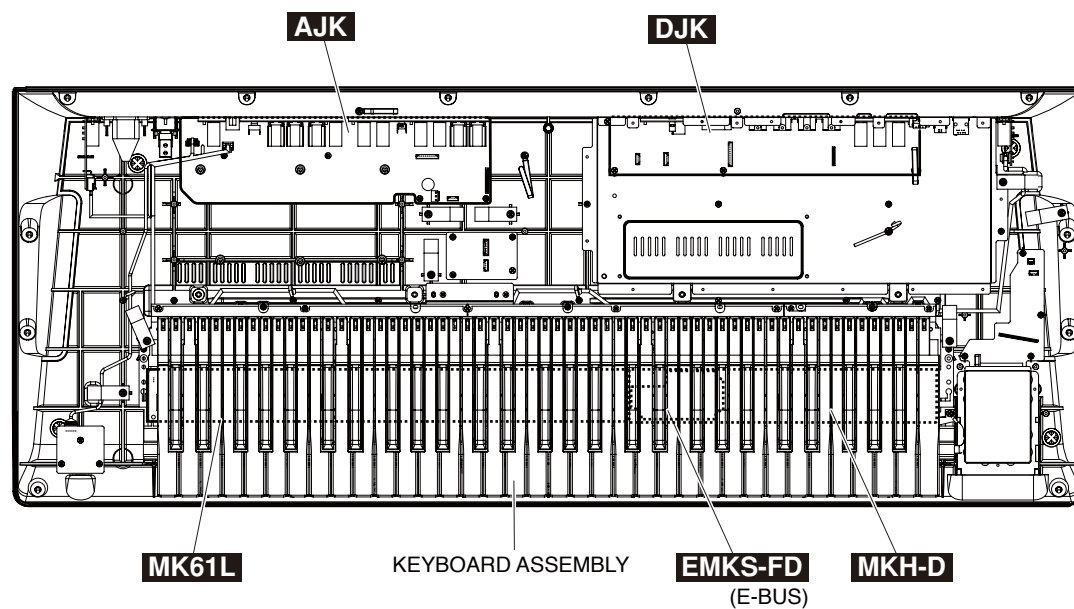
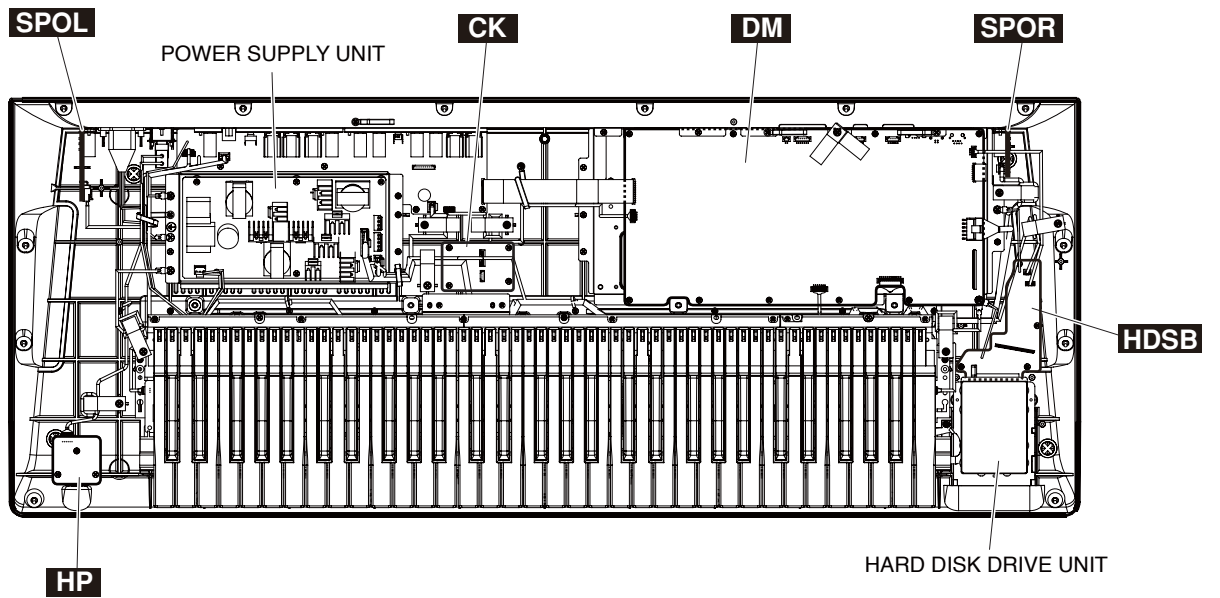
- | |
|------------------------------------|
| ① [BASS] control knob |
| ② Main [POWER] switch |
| ③ [TO KEYBOARD L,R] jacks (WOOFER) |
| ④ [TO KEYBOARD] jack (Satellite) |

CIRCUIT BOARD LAYOUT

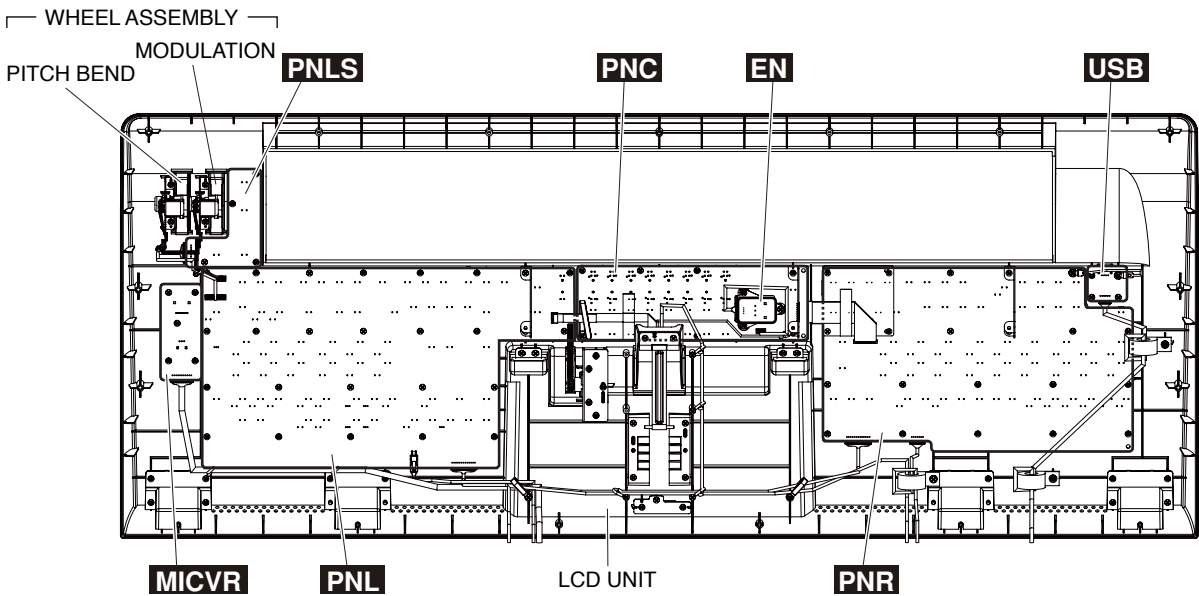
• Rear Side



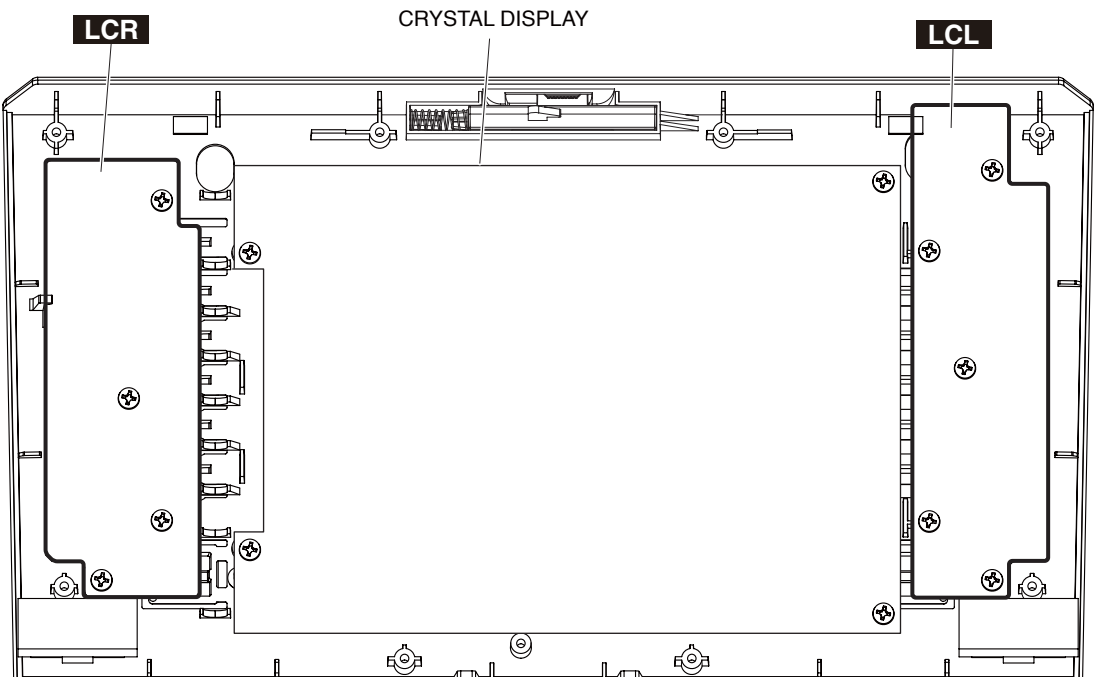
• Lower Case Side



• Upper Case Side



• LCD Unit



■ TEST PROGRAM

1 Measurement Conditions

1-1: Measuring Instruments

- Low-frequency oscillator
- Level meter (JIS-C curve)
- Frequency counter, which can detect hundredth value or more
- Oscilloscope

1-2: Jig

- Stereo PHONE jack cable (33 Ω or 30 Ω load)
- Monaural PHONE jack cable (10 k Ω load), 2 pcs. used simultaneously
- Mini DIN 8-pin cable (470 Ω load)
- Video cable (75 Ω coaxial)
- USB cable (type AB)
- Color CRT monitor (RGB input compatible)
- Microphone
- Optional speaker (TRS-MS02 or equivalent)
- DIMM (Transcend TS64ML64V6 (512 MB) or equivalent, Two same model type of 512 MB used simultaneously)
- USB-Storage device (YD-8U10, or any USB-Storage device with read/write enable compatible with USB2.0)
- MIDI cable, 2 pcs. used simultaneously
- Mini D-Sub15 pin RGB cable
- Color CRT monitor (NTSC and PAL system compatible)
- Foot pedal (FC7 or equivalent)
- Headphone

1-3: Others

- The tolerance shall be within ± 2 dB
- The unit for analog input/output level is as follows:
0 dBu = $0.775 V_{rms}$

2 Starting up the test program

- * Before starting checking, format the HDD referring to the “Formatting HDD” (P. 113).

Turn on the [POWER] switch while holding down the [C#2], [F2], and [G#2] keys (C#2 major code). (Fig. 1)

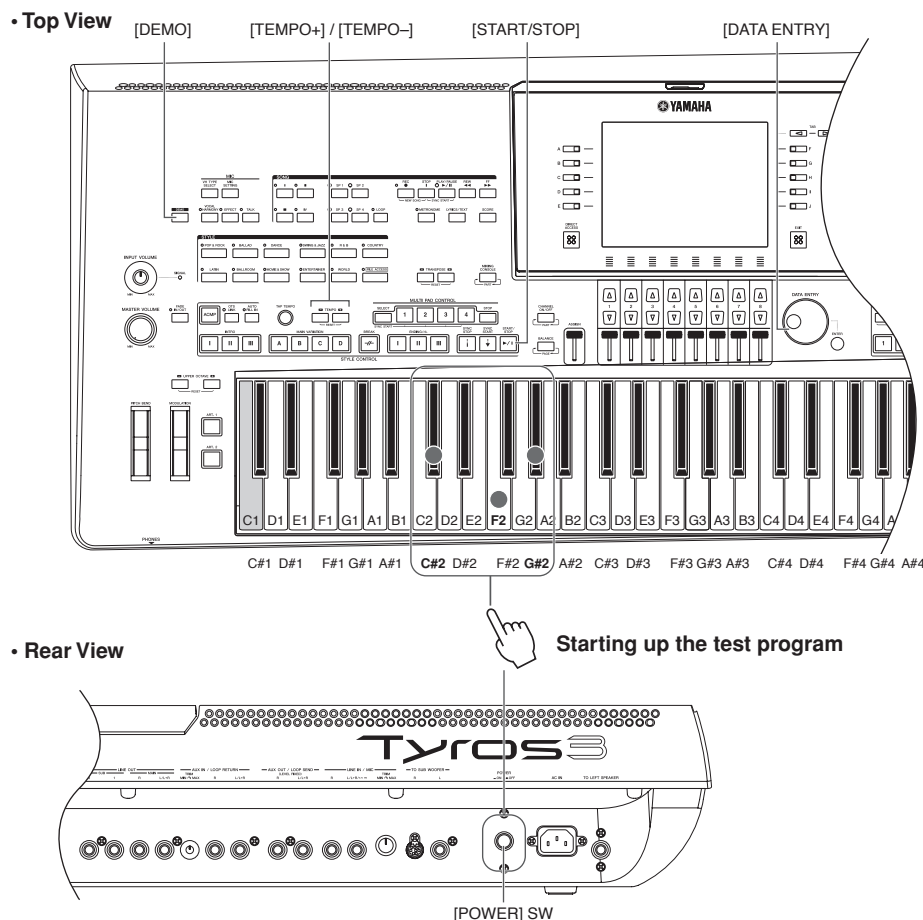


Fig. 1

Start-up screen (normal state)

```

TEST

Device Connection Check
[ D I M M ] : D e v i c e   f o u n d
[ H D D   ] : D e v i c e   f o u n d

```

Start-up screen (when an error is detected)

```

TEST
SwErr : 0 A 0 1, 0 A 0 2

Device Connection Check
[ D I M M ] : N o   D e v i c e
[ H D D   ] : N o   D e v i c e

```

“SwErr”

(A panel switch is being pressed. Displays up to two codes for panel switch held down in four figures in hexadecimal notation.)

“[DIMM] : No Device”

(No DIMM is installed.)

“[HDD] : No Device”

(No HDD is installed.)

2-1: How to carry out tests

- 1) When the test program is started, **“TEST”** will be displayed.
 - 2) To increase test item number: Press the [TEMPO+] button or turn the [DATA ENTRY] dial clockwise. (Fig. 1)
 To decrease test item number: Press the [TEMPO–] button or turn the [DATA ENTRY] dial counterclockwise. (Fig. 1)
 To execute the test: Press the [START/STOP] button once. (Fig. 1)
 Indication of "--" underneath of each test items is shown as progressing the test and in case of asterisks "*" is shown as progress bar when the test takes time such as "Flash Check1,2", "Wave ROM Check 2" etc.
- If the test result is OK:
 Press the [START/STOP] button again to go back to the item selection display. (Fig. 1)
 - If the test result is NG:
 Press the lowest key (C1) on the keyboard or the [DEMO] button to go back to the item selection display. (Fig. 1)
 ([START/STOP] button is ineffective in case of NG)

• Test Program Item List

Number	Check item	Displayed Message	Automatic check
1	Version indication	Version	X
2	Simplified check of ROM	ROM Check1	O
3	Simplified check of RAM	RAM Check1	O
4	Simplified check of Backup Flash ROM	BACKUP ROM Check1	O
5	Simplified check of Wave ROM	Wave ROM Check1	O
6	Simplified check of Wave RAM (SDRAM)	Wave RAM(SDRAM) Check1	O
7	Simplified check of Wave RAM (DIMM)	Wave RAM(DIMM) Check1	O
8	Simplified check of Effect RAM	Effect RAM Check1	O
9	Sound check of Tone Generator 1	TG 1 Check	X
10	Sound check of Tone Generator 2	TG 2 Check	X
11	Pitch check	Pitch Check	X
12	Output Level R check	Output R Check	X
13	Output Level L check	Output L Check	X
14	Output Level Sub-1 check	Output Sub-1 Check	X
15	Output Level Sub-2 check	Output Sub-2 Check	X
16	EQ (Low) frequency check	EQ Low Check	X
17	EQ (Mid) frequency check	EQ Mid Check	X
18	EQ (High) frequency check	EQ High Check	X
19	SP MUTE check	SP MUTE Check	X
20	MUTE check	MUTE Check	X
21	MIC L check	MIC L Check	X
22	MIC R check	MIC R Check	X
23	SW, LED check	SW,LED Check	X
24	All Panel LEDs On check	All LED On Check	X
25	Red LEDs On check	Red LED On Check	X
26	Green LEDs On check	Green LED On Check	X
27	Other colors LEDs On check	Other LED On Check	X
28	Whole LCD On check	All LCD On Check	X
29	Whole LCD Off check	All LCD Off Check	X
30	LCD pattern check	LCD Pattern Check	X
31	Pitch Bend Wheel check	Pitch Bend Wheel Check	O
32	Modulation Wheel check	Modulation Wheel Check	O
33	Slider check	Slider Check	O
34	Pedal 1 check	Pedal 1 Check	O
35	Pedal 2 check	Pedal 2 Check	O
36	Pedal 3 check	Pedal 3 Check	O
37	MIDI check	MIDI Check	O
38	Loop Send/Return check	Loop Send/Return Check	X
39	Sub Out connection check	Sub Out Check	O
40	Video Out check (NTSC RGB)	Video Out NTSC RGB	X
41	Video Out check (PAL RGB)	Video Out PAL RGB	X
42	RGB Out check	RGB Out Check	X
43	USB to Device/Host check	USB to Device/Host Check	O
44	USB Storage Device check	USB Storage Device Check	O
45	LAN check	LAN Check	O
46	DGA (HDD) check	DGA (HDD) Check	O
47	DGA (TG) check	DGA (TG) Check	X
48	Keyboard Type check	KeyboardType Check	O
49	Touch check	Touch Check	O
50	Full check of ROM	ROM Check2	O
51	Full check of RAM	RAM Check2	O
52	Full check of Backup Flash ROM	BACKUP ROM Check2	O
53	Full check of Wave ROM	Wave ROM Check2	O
54	Full check of Wave RAM (SDRAM)	Wave RAM (SDRAM) Check2	O
55	Full check of Wave RAM (DIMM)	Wave RAM (DIMM) Check2	O
56	Full check of Effect RAM	Effect RAM Check2	O
57	Panel PCB check (PNL)	Panel PCB Check (PNL)	X
58	Panel PCB check (LCL)	Panel PCB Check (LCL)	X
59	Panel PCB check (LCR)	Panel PCB Check (LCR)	X
60	Panel PCB check (PNC)	Panel PCB Check (PNC)	X
61	Panel PCB check (PNR)	Panel PCB Check (PNR)	X
62	Panel PCB check (LCL/R/C)	Panel PCB Check (LCL/R/C)	X
63	Factory Set	Factory Set	X
64	Test Exit	Test Exit	X

Test 1

Function: Version indication

Description:

Displays version of program/data.

Use the TAB [◀]/[▶] keys to switch between plural pages.

Displayed Message:

```
0 0 1 : V e r s i o n
```

Selected screen

```

Model Name      : TYROS3 (E)
Main Program    : 1. 00
Sub Program     : 1. 00
Bitmap1        : 1. 00
Bitmap2        : 1. 00
Contents       : 1. 00
Wave1          : 1. 00

```

Page 1 (Example)

```

Main Boot       : 1. 00
Sub1 Boot       : 1. 00

```

Page 2

Supplement:

Indicates model name (destination) and program/data versions.

"0.00" will be shown if the version is not recognized correctly.**Test 2**

Function: Simplified check of ROM

Description:

Executes Read test (checksum test) of ROM.

Executes Write pin check of Program Flash ROM as well.

Displayed Message:

```
0 0 2 : R O M   C h e c k 1
```

Selected screen

```

0 0 2 : R O M   C h e c k 1
O K

```

In case of OK

```

0 0 2 : R O M   C h e c k 1
M A I N   P R O G   R O M   H / L       N G
M A I N   D A T A   R O M               N G
S U B   P R O G   R O M                 N G
M A I N   P R O G   W R                 N G

```

In case of NG (Example)

Supplement:

In case of NG, name of the ROM of which NG is detected will be shown.

"No Card" will be shown if SUB PROG is not detected.

Error Indications	Circuit Board	Location	Name in Circuit Diagram
MAIN PROG ROM H/L NG	DM	IC10	MAIN PROG-L 256 M FLASH
MAIN PROG WR NG		IC11	MAIN PROG-H 256 M FLASH
MAIN DATA ROM NG	DM	IC14	DATA ROM 64 M
SUB PROG ROM NG	DM	IC514	SUB BOOT ROM 8 M
SUB PROG ROM No Card			

Test 3

Function: Simplified check of RAM

Description:

Executes Read/Write test (connection check) of RAM.

Displayed Message:

0 0 3 : R A M C h e c k 1

Selected screen

0 0 3 : R A M C h e c k 1
O K

In case of OK

0 0 3 : R A M C h e c k 1
M a i n S D R A M N G
S u b S D R A M N G

In case of NG

Supplement:

Location of NG will be shown in case of NG.

If sound board is not recognized, **"No Card"** will be shown for SUB SDRAM.

Error Indications	Circuit Board	Location	Name in Circuit Diagram
Main SDRAM NG	DM	IC12 IC13	SDRAM 256 M SDRAM 256 M
Sub SDRAM NG	DM	IC513	MAIN RAM 128 M SDRAM
Sub SDRAM No Card			

Test 4

Function: Simplified check of Backup ROM

Description:

Executes Read/Write test (connection check) of Backup Flash ROM. It will take about 9 seconds for the check.

* The check cannot be aborted until OK/NG result is indicated.

Displayed Message:

0 0 4 : B A C K U P R O M C h e c k 1

Selected screen

0 0 4 : B A C K U P R O M C h e c k 1
O K

In case of OK

0 0 4 : B A C K U P R O M C h e c k 1
N G

In case of NG

Supplement:

The check cannot be aborted until OK/NG result is indicated. Original data will be written back after the test is executed. Do not turn off the power during checking or the data will be lost.

Error Indications	Circuit Board	Location	Name in Circuit Diagram
NG	DM	IC15	BACKUP 64 M FLASH

Test 5

Function: Simplified check of Wave ROM

Description:

Executes Read test (checksum test) of Wave ROM.

Displayed Message:

```
0 0 5 : W a v e   R O M   C h e c k 1
```

Selected screen

```
0 0 5 : W a v e   R O M   C h e c k 1
O K
```

In case of OK

```
0 0 5 : W a v e   R O M   C h e c k 1
N G
```

In case of NG

Error Indications	Circuit Board	Location	Name in Circuit Diagram
NG	DM	IC800	WAVE ROM L1 512 M MASK
		IC801	WAVE ROM L2 512 M MASK
		IC802	WAVE ROM H1 512 M MASK
		IC803	WAVE ROM H2 512 M MASK

Test 6

Function: Simplified check of Wave RAM (SDRAM)

Description:

Executes simplified address checksum test of SDRAM for wave.

Displayed Message:

```
0 0 6 : W a v e   R A M   ( S D R A M )   C h e c k 1
```

Selected screen

```
0 0 6 : W a v e   R A M   ( S D R A M )   C h e c k 1
O K
```

In case of OK

```
0 0 6 : W a v e   R A M   ( S D R A M )   C h e c k 1
W a v e   S D R A M   ( T G 1 )   N G
W a v e   S D R A M   ( T G 2 )   N G
```

In case of NG

```
0 0 6 : W a v e   R A M   ( S D R A M )   C h e c k 1
W a v e   S D R A M   ( T G 1 )   N o   C a r d
W a v e   S D R A M   ( T G 2 )   N o   C a r d
```

In case no sound board is recognized

Supplement:

Check from TG1 → SWP51B Master (DM: IC505),

TG2 → SWP51B Slave (DM: IC506).

Error Indications	Circuit Board	Location	Name in Circuit Diagram
Wave SDRAM(TG1) NG	DM	IC511 IC512	SAMPLING RAM-L 16 M SDRAM SAMPLING RAM-H 16 M SDRAM
Wave SDRAM(TG2) NG			
Wave SDRAM(TG1) No Card			
Wave SDRAM(TG2) No Card			

Test 7

Function: Simplified check of Wave RAM (DIMM)

Description:

Executes simplified address checksum test of DIMM for wave. Indicates DIMM size as well.

Displayed Message:

0 0 7 : W a v e R A M (D I M M) C h e c k 1

Selected screen

0 0 7 : W a v e R A M (D I M M) C h e c k 1
O K (D I M M H : * * * M B , L : * * * M B)

In case of OK (Indicates DIMM size in MB)

0 0 7 : W a v e R A M (D I M M) C h e c k 1
N G (D I M M H : * * * M B , L : * * * M B)
W a v e D I M M (T G 1) N G
W a v e D I M M (T G 2) N G

In case of NG (Indicates DIMM size in MB)

Supplement:

Check from TG1 → SWP51B Master (DM: IC505),
TG2 → SWP51B Slave (DM: IC506).
OK will be shown if DIMM connection is confirmed. Visually check DIMM size.

Test 8

Function: Simplified check of Effect RAM

Description:

Checks RAM that works for Effect.

Displayed Message:

0 0 8 : E f f e c t R A M C h e c k 1

Selected screen

0 0 8 : E f f e c t R A M C h e c k 1
O K

In case of OK

0 0 8 : E f f e c t R A M C h e c k 1
T G 1 N G
T G 2 O K

In case of NG

Supplement:

TG1 indicates Effect RAM of SWP51B Master (DM: IC505)
and TG2 indicates Effect RAM of SWP51B Slave (DM: IC506).

Error Indications	Circuit Board	Location	Name in Circuit Diagram
TG1 NG	DM	IC508	WORK RAM 64 M SDRAM
TG2 NG	DM	IC509	WORK RAM 64 M SDRAM

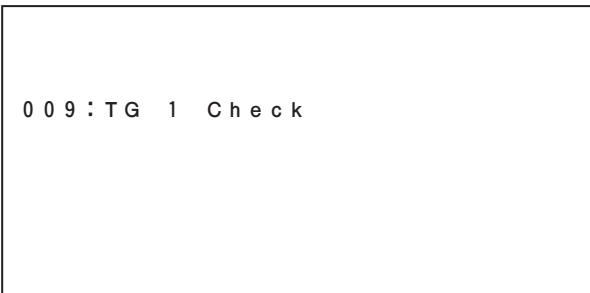
Test 9

Function: Sound check of the Tone Generator 1

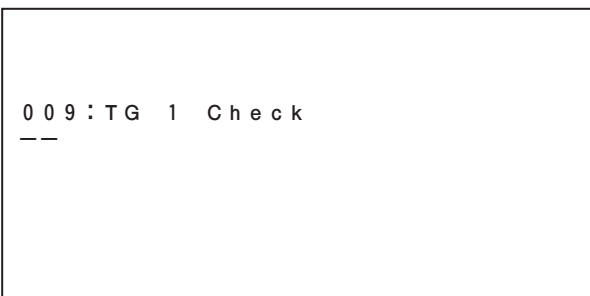
Description:

Sequentially outputs sounds starting from lower keys by switching the channel of the sound source at the SWP51B Master side for checking sound generator and sound. Check that there is no abnormal sounds or noise.

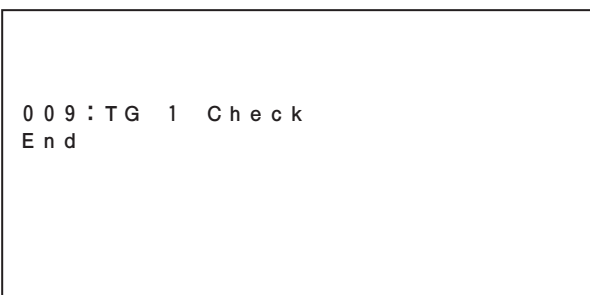
Displayed Message:



Selected screen



When a sound is being produced.



When the checking is finished.

Supplement:

Sound producing keyboard range is 32 notes from C2 to G4.
Number of sounds is 64.

Indications during Execution	Circuit Board	Location	Name in Circuit Diagram
TG1 Check --	DM	IC505	SWP51B MASTER
TG2 Check --	DM	IC506	SWP51B SLAVE

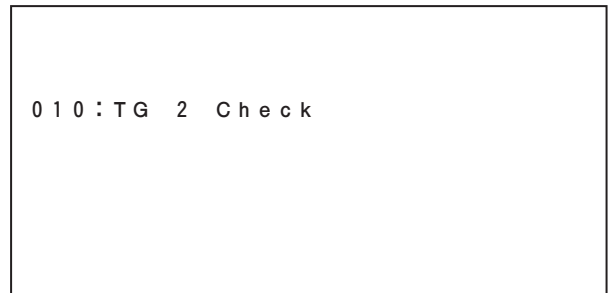
Test 10

Function: Sound check of the Tone Generator 2

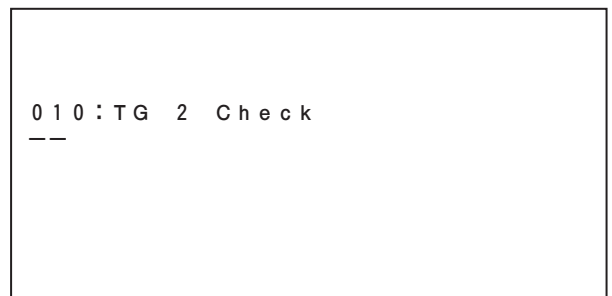
Description:

Sequentially outputs sounds starting from lower keys by switching the channel of the sound source at the SWP51B Slave side for checking sound generator and sound. Check that there is no abnormal sounds or noise.

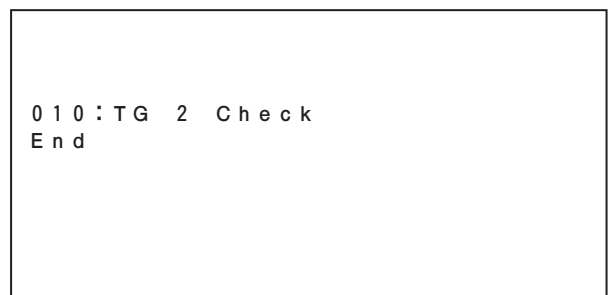
Displayed Message:



Selected screen



When a sound is being produced.



When the checking is finished.

Supplement:

Sound producing keyboard range is 32 notes from C2 to G4.
Number of sounds is 64.

Indications during Execution	Circuit Board	Location	Name in Circuit Diagram
TG1 Check --	DM	IC505	SWP51B MASTER
TG2 Check --	DM	IC506	SWP51B SLAVE

Test 11

Function: Pitch check

Description:

Set the [MASTER VOLUME] to the maximum level.
Connect a frequency counter to the [PHONES] jack. (Either L or R)
(Load should be 33 Ω. (30 Ω is acceptable as well: -0.6 dB))
Confirm that the frequency counter shows "441.43 +/- 0.22 Hz".

- Amount of volume decay:
Set the [MASTER VOLUME] to the minimum level.
Connect a level meter (JIS-C curve) to the L/R of [PHONES] terminal.
(Load should be 33 Ω. (30 Ω is acceptable as well: -0.6 dB))
 - PHONES L: -60.0 dBu or less
 - PHONES R: -60.0 dBu or less

Displayed Message:



Selected screen



When a sound is being produced.

Supplement:

Sound is stopped when the test item is quit.

Test 12

Function: Output Level R check

Description:

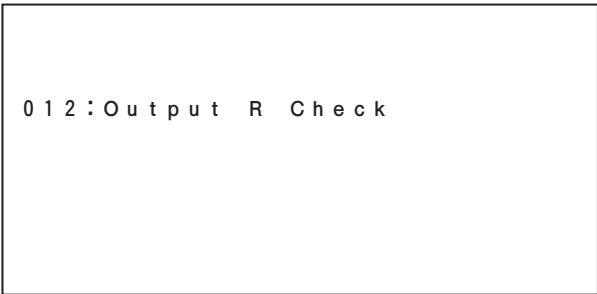
Connect a level meter (JIS-C curve) to each jack. ([PHONES] L, R, [LINE OUT MAIN] L/L+R, R, [AUX OUT/LOOP SEND] L/L+R, R, [TO SUB WOOFER R] L, R)

Set the [MASTER VOLUME] to the maximum level and check the output level of the R channel.

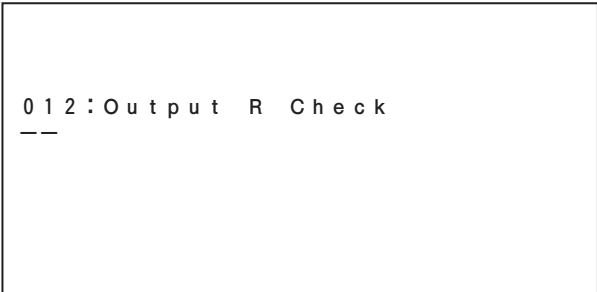
- [PHONES] L, R
(33 Ω load (30 Ω is acceptable as well: -0.6 dB))
 - PHONES L: -55.0 dBu or less
 - PHONES R: +1.0±2 dBu
- [LINE OUT MAIN] L/L+R, R
(10 k Ω load (2 monaural jacks used simultaneously))
 - LINE OUT MAIN L/L+R: -75.0 dBu or less
 - LINE OUT MAIN R: +9.5±2 dBu
- [AUX OUT/LOOP SEND] L/L+R, R
(10 k Ω load (2 monaural jacks used simultaneously))
 - AUX OUT/LOOP SEND L/L+R: -75.0 dBu or less
 - AUX OUT/LOOP SEND R: +5.0±2 dBu
- [TO SUB WOOFER R] L, R
(470 Ω load (L side: between 6P-3P, R side: between 5P-3P, GND: 3P))
 - TO SUB WOOFER R L: -65.0 dBu or less
 - TO SUB WOOFER R R: +5.5±2 dBu

Disconnect the headphone and connect the optional speakers to the left and right speaker terminals.
Confirm that the sound comes out only right speaker.

Displayed Message:



Selected screen



When a sound is being produced.

Supplement:

Sound is stopped when the test item is quit.

Test 13

Function: Output Level L check

Description:

Connect a level meter (JIS-C curve) to each jack. ([PHONES] L, R, [LINE OUT MAIN] L/L+R, R, [AUX OUT/LOOP SEND] L/L+R, R, [TO SUB WOOFER R] L, R)

Set the [MASTER VOLUME] to the maximum level and check the output level of the L channel.

[PHONES] L, R

(33 Ω load (30 Ω is acceptable as well: -0.6 dB))

- PHONES L: +1.0 \pm 2 dBu
- PHONES R: -55.0 dBu or less

[LINE OUT MAIN] L/L+R, R

(10 k Ω load (2 monaural jacks used simultaneously))

- LINE OUT MAIN L/L+R: +9.5 \pm 2 dBu
- LINE OUT MAIN R: -75.0 dBu or less

[AUX OUT/LOOP SEND] L/L+R, R

(10 k Ω load (2 monaural jacks used simultaneously))

- AUX OUT/LOOP SEND L/L+R: +5.0 \pm 2 dBu
- AUX OUT/LOOP SEND R: -75.0 dBu or less

[TO SUB WOOFER R] L, R

(470 Ω load (L side: between 6P–3P, R side: between 5P–3P, GND: 3P))

- TO SUB WOOFER R L: +5.5 \pm 2 dBu
- TO SUB WOOFER R R: -65.0 dBu or less

Disconnect the headphone and connect the optional speakers to the left and right speaker terminals.

Confirm that the sound comes out only left speaker.

Displayed Message:

```
0 1 3 : O u t p u t   L   C h e c k
```

Selected screen

```
0 1 3 : O u t p u t   L   C h e c k
--
```

When a sound is being produced.

Supplement:

Sound is stopped when the test item is quit.

Test 14

Function: Output Level Sub-1 check

Description:

Set the [MASTER VOLUME] to the maximum level.

Connect a level meter (JIS-C curve) to the SUB1/ SUB2 of [LINE OUT] terminal. (Load should be 10 k Ω)

- LINE OUT SUB1: +3.0 \pm 2 dBu
- LINE OUT SUB2: -75.0 dBu or less

Displayed Message:

```
0 1 4 : O u t p u t   S u b - 1   C h e c k
```

Selected screen

```
0 1 4 : O u t p u t   S u b - 1   C h e c k
--
```

When a sound is being produced.

Supplement:

Sound is stopped when the test item is quit.

Test 15

Function: Output Level Sub-2 check

Description:

Set the [MASTER VOLUME] to the maximum level.

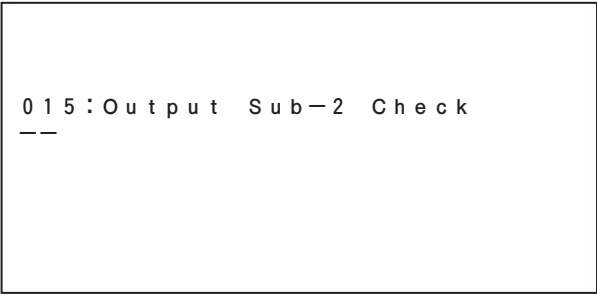
Connect a level meter (JIS-C curve) to the SUB1/ SUB2 of [LINE OUT] terminal. (Load should be 10 k Ω .)

- LINE OUT SUB1: -75.0 dBu or less
- LINE OUT SUB2: +3.0 \pm 2 dBu

Displayed Message:

```
0 1 5 : O u t p u t   S u b - 2   C h e c k
```

Selected screen



When a sound is being produced.

Supplement:
Sound is stopped when the test item is quit.

Noise Level:
Set the [MASTER VOLUME] to the maximum level.
Connect a level meter to the L/R of [PHONES] terminal.
Load should be 33 Ω. (30 Ω is acceptable as well: -0.6 dB)
L side: -80.0 dBu or less
R side: -80.0 dBu or less

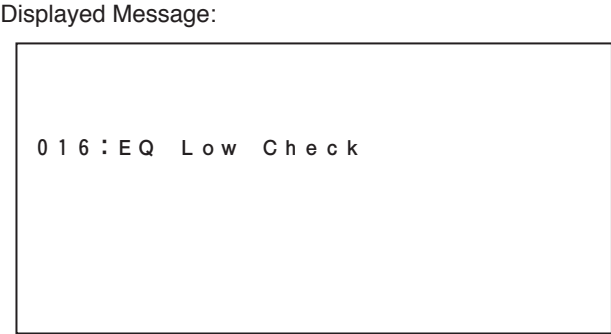
Set the [MASTER VOLUME] to the maximum level.
Connect a level meter to the MAIN L/L+R, R of [LINE OUT] terminal.
(Use two monaural jacks simultaneously)
Load should be 10 k Ω.
L side: -75.0 dBu or less
R side: -75.0 dBu or less

Set the [MASTER VOLUME] to the maximum level.
Connect a level meter to the [WOOFER R] terminal.
(L side: between 6P-3P, R side: between 5P-3P, GND: 3P)
Load should be 470 Ω.
L side: -80.0 dBu or less
R side: -80.0 dBu or less

Set the [MASTER VOLUME] to the maximum level.
Connect a level meter to the [LINE OUT SUB1] terminal.
Load should be 10 k Ω.
SUB1 side: -80.0 dBu or less

Set the [MASTER VOLUME] to the maximum level.
Connect a level meter to the [LINE OUT SUB2] terminal.
Load should be 10 k Ω.
SUB2 side: -80.0 dBu or less

Test 16
Function: EQ (Low) frequency check
Description:
The sine wave of about 65.4 Hz (C1) is output from the [LINE OUT] jacks (MAIN L/L+R, MAIN, R, SUB1, SUB2).



Selected screen



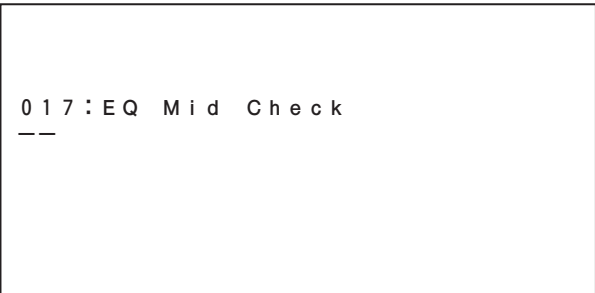
When a sound is being produced.

Supplement:
Sound is stopped when the test item is quit.

Test 17
Function: EQ (Mid) frequency check
Description:
The sine wave of about 523 Hz (C4) is output from the [LINE OUT] jacks (MAIN L/L+R, MAIN, R, SUB1, SUB2).
Displayed Message:



Selected screen



When a sound is being produced.

Supplement:

Sound is stopped when the test item is quit.

Test 18

Function: EQ (High) frequency check

Description:

The sine wave of about 4,186 Hz (C7) is output from the [LINE OUT] jacks (MAIN L/L+R, MAIN, R, SUB1, SUB2).

Displayed Message:

```
018:EQ High Check
```

Selected screen

```
018:EQ High Check
--
```

When a sound is being produced.

Supplement:

Sound is stopped when the test item is quit.

Test 19

Function: SP MUTE check

Description:

When the test is executed, the sine wave of about 1,046 Hz (C5) is output from the [LINE OUT] jacks (MAIN L/L+R, MAIN, R, SUB1, SUB2).

Confirm that the **"ON"** and **"OFF"** of SP MUTE can be toggled by pressing the TAB [◀] or the TAB [▶] button.

Displayed Message:

```
019:SP MUTE Check
```

Selected screen

```
019:SP MUTE Check
OFF
```

During MUTE OFF

```
019:SP MUTE Check
ON
```

During MUTE ON

Supplement:

SP MUTE (sound) shall not be controlled with connection/disconnection of headphones during this test.
Sound is stopped when the test item is quit.

Test 20

Function: MUTE check

Description:

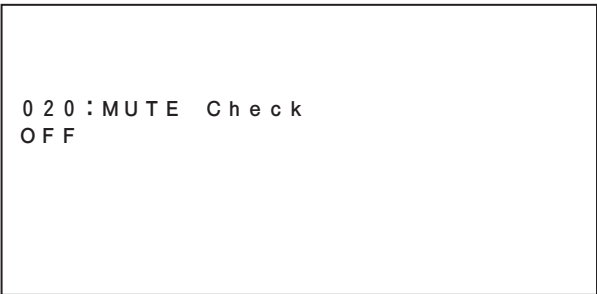
When the test is executed, the sine wave of about 1,046 Hz (C5) is output from the [LINE OUT] jacks (MAIN L/L+R, MAIN, R, SUB1, SUB2).

Confirm that the **"ON"** and **"OFF"** of MUTE can be toggled by pressing the TAB [◀] or the TAB [▶] button.

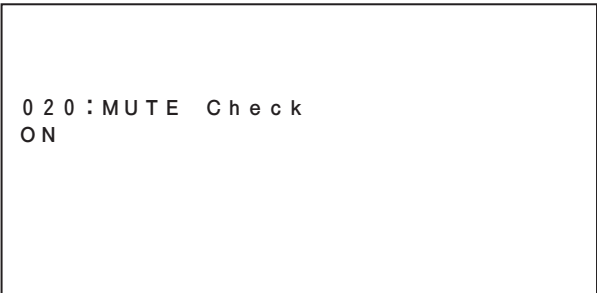
Displayed Message:

```
020:MUTE Check
```

Selected screen



During MUTE OFF



During MUTE ON

Supplement:
MUTE (sound) shall not be controlled with connection/disconnection of headphones during this test.
Sound is stopped when the test item is quit.

Test 21

Function: MIC L check

Description:

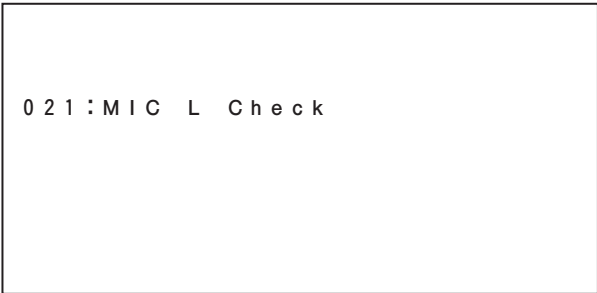
Check output sound with MIC L input. Check that there is no abnormal sounds or noise.

The [MASTER VOLUME] can be set to any level.
Set the [INPUT VOLUME] to the maximum level.
Set the [LINE IN/MIC TRIM] volume to the maximum level
Connect a level meter (JIS-C curve) to the L/L+R of [AUX OUT/LOOP SEND] terminal. (Load should be 10 k Ω .)
Input signal of -45 dBu (1 kHz sine wave) from an oscillator to the L/L+R of [LINE IN/MIC] terminal and measure at output terminals.

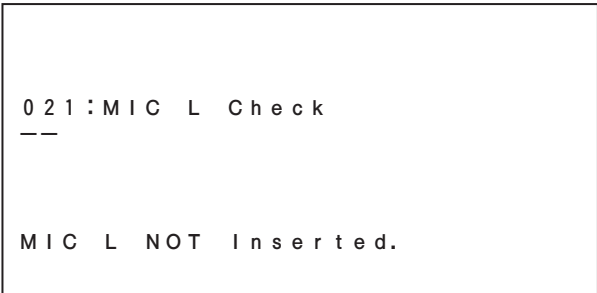
- AUX OUT/LOOP SEND L/L+R: +13.0±2 dBu
- Amount of TRIM volume decay:
Change the [LINE IN/MIC TRIM] volume to the minimum level with the other setups remained as above. (Leave the [INPUT VOLUME] at the maximum position.)
Measure output terminals.
 - AUX OUT/LOOP SEND L/L+R: -34.0±2 dBu
- Amount of volume decay:
Change the [INPUT VOLUME] to the minimum level with the other setups remained as above.
(Leave the [LINE IN/MIC TRIM] volume at the minimum level.)
Measure output terminals.
 - AUX OUT/LOOP SEND L/L+R: -70.0 dBu or less

Check also if connection and disconnection of MIC is detected by inserting and removing MIC.

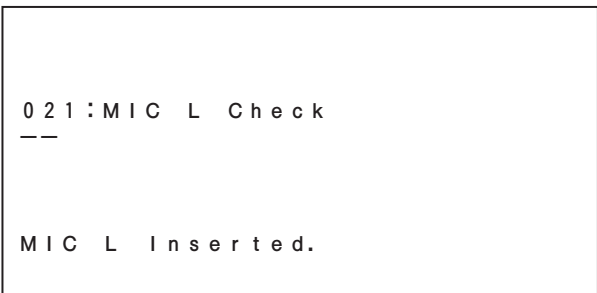
Displayed Message:



Selected screen



When MIC L is unconnected



When MIC L is connected

Supplement:
[SIGNAL] LED do not light up.

Test 22

Function: MIC R check

Description:

Check output sound with MIC R input. Check also that there is no abnormal sounds or noise.

The [MASTER VOLUME] can be set to any level.
Set the [INPUT VOLUME] to the maximum level.
Set the [LINE IN/MIC TRIM] VOLUME to the maximum level.
Connect a level meter (JIS-C curve) to the R of [AUX OUT/ LOOP SEND] terminal. (Load should be 10 k Ω .)
Input signal of -45 dBu (1 kHz sine wave) from an oscillator to the R of [LINE IN/MIC] terminal and measure at output terminals.

- AUX OUT/LOOP SEND R: +13.0±2 dBu

- Amount of TRIM volume decay:
Change the [LINE IN/MIC TRIM] volume to the minimum level with the other setups remained as above. (Leave the [INPUT VOLUME] at the maximum position.)
Measure output terminals.

- AUX OUT/LOOP SEND R: -34.0 ± 2 dBu

- Amount of volume decay:
Change the [INPUT VOLUME] to the minimum level with the other setups remained as above.
(Leave the [LINE IN/MIC TRIM] volume at the minimum level.)
Measure output terminals.

- AUX OUT/LOOP SEND R: -70.0 dBu or less

Check also if connection and disconnection of MIC is detected by inserting and removing MIC.

Displayed Message:

```
0 2 2 : M I C   R   C h e c k
```

Selected screen

```
0 2 2 : M I C   R   C h e c k
--
M I C   R   N O T   I n s e r t e d .
```

When MIC R is unconnected

```
0 2 2 : M I C   R   C h e c k
--
M I C   R   I n s e r t e d .
```

When MIC R is connected

Supplement:

[SIGNAL] LED do not light up.

AUX IN/LOOP RETURN input level:

Set the [MASTER VOLUME] to the maximum level.

Set the [AUX IN/LOOP RETURN TRIM VOLUME] to the maximum level.

Connect a level meter to the MAIN L/L+R, R of [LINE OUT] terminal.

Load should be $10\text{ k } \Omega$.

Input signals from an oscillator to the L/L+R, R of [AUX IN/LOOP RETURN] terminal.

Input Level: -20 dBu (1 kHz sine wave)

L side: $+2.0 \pm 2$ dBu

R side: $+2.0 \pm 2$ dBu

Amount of volume decay:

Change the [AUX IN/LOOP RETURN TRIM VOLUME] to the minimum level with the other setups remained as above.

L side: -75.0 dBu or less

R side: -75.0 dBu or less

Test 23

Function: Switch, LED Check

Description:

When a panel switch is being pressed, a sound is kept produced at a pitch corresponding to the switch (page 112).
When the switch is released, the sound is stopped.

If there is an LED for the switch, the LED will light up.

The LED will be turned off when the next switch is pressed correctly.

In case of two-colored LED, both the two colors will light.

Operate the [DATA ENTRY] dial following the indications on the LCD to check Dial Up and Dial Down. (The number should increase when turned clockwise and decrease when turned counterclockwise.)

Displayed Message:

```
0 2 3 : S W , L E D   C h e c k
```

Selected screen

```
0 2 3 : S W , L E D   C h e c k
P u s h   T E M P O   D O W N
```

Indicates a switch name.


```
0 2 3 : SW, LED Check
TEMPO DOWN On
```

The specified switch is pressed.

```
0 2 3 : SW, LED Check
NG (O : 0 6 5 A, X : 0 4 5 A)
```

A wrong switch is pressed.
(O: ID of the switch to be pressed,
X: ID of the switch which is actually pressed)

```
0 2 3 : SW, LED Check
Over Two SW
```

Plural switches are pressed.

```
0 2 3 : SW, LED Check
End
```

Test completed

Supplement:

If an unspecified switch is pressed, a sound corresponding to the switch will be played.

Press the [START/STOP] switch to go back to the selection screen when the test is completed.

Press the [DEMO] switch to abort the test halfway and return to the item selection display. (The switch is effective only after the checking of the switch is completed)

Test 24

Function: All Panel LEDs On check

Description:

Turns on all the panel LEDs. (Two-colored LEDs will light in orange.)

Displayed Message:

```
0 2 4 : All Panel LED On Check
```

All LED on check

```
0 2 4 : All Panel LED On Check
--
```

During checking

Supplement:

There are two lighting areas and the areas will be switched as the TAB [<|/|>] key is pressed.

The LEDs will go off after exiting the test item.

Test 25

Function: Red LEDs On check

Description:

Turns on all the red panel LEDs. (Two-colored LEDs will light in red.)

Displayed Message:

```
0 2 5 : Red LED On Check
```

Selected screen

0 2 5 : R e d L E D O n C h e c k

--

During checking

Supplement:

There are two lighting areas and the areas will be switched as the TAB [<]/[>] key is pressed.

The LEDs will go off after exiting the test item.

Test 26

Function: Green LEDs On check

Description:

Turns on all the green panel LEDs. (Two-colored LEDs will light in green.)

Displayed Message:

0 2 6 : G r e e n L E D O n C h e c k

Selected screen

0 2 6 : G r e e n L E D O n C h e c k

--

During checking

Supplement:

There are two lighting areas and the areas will be switched as the TAB [<]/[>] key is pressed.

The LEDs will go off after exiting the test item.

Test 27

Function: Other colors LEDs On check

Description:

Turns on all the panel LEDs (orange and white) other than the red and green ones.

Displayed Message:

0 2 7 : O t h e r L E D O n C h e c k

Selected screen

0 2 7 : O t h e r L E D O n C h e c k

--

During checking

Supplement:

The LEDs will go off after exiting the test item.

Test 28

Function: Whole LCD ON check

Description:

Lights up all the dots on the LCD.

Displayed Message:

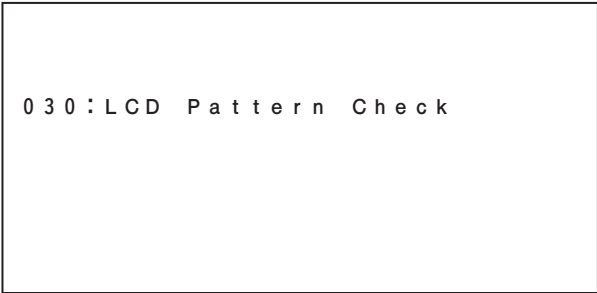
0 2 8 : A l l L C D O n C h e c k

Selected screen



During checking

Displayed Message:



Selected screen

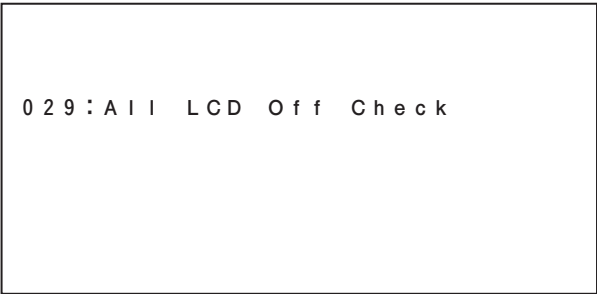
Test 29

Function: Whole LCD OFF check

Description:

Turns off all the dots on the LCD. (The whole screen will be white)

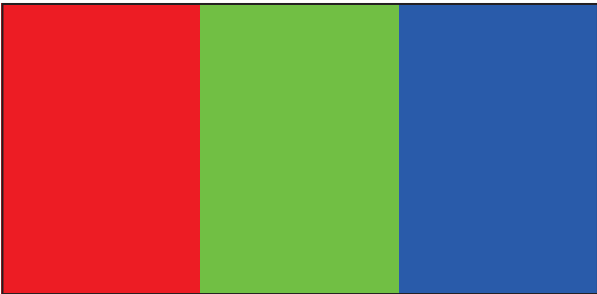
Displayed Message:



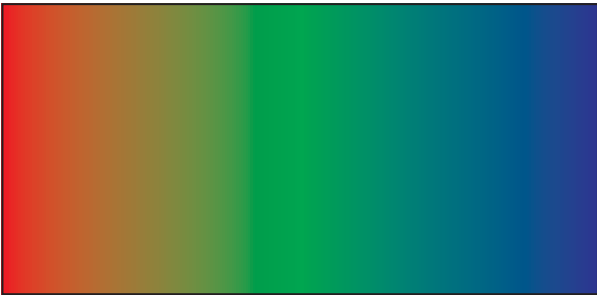
Selected screen



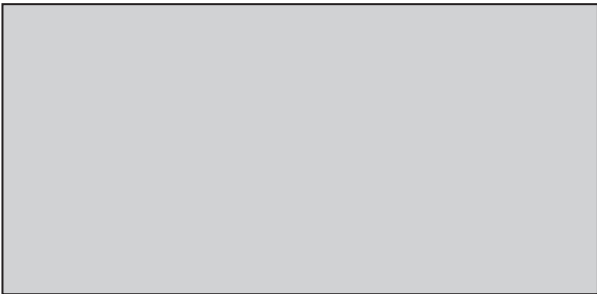
During checking



RGB pattern



Rainbow pattern



Flicker noise pattern

Test 30

Function: LCD pattern check

Description:

Displays color patterns for checking LCD picture quality. Switch the patterns RGB → rainbow → flicker noise check with the TAB [<|/|>] keys.

Test 31

Function: Pitch Bend Wheel check

Description:

Checks the pitch bend wheel. Center position of the wheel is detected after detecting MIN and MAX.

① "Pitch Bend Down":

Turn the wheel all the way toward you from the center position. (The sine wave C3 note sound will be produced when the wheel is at the minimum value, 0.)

② "Pitch Bend Up":

Turn the wheel all the way away from you. (The sine wave G3 note sound will be produced when the wheel is at the maximum value, 127.)

③ "Pitch Bend Center":

Release the wheel to set it back to the center position. (The sine wave C4 note sound will be produced when the wheel is at the center with the value of 64.)

Displayed Message:

```
0 3 1 : P i t c h   B e n d   W h e e l   C h e c k
```

Selected screen

```
0 3 1 : P i t c h   B e n d   W h e e l   C h e c k
P i t c h   B e n d   D o w n

6 4
```

When the checking is started

```
0 3 1 : P i t c h   B e n d   W h e e l   C h e c k
P i t c h   B e n d   U p

0
```

Detection of the minimum value

```
0 3 1 : P i t c h   B e n d   W h e e l   C h e c k
P i t c h   B e n d   C e n t e r

1 2 7
```

Detection of the maximum value

```
0 3 1 : P i t c h   B e n d   W h e e l   C h e c k
O K

6 4
```

In case of OK (When the center value is detected)

Test 32

Function: Modulation wheel check

Description:

Checks the modulation wheel. MAX and MIN are detected.

① "Modulation Up":

Turn the wheel all the way away from you. (The sine wave C3 note sound will be produced when the wheel is at the maximum value, 127.)

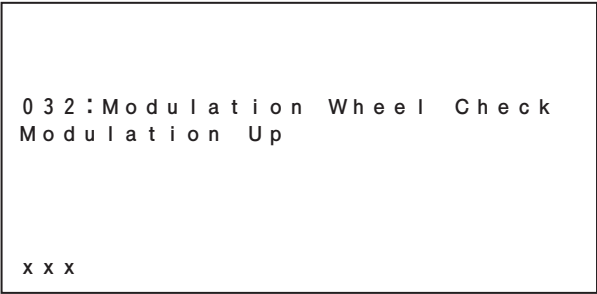
② "Modulation Down":

Turn the wheel all the way toward you. (The sine wave C4 note sound will be produced when the wheel is at the minimum value, 0.)

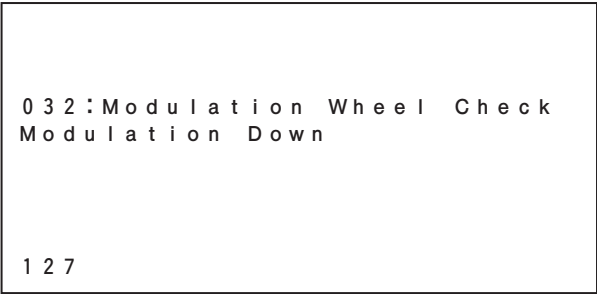
Displayed Message:

```
0 3 2 : M o d u l a t i o n   W h e e l   C h e c k
```

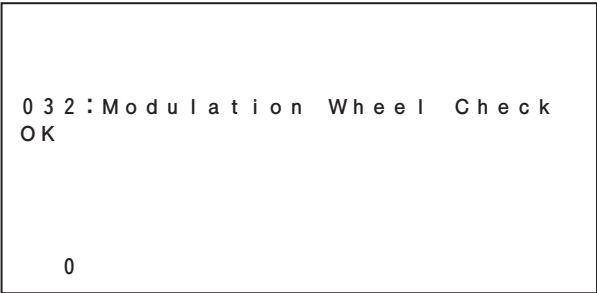
Selected screen



When the checking is started
(xxx: Indicates current value)



Detection of the maximum value



Detection of the minimum value (In case of OK)

Test 33

Function: Slider check

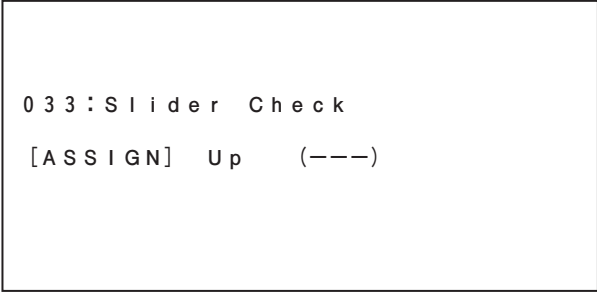
Description:

Slide the 9 sliders one by one in the order of Max (255) to Min (0) and check that the operation is detected. When checking a slider, current value will be shown. Checking is executed in the order of [ASSIGN] → [S1] → [S2] → ... → [S8], and the result of each slider should be OK to proceed to the next checking.

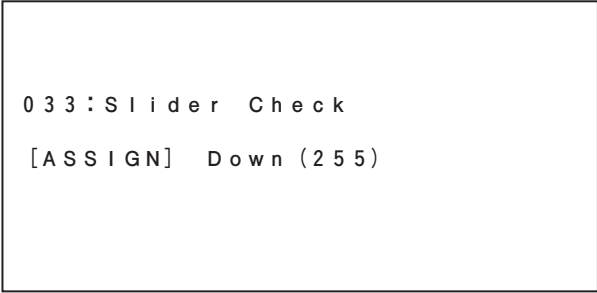
Displayed Message:



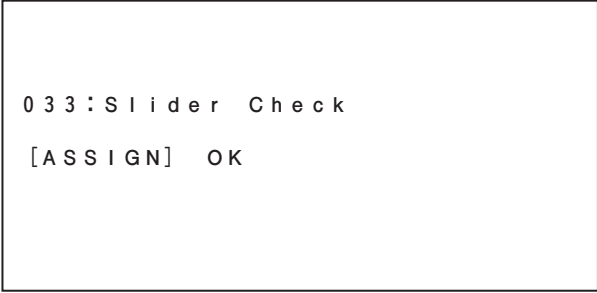
Selected screen



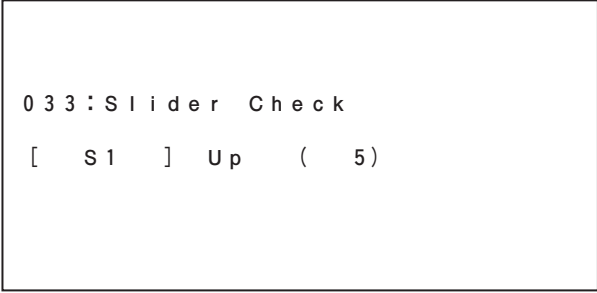
When the checking is started.
(Starts with the [ASSIGN]. Indicates current value in parentheses ().)



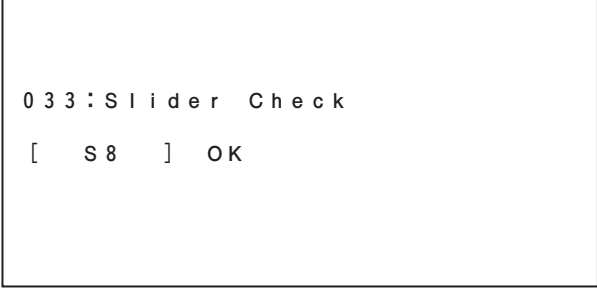
During checking
(After the maximum value is detected, the indication will change to "Down".)



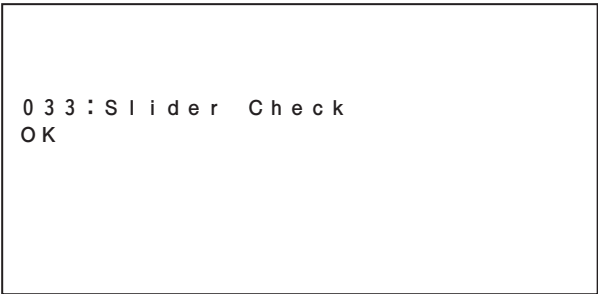
During checking
(After the minimum value is detected, the indication will change to "OK".)



The indication changes to the next slider and the checking will be executed.



When the checking proceeds to the slider 8 and the result is "OK",



the indication will change to "OK".

Supplement:

It is not until the device is moved after the checking is started when a value is loaded.
A current value will be indicated for a device until the result is judged as OK.
When the result of all the devices are OK, only "OK" will be shown on the screen.

Test 34

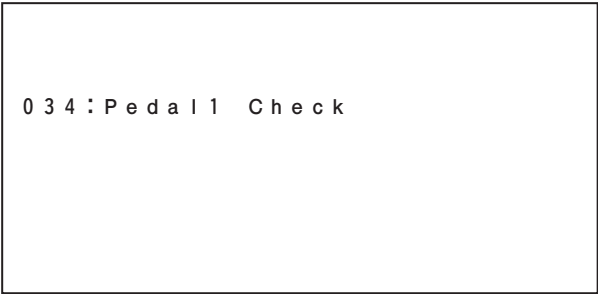
Function: Pedal 1 check

Description:

Detects Max/Min of the pedal 1.
Execute the test after connecting a foot pedal (FC7) to the [ASSIGNABLE FOOT PEDAL 1] terminal.

- ① "Pedal 1 Down":
Depress the pedal.
(The sine wave C3 note sound will be produced.)
- ② "Pedal 1 Up":
Release the pedal.
(The sine wave G3 note sound will be produced.)
- ③ "Pedal 1 Out":
Disconnect the pedal from the terminal.
(The sine wave C4 note sound will be produced.)

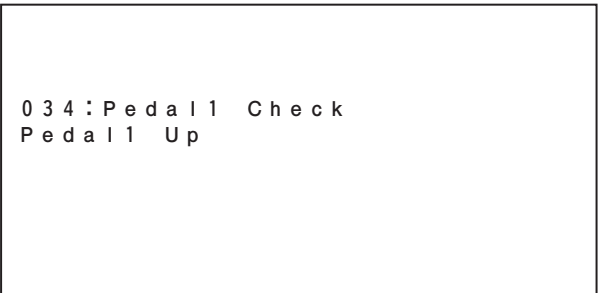
Displayed Message:



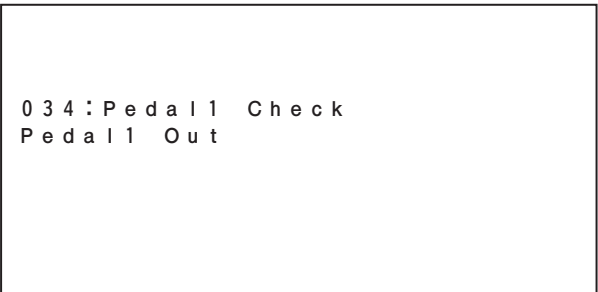
Selected screen



When the checking is started



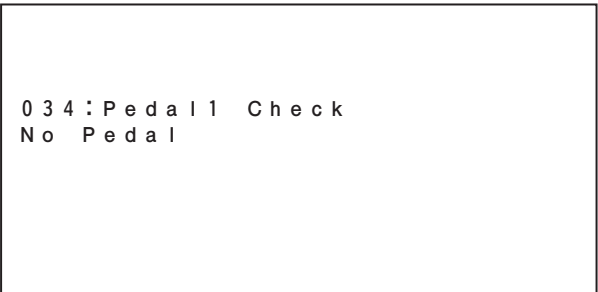
Detection of Min



Detection of Max



In case of OK (Disconnection detection)



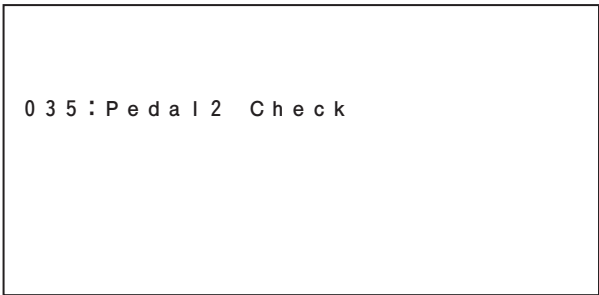
When unconnected (No foot pedal is connected)

Supplement:
Use an FC7 pedal for the checking.

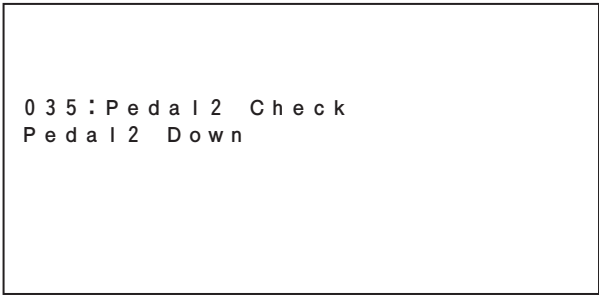
Test 35

Function: Pedal 2 check
Description:
Detects Max/Min of the pedal 2.
Execute the test after connecting a foot pedal (FC7) to the [ASSIGNABLE FOOT PEDAL 2] terminal.
① "Pedal 2 Down":
Depress the pedal.
(The sine wave C3 note sound will be produced.)
② "Pedal 2 Up":
Release the pedal.
(The sine wave G3 note sound will be produced.)
③ "Pedal 2 Out":
Disconnect the pedal from the terminal.
(The sine wave C4 note sound will be produced.)

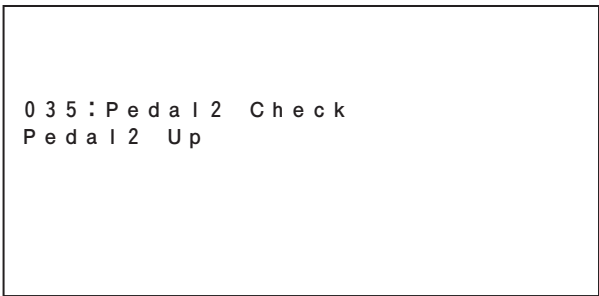
Displayed Message:



Selected screen



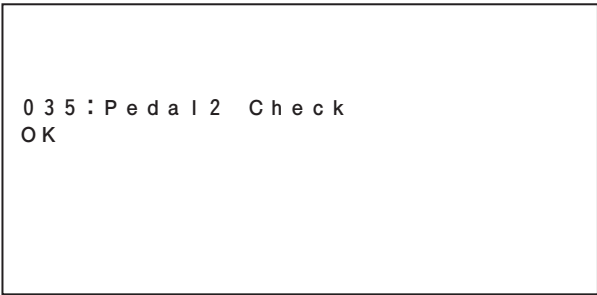
When the checking is started



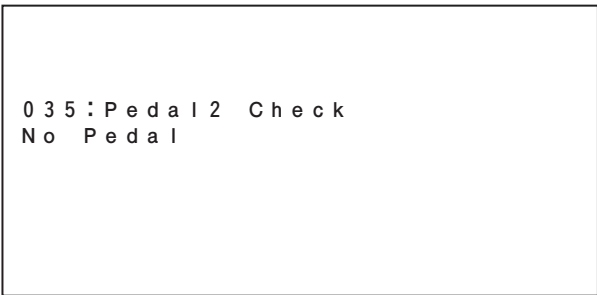
Detection of Min



Detection of Max



In case of OK (Disconnection detection)



When unconnected (No foot pedal is connected)

Supplement:
Use an FC7 pedal for the checking.

Test 36

Function: Pedal 3 check
Description:
Detects Max/Min of the pedal 3.
Execute the test after connecting a foot pedal (FC7) to the [ASSIGNABLE FOOT PEDAL 3] terminal.
① "Pedal 3 Down":
Depress the pedal.
(The sine wave C3 note sound will be produced.)
② "Pedal 3 Up":
Release the pedal.
(The sine wave G3 note sound will be produced.)
③ "Pedal 3 Out":
Disconnect the pedal from the terminal.
(The sine wave C4 note sound will be produced.)

Displayed Message:

0 3 6 : P e d a l 3 C h e c k

Selected screen

0 3 6 : P e d a l 3 C h e c k
P e d a l 3 D o w n

When the checking is started

0 3 6 : P e d a l 3 C h e c k
P e d a l 3 U p

Detection of Min

0 3 6 : P e d a l 3 C h e c k
P e d a l 3 O u t

Detection of Max

0 3 6 : P e d a l 3 C h e c k
O K

In case of OK (Disconnection detection)

0 3 6 : P e d a l 3 C h e c k
N o P e d a l

When unconnected (No foot pedal is connected)

Supplement:

Use an FC7 pedal for the checking.

Test 37

Function: MIDI check

Description:

Checks transmission/reception of signals with the [MIDI IN] and [MIDI OUT] terminals connected with a MIDI cable in a loop. (Start checking with the MIDI terminals connected with a MIDI cable in a loop.)

Connect [MIDI-A OUT] to [MIDI-A IN] and [MIDI-B OUT] to [MIDI-B IN] with MIDI cables. (The result will be NG if connected alternately.)

The test result of MIDI-A is OK and the sine wave C3 note sound will be produced.

The test result of MIDI-B is OK and the sine wave C4 note sound will be produced.

Displayed Message:

0 3 7 : M I D I C h e c k

Selected screen


```

0 3 7 : M I D I   C h e c k
M I D I - A   --
M I D I - B   --

```

When the checking is started

```

0 3 7 : M I D I   C h e c k
M I D I - A   O K
M I D I - B   --

```

When the MIDI-A is OK and MIDI-B is unchecked.

```

0 3 7 : M I D I   C h e c k
M I D I - A   N G
M I D I - B   O K

```

When the MIDI-A is NG and MIDI-B is OK.

```

0 3 7 : M I D I   C h e c k
O K

```

When both the MIDI-A and B are OK.

```

0 3 7 : M I D I   C h e c k
M I D I - A   N G
M I D I - B   N G

```

When both the MIDI-A and B are NG.

Supplement:

In case of no input one second after the output, the result is judged as NG.

Test 38

Function: Loop Send/Return check

Description:

Loop Send/Return function check using an audio cable.

The sine wave A3 note signal will be outputted from [LINE OUT (MAIN)] when test is started.

The sound output will switched from [LINE OUT (MAIN)] to [AUX OUT/LOOP SEND] terminals when an audio cable is inserted to [AUX OUT/LOOP SEND L/L+R] terminal.

If connect [AUX OUT/LOOP SEND] to [AUX IN/LOOP RETURN] terminals in above setting, A3 note signal will output from [LINE OUT (MAIN)].

Displayed Message:

```

0 3 8 : L o o p   S e n d / R e t u r n   C h e c k

```

Selected screen

```

0 3 8 : L o o p   S e n d / R e t u r n   C h e c k

```

```

L O O P   S E N D   N O T   I n s e r t e d .

```

When the LOOP SEND jack is not connected.

```

0 3 8 : L o o p S e n d / R e t u r n C h e c k

```

```

L O O P   S E N D   I n s e r t e d .

```

When connection to the LOOP SEND jack is detected.

Supplement:

No detection of connection is conducted at the [AUX OUT/ LOOP SEND(R)] terminal.

Test 39

Function: Sub Out connection check

Description:

[LINE OUT SUB 1] and [LINE OUT SUB 2] function check using an audio cable.

The C3 note will be outputted when an audio cable is inserted to the [LINE OUT SUB] terminals, and C4 note will output when an audio cable is disconnected from the terminals.

Displayed Message:

```
0 3 9 : S u b   O u t   C h e c k
```

Selected screen

```
0 3 9 : S u b   O u t   C h e c k
N o   S u b 1
N o   S u b 2
```

An audio cable is not inserted to the terminals

```
0 3 9 : S u b   O u t   C h e c k
S u b 1   I n
N o   S u b 2
```

An audio cable is inserted to the SUB 1 terminal only.

```
0 3 9 : S u b   O u t   C h e c k
S u b 1   O K
S u b 2   I n
```

An audio cable is disconnected from SUB 1 terminal and inserted to the SUB 2 terminal.

```
0 3 9 : S u b   O u t   C h e c k
O K
```

An audio cable is disconnected both terminal of SUB 1 and SUB 2.

Supplement:

Checking can be started with either the SUB 1 or 2.

Test 40

Function: Video Out check (NTSC RGB)

Description:

Conducts RGB (NTSC) test of the [VIDEO OUT] terminal. Connect a color CRT monitor that can display in NTSC and PAL systems to the [VIDEO OUT] terminal with a video cable (75Ω coaxial).

Check that RGB color bars (red, green and blue) are shown on the TV.

Displayed Message:

```
0 4 0 : V I D E O   O U T   N T S C   R G B
```

Selected screen



During checking

Test 41

Function: Video Out check (PAL RGB)

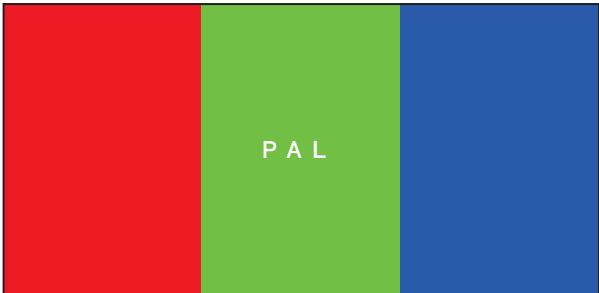
Description:

Conducts RGB (PAL) test of the [VIDEO OUT] terminal.
Connect a color CRT monitor that can display in NTSC and PAL systems to the [VIDEO OUT] terminal with a video cable (75Ω coaxial).
Check that RGB color bars (red, green and blue) are shown on the TV.

Displayed Message:



Selected screen



During checking

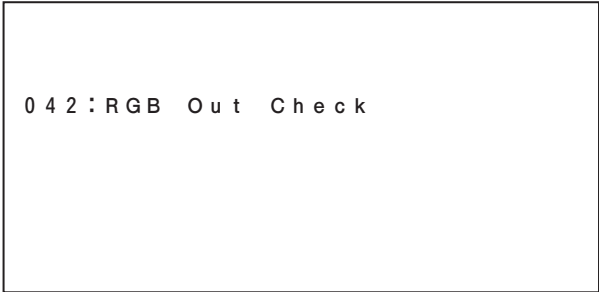
Test 42

Function: RGB Out check

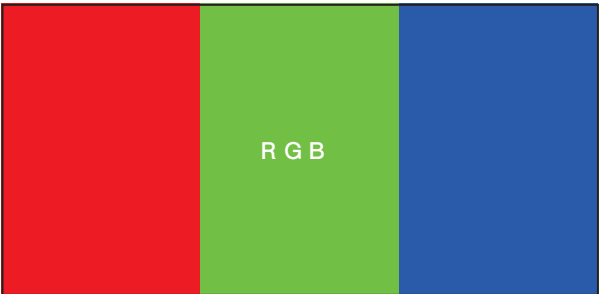
Description:

Conducts RGB test of the [RGB OUT] terminal.
Connect a color CRT monitor that can display in RGB to the [RGB OUT] terminal.
Check that RGB color bars (red, green and blue) are shown on the RGB monitor.

Displayed Message:



Selected screen



During checking

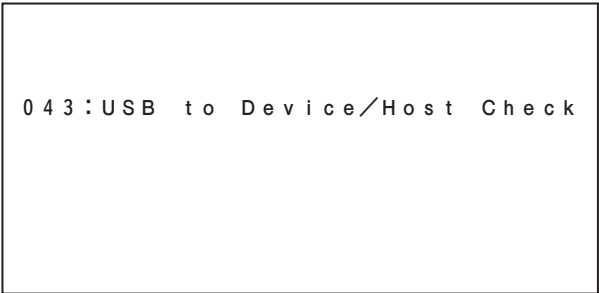
Test 43

Function: USB to Device/Host check

Description:

Conducts checking of the [USB TO DEVICE] terminal and [USB TO HOST] terminal simultaneously.
Start checking without connecting a USB cable in a loop.
The sine wave C4 note sound will be produced if the result of the two tests is OK.

Displayed Message:



Selected screen



* When the screen appears, connect the [USB TO DEVICE] terminal and [USB TO HOST] terminal with a USB cable.
Checking [USB TO DEVICE] and [USB TO HOST]

```
0 4 3 : U S B   t o   D e v i c e / H o s t   C h e c k
C o n n e c t   U S B   S t o r a g e
```

* When the screen appears, connect the storage device to the [USB TO DEVICE] terminal on the front side.

Checking USB Storage

```
0 4 3 : U S B   t o   D e v i c e / H o s t   C h e c k
O K
```

In case of OK

```
0 4 3 : U S B   t o   D e v i c e / H o s t   C h e c k
N G
```

In case of NG

Supplement:

It is impossible to determine if the [USB TO DEVICE] terminal or [USB TO HOST] terminal is defective in case of NG.

The **"USB Storage Check"** can be used to check the [TO DEVICE] terminal. Combine the test to determine which terminal is defective.

Be sure to use a USB Storage whose operation is already checked. It does not matter if it is equipped with a disk or not.

Test 44

Function: USB Storage Device check

Description:

Connect a USB Storage device and check if it can be used.
(Reads every 100 sectors from sector 0 and conducts sector read/write tests at ten points.)

Connect a storage device to the [USB TO DEVICE] terminal at the front side.

Displayed Message:

```
0 4 4 : U S B   S t o r a g e   D e v i c e   C h e c k
```

Selected screen

```
0 4 4 : U S B   S t o r a g e   D e v i c e   C h e c k
S t a r t
```

When the checking is started

```
0 4 4 : U S B   S t o r a g e   D e v i c e   C h e c k
O K
```

In case of OK

```
0 4 4 : U S B   S t o r a g e   D e v i c e   C h e c k
N G
```

In case of NG (Read/Write failure)

```
0 4 4 : U S B   S t o r a g e   D e v i c e   C h e c k
N O   D I S K
```

No media



Media unformatted



Media protected

Test 45

Function: LAN check

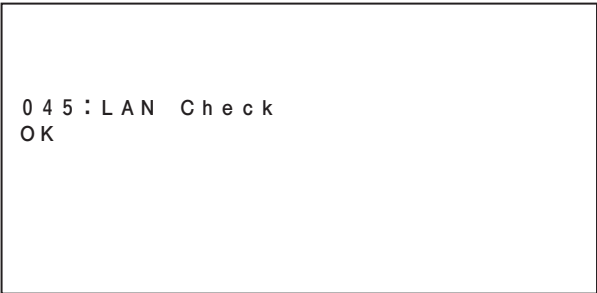
Description:

Conducts signal communication checking with the [LAN] terminal of the Tyros3 and a router for checking connected with a LAN cable. (Starts checking with the instrument connected with the LAN cable.)
It will take about 20 seconds for the check.

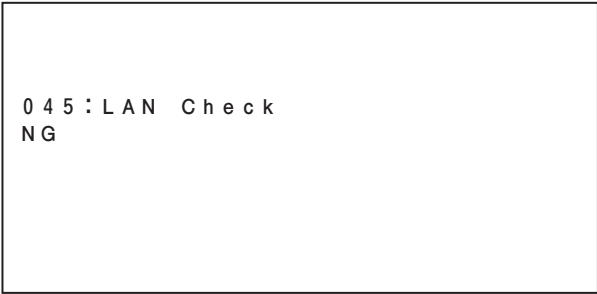
Displayed Message:



Selected screen



In case of OK



In case of NG

Supplement:

Use a router, which has the following specifications, in initial configuration.

- Equipped with DHCP server function
- Default IP address is 192.168.xxx.xxx

Do not connect an equipment other than the instrument to be checked to the router.

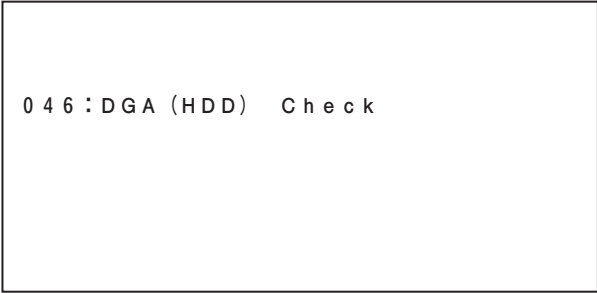
Test 46

Function: DGA (HDD) check

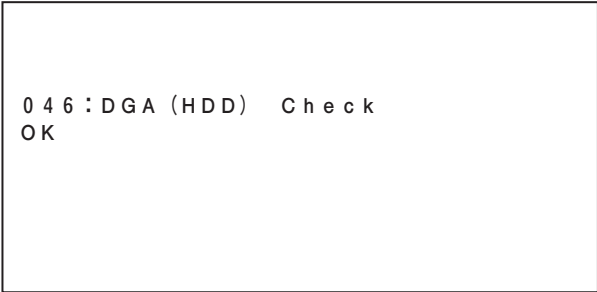
Description:

Checks if the DGA SDRAM (DM: IC204) and HDD are Read/Write enabled. (Sector Read/Write checking is conducted using the last 2 sectors of HDD after checking the SDRAM connection)

Displayed Message:



Selected screen



In case of OK

```
0 4 6 : D G A ( H D D )   C h e c k
N G   ( D G A   S D R A M )
```

In case of NG (SDRAM connection error)

```
0 4 6 : D G A ( H D D )   C h e c k
N G   ( H D D   C O N N E C T )
```

In case of NG (HDD connection error)

```
0 4 6 : D G A ( H D D )   C h e c k
N G   ( H D D   R E A D )
```

In case of NG (HDD Read error)

```
0 4 6 : D G A ( H D D )   C h e c k
N G   ( H D D   W R I T E )
```

In case of NG (HDD Write error)

```
0 4 6 : D G A ( H D D )   C h e c k
N G   ( H D D - D G A )
```

In case of NG (DMA transmission error between HDD and DGA)

```
0 4 6 : D G A ( H D D )   C h e c k
N G   ( H D D - C P U )
```

In case of NG (DMA transmission error between HDD and CPU)

```
0 4 6 : D G A ( H D D )   C h e c k
N G   ( D G A   I R Q 0 )
```

In case of NG (IRQ0 line connection error)

```
0 4 6 : D G A ( H D D )   C h e c k
N G   ( D G A   I R Q 4 )
```

In case of NG (IRQ4 line connection error)

```
0 4 6 : D G A ( H D D )   C h e c k
N G   ( D G A   I R Q 5 )
```

In case of NG (IRQ5 line connection error)

Test 47

Function: DGA (TG) check

Description:

Checks connections of MEL connection between the DGA (DM: IC203) and SWP50 (DM: IC205).
Connect headphones to the [PHONES] terminal and switch between the LINE-A (input to the MEL4 of SWP50) and LINE-B (input to the MEL5 of SWP50) with the TAB [◀]/[▶] keys.

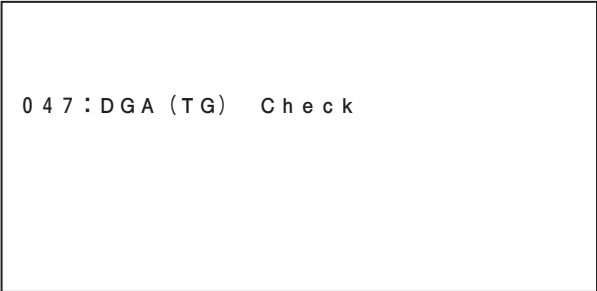
<LINE-A>

The sine wave A3 note sound (about 441.4 Hz) is produced with PAN at center.

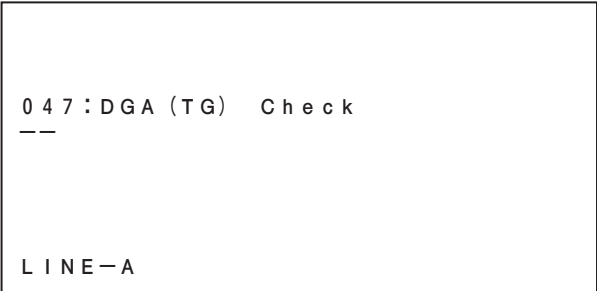
<LINE-B>

The sine wave about 1378 Hz is produced with PAN at R (repetition of sound production for 3 seconds and no sound for 0.5 second).

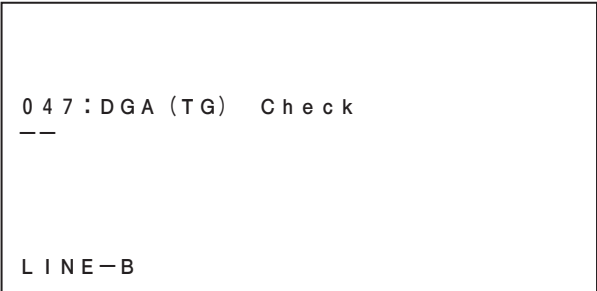
Displayed Message:



Selected screen



Checking LINE-A



Checking LINE-B

Supplement:

You may feel that TAB switches does not respond well when you depress, because, the unit can not respond during a sound is outputted from LINE-B (about 3 second period). Sound is stopped when the test item is quit.

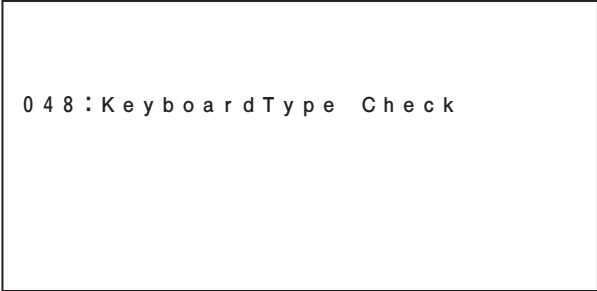
Test 48

Function: Keyboard Type check

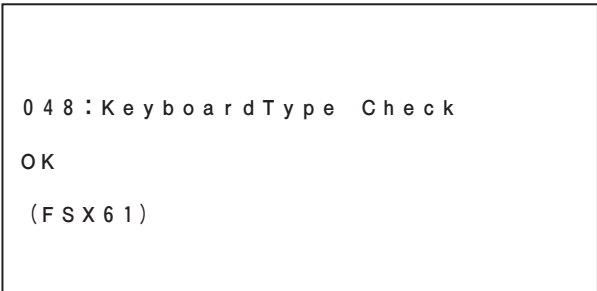
Description:

Judges connected keyboard type and indicated keyboard name.

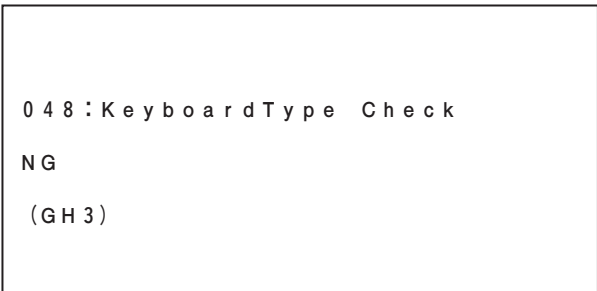
Displayed Message:



Selected screen



In case of OK



In case of NG

Supplement:

The keyboard name will be indicated in case of NG as well.

Test 49

Function: Touch check

Description:

Press the C3 key and press that until after touch will be activated.

Indicates initial touch (velocity)/after touch value of 0 to 127 decimally on the LCD.

Result will be OK if MAX (sine wave C3 note sound is produced) → MIN_(sine wave C4 note sound is produced) are detected.

Displayed Message:

```
0 4 9 : T o u c h   C h e c k
```

Selected screen

```
0 4 9 : T o u c h   C h e c k
T o u c h   S t a r t

V e l :    0
A f t :    0
```

When the checking is started

```
0 4 9 : T o u c h   C h e c k
O K

V e l :   7 7
A f t : 1 2 7
```

Upper: Velocity value

```
0 4 9 : T o u c h   C h e c k
O K

V e l : 7 7
A f t : 0
```

Lower: After touch value

When the maximum value of after touch is detected

In case of OK (When the minimum value of after touch is detected)

Test 50

Function: Full check of ROM

(This is a test for factory inspection)

Description:

Conducts read test (checksum inspection) on Program area and Data area.

It will take about 35 seconds for the check.

Displayed Message:

```
0 5 0 : R O M   C h e c k 2
```

Selected screen

```
0 5 0 : R O M   C h e c k 2
O K
```

In case of OK

```
0 5 0 : R O M   C h e c k 2
M A I N   P R O G   R O M   H / L       N G
M A I N   D A T A   R O M                N G
S U B   P R O G   R O M                  N G
```

In case of NG (Example)

Supplement:

In case of NG, the name of the ROM of which NG is detected will be shown.

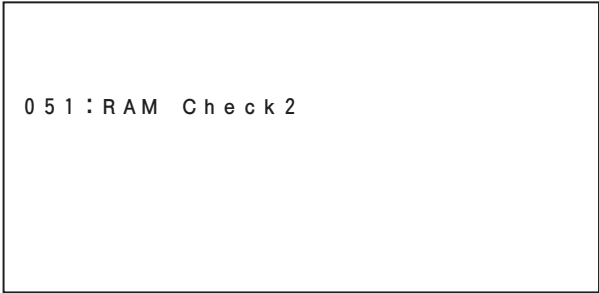
"No Card" will be shown if SUB PROG is not detected.

Error Indications	Circuit Board	Location	Name in Circuit Diagram
MAIN PROG ROM H/L NG	DM	IC10	MAIN PROG-L 256 M FLASH
MAIN PROG WR NG		IC11	MAIN PROG-H 256 M FLASH
MAIN DATA ROM NG	DM	IC14	DATA ROM 64 M
SUB PROG ROM NG	DM	IC514	SUB BOOT ROM 8 M
SUB PROG ROM No Card			

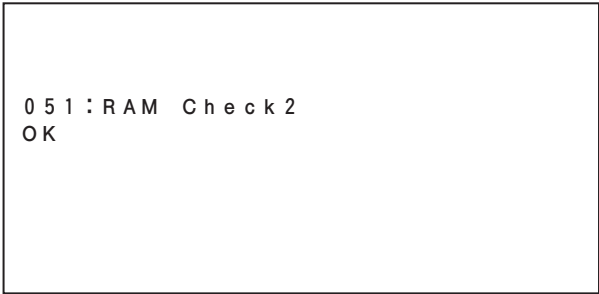
Test 51

Function: Full check of RAM
(This is a test for factory inspection)

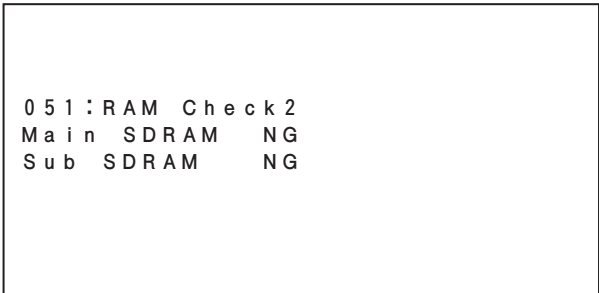
Description:
Executes Read/Write test (connection check) of RAM.
Displayed Message:



Selected screen



In case of OK



In case of NG

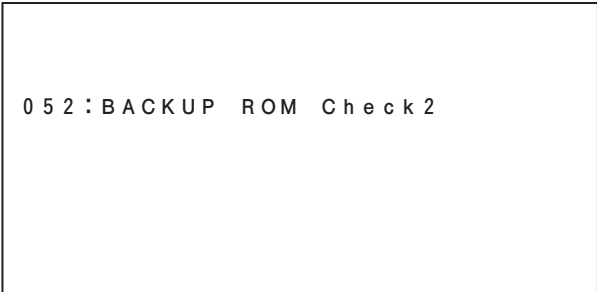
Supplement:
Location of NG will be shown in case of NG.
If sound board is not recognized, **"No Card"** will be shown for SUB SDRAM.

Error Indications	Circuit Board	Location	Name in Circuit Diagram
Main SDRAM NG	DM	IC12	SDRAM 256 M
		IC13	SDRAM 256 M
Sub SDRAM NG	DM	IC513	MAIN RAM 128 M SDRAM
Sub SDRAM No Card			

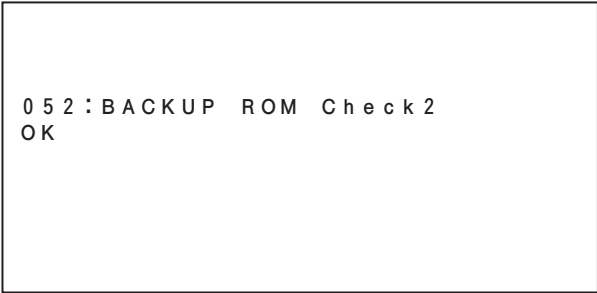
Test 52

Function: Full check of backup ROM
(This is a test for factory inspection)

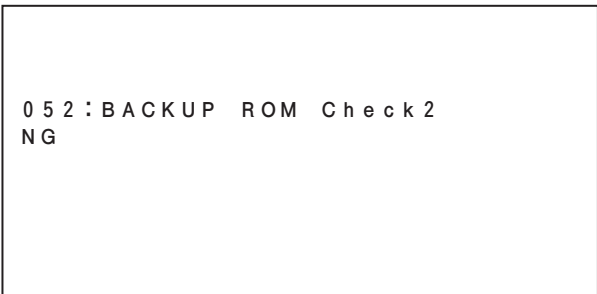
Description:
Executes Read/Write test of the entire blocks of Backup Flash ROM.
It will take about 4 minutes for the check.
Displayed Message:



Selected screen



In case of OK



In case of NG

Supplement:
The check cannot be aborted until OK/NG result is indicated.
Original data will be written back after the test is executed.
Do not turn off the power during checking or the data will be lost.

Error Indications	Circuit Board	Location	Name in Circuit Diagram
NG	DM	IC15	BACKUP 64 M FLASH

Test 53

Function: Full check of Wave ROM

(This is a test for factory inspection)

Description:

Executes Read test (full address checksum test) of Wave ROM.

It will take about 2 minutes and 50 seconds for the check.

Displayed Message:

```
0 5 3 : W a v e   R O M   C h e c k 2
```

Selected screen

```
0 5 3 : W a v e   R O M   C h e c k 2
O K
```

In case of OK

```
0 5 3 : W a v e   R O M   C h e c k 2
N G
```

In case of NG

Applicable to serial number up to B00 01470, E00 02830,
U00 01285 and ET00 01125

Error Indications	Circuit Board	Location	Name in Circuit Diagram
NG	DM	IC800	WAVE ROM L1 512 M MASK
		IC801	WAVE ROM L2 512 M MASK
		IC802	WAVE ROM H1 512 M MASK
		IC803	WAVE ROM H2 512 M MASK

Applicable to serial number from B00 01471, E00 02831,
U00 01286 and ET00 01126

Error Indications	Circuit Board	Location	Name in Circuit Diagram
NG	DM	IC804	WAVE ROM L1 512 M MASK
		IC805	WAVE ROM L2 512 M MASK
		IC806	WAVE ROM H1 512 M MASK
		IC807	WAVE ROM H2 512 M MASK

Test 54

Function: Full check of Wave RAM (SDRAM)

(This is a test for factory inspection)

Description:

Executes full address checksum test of SDRAM for wave.

It will take about 6 seconds for the check.

Displayed Message:

```
0 5 4 : W a v e   R A M   ( S D R A M )   C h e c k 2
```

Selected screen

```
0 5 4 : W a v e   R A M   ( S D R A M )   C h e c k 2
O K
```

In case of OK

```
0 5 4 : W a v e   R A M   ( S D R A M )   C h e c k 2
W a v e   S D R A M   ( T G 1 )   N G
W a v e   S D R A M   ( T G 2 )   N G
```

In case of NG

```
0 5 4 : W a v e   R A M   ( S D R A M )   C h e c k 2
W a v e   S D R A M   ( T G 1 )   N o   C a r d
W a v e   S D R A M   ( T G 2 )   N o   C a r d
```

In case of NG (In case no sound board is recognized)

Supplement:

Check from TG1 → SWP51B Master (DM: IC505), TG2 → SWP51B Slave (DM: IC506).

Error Indications	Circuit Board	Location	Name in Circuit Diagram
Wave SDRAM(TG1) NG	DM	IC511 IC512	SAMPLING RAM-L 16 M SDRAM SAMPLING RAM-H 16 M SDRAM
Wave SDRAM(TG2) NG			
Wave SDRAM(TG1) No Card			
Wave SDRAM(TG2) No Card			

Test 55

Function: Full check of Wave RAM (DIMM)
(This is a test for factory inspection)

Description:

Executes full address checksum test of DIMM for wave.

Indicates DIMM size as well.

Displayed Message:

```
0 5 5 : W a v e   R A M ( D I M M )   C h e c k 2
```

Selected screen

```
0 5 5 : W a v e   R A M ( D I M M )   C h e c k 2
O K ( D I M M   H :   6 4 M B , L :   6 4 M B )
```

In case of OK (Indicates DIMM size in MB)

```
0 5 5 : W a v e   R A M ( D I M M )   C h e c k 2
N G ( D I M M   H :   0 M B , L :   0 M B )
W a v e   D I M M ( T G 1 )   N G
W a v e   D I M M ( T G 2 )   N G
```

In case of NG (Indicates DIMM size in MB)

```
0 5 5 : W a v e   R A M ( D I M M )   C h e c k 2
N G ( D I M M   H :   0 M B , L :   0 M B )
W a v e   D I M M ( T G 1 )   N o   C a r d
W a v e   D I M M ( T G 2 )   N o   C a r d
```

In case of NG (In case no sound board is recognized)

Supplement:

Check from TG1 → SWP51B Master (DM: IC505), TG2 → SWP51B Slave (DM: IC506).

OK will be shown if DIMM connection is confirmed. Visually check DIMM size.

Specification check requires checking with DIMMs of maximum size, 512 MB, for both H/L.

Test 56

Function: Full check of Effect RAM
(This is a test for factory inspection)

Description:

Full address checksum inspection of EffectRAM

It will take about 18 seconds for the check.

Displayed Message:

```
0 5 6 : E f f e c t   R A M   C h e c k 2
```

Selected screen

```
0 5 6 : E f f e c t   R A M   C h e c k 2
O K
```

In case of OK

```
0 5 6 : E f f e c t   R A M   C h e c k 2
T G 1   N G
T G 2   N G
```

In case of NG

Supplement:

TG1 indicates Effect RAM of SWP51B Master (DM: IC505)
and TG2 indicates Effect RAM of SWP51B Slave (DM: IC506).

Error Indications	Circuit Board	Location	Name in Circuit Diagram
TG1 NG	DM	IC508	WORK RAM 64 M SDRAM
TG2 NG	DM	IC509	WORK RAM 64 M SDRAM

Test 57 to 62

Factory Inspection only.

Test 63

Function: Factory Set

Description:

Restores the Tyros 3 to the factory initial setup.
(Sets the initial data to the Flash ROM.)

Displayed Message:

```
0 6 3 : F a c t o r y   S e t
```

Selected screen

```
0 6 3 : F a c t o r y   S e t
O K
```

During execution

Supplement:

In this stage, the flag for initialization is raised only and initialization will be executed when the power is turned on next time.

⚠ Caution

Don't turn off the power until the main screen is indicated after executing the **"Factory Set"**.

Test 64

Function: Exiting test mode

Description:

Quits the test mode and restarts. (Restarting should be conducted automatically. Check if the restarting is conducted.)

Displayed Message:

```
0 6 4 : T e s t   E x i t
```

Selected screen

Supplement:**⚠ Caution**

Don't turn off the power until the main screen is indicated after executing the **"Exiting test mode"**.

■ INITIAL SETTING

Setting at the time of factory shipping.

- MASTER VOLUME: MIN
- INPUT VOLUME: MIN
- MODURATION WHEEL: MIN (toward you)
- LINE IN/MIC TRIM VOLUME: MAX
- AUX IN/LOOP RETURN TRIM VOLUME: MIN
- SLIDER VOLUME: MAX (top side)

• Switch Test Sequence

Turn	SW Name / Display	Note Number
1	TYPE SELECT	C2
2	MIC SETTING	C#2
3	SONG I	D2
4	SONG II	D#2
5	SP1	E2
6	SP2	F2
7	REC	F#2
8	STOP	G2
9	PLAY/PAUSE	G#2
10	REW	A2
11	FF	A#2
12	DEMO	B2
13	VOCAL HARMONY	C3
14	EFFECT	C#3
15	TALK	D3
16	SONG III	D#3
17	SONG IV	E3
18	SP3	F3
19	SP4	F#3
20	LOOP	G3
21	METRONOME	G#3
22	LYRICS/TEXT	A3
23	SCORE	A#3
24	POP & ROCK	B3
25	BALLAD	C4
26	DANCE	C#4
27	SWING & JAZZ	D4
28	R & B	D#4
29	COUNTRY	E4
30	LATIN	F4
31	BALLROOM	F#4
32	MOVIE & SHOW	G4
33	ENTERTAINER	G#4
34	WORLD	A4
35	FILE ACCESS	A#4
36	TRANSPOSE –	B4
37	TRANSPOSE +	C5
38	MIXING CONSOLE	C#5
39	FADE IN/OUT	D5
40	ACMP	D#5
41	OTS LINK	E5
42	AUTO FILL IN	F5
43	TAP TEMPO	F#5
44	TEMPO –	G5
45	TEMPO +	G#5
46	M.PAD SELECT	A5
47	M.PAD 1	A#5
48	M.PAD 2	B5
49	M.PAD 3	C6
50	M.PAD 4	C2
51	M.PAD STOP	C#2
52	CHANNEL ON/OFF	D2
53	INTRO I	D#2
54	INTRO II	E2
55	INTRO III	F2
56	MAIN A	F#2

Turn	SW Name / Display	Note Number
57	MAIN B	G2
58	MAIN C	G#2
59	MAIN D	A2
60	BREAK	A#2
61	ENDING/rit. I	B2
62	ENDING/rit. II	C3
63	ENDING/rit. III	C#3
64	SYNC STOP	D3
65	SYNC START	D#3
66	START/STOP	E3
67	BALANCE	F3
68	UPPER OCTAVE –	F#3
69	UPPER OCTAVE +	G3
70	SA1	G#3
71	SA2	A3
72	A	A#3
73	B	B3
74	C	C4
75	D	C#4
76	E	D4
77	DIRECT ACCESS	D#4
78	TAB <	E4
79	TAB >	F4
80	F	F#4
81	G	G4
82	H	G#4
83	I	A4
84	J	A#4
85	EXIT	B4
86	1-U	C5
87	2-U	C#5
88	3-U	D5
89	4-U	D#5
90	5-U	E5
91	6-U	F5
92	7-U	F#5
93	8-U	G5
94	1-L	G#5
95	2-L	A5
96	3-L	A#5
97	4-L	B5
98	5-L	C6
99	6-L	C2
100	7-L	C#2
101	8-L	D2
102	ENTER	D#2
103	FUNCTION	E2
104	VOICE CREATOR	F2
105	DIGITAL RECORDING	F#2
106	REC	G2
107	STOP	G#2
108	PLAY/PAUSE	A2
109	PREV	A#2
110	NEXT	B2
111	SELECT	C3
112	SETTING	C#3

Turn	SW Name / Display	Note Number
113	HARMONY ECHO	D3
114	INITIAL TOUCH	D#3
115	SUSTAIN	E3
116	MONO	F3
117	DSP	F#3
118	DSP VARIATION	G3
119	INTERNET	G#3
120	PIANO	A3
121	E.PIANO	A#3
122	ORGAN	B3
123	STRINGS	C4
124	CHOIR	C#4
125	BRASS	D4
126	TRUMPET	D#4
127	SAXOPHONE	E4
128	FLUTE/CLARINET	F4
129	MUSIC FINDER	F#4
130	GUITAR	G4
131	BASS	G#4
132	PERC./DRUM KIT	A4
133	ACCORDION	A#4
134	PAD	B4
135	SYNTH	C5
136	ORGAN FLUTES	C#5
137	EXPANSION	D5
138	USER DRIVE	D#5
139	REGIST BANK –	E5
140	REGIST BANK +	F5
141	FREEZE	F#5
142	MEMORY	G5
143	OTS 1	G#5
144	OTS 2	A5
145	OTS 3	A#5
146	OTS 4	B5
147	PART SELECT LEFT	C6
148	PART SELECT RIGHT1	C2
149	PART SELECT RIGHT2	C#2
150	PART SELECT RIGHT3	D2
151	REGIST. MEMORY 1	D#2
152	REGIST. MEMORY 2	E2
153	REGIST. MEMORY 3	F2
154	REGIST. MEMORY 4	F#2
155	REGIST. MEMORY 5	G2
156	REGIST. MEMORY 6	G#2
157	REGIST. MEMORY 7	A2
158	REGIST. MEMORY 8	A#2
159	LEFT HOLD	B2
160	PART ON/OFF LEFT	C3
161	PART ON/OFF RIGHT1	C#3
162	PART ON/OFF RIGHT2	D3
163	PART ON/OFF RIGHT3	D#3

■ FORMATTING HDD

1. While holding down the [F] button and [J] button, turn on the power switch.
2. The device information indication mode will be started and the following screen will be shown.

```

=====
                        Device Information
=====

[ A ] : USB Storage

[ B ] : DIMM

[ C ] : Internal HDD

Press [EXIT] to quit.

```

3. Press the [C] button to go to the internal HDD information indication screen. If unformatted, “UNFORMAT DISK” will be shown. If the HDD is formatted, the screen in procedure 5 will be shown.

```

=====
                        IDE HDD Information
=====

UNFORMAT DISK

Press [DEMO] to format.
Press [EXIT] to quit.

```

4. Press the [DEMO] button to execute formatting. “Formatting ...” will be indicated during formatting procedure.
5. Information of the internal HDD will be shown when the formatting is completed. The formatting is executed normally if “TYROS3_HD” is shown in the “Volume Name” field. (If an error occurs, only error message will be indicated. Refer to the error message list at the end of this section.)

```

=====
                        IDE HDD Information
=====

Vender ID      : Not exist
Product ID     : ST980815A
Revision       : 3.AL
Capacity       : 74.42[GB]
Serial ID      : Exist
Volume Name    : TYROS3_HD

R/W test       :

Press [START/STOP] to test.
Press [DEMO] to format.
Press [EXIT] to quit.

```

6. Press the [START/STOP] button to start Read/Write test. A countdown indication from 10 to 1 will appear in the R/W test field as the checking is executed. Countdown indication from 10 to 1 will appear three times as three types of checking is executed.
7. When the Read/Write test is completed successfully, “OK” will be shown in the R/W test field. “NG” will be shown if an error is detected.

```

=====
                        IDE HDD Information
=====

Vender ID      : Not exist
Product ID     : ST980815A
Revision       : 3.AL
Capacity       : 74.42[GB]
Serial ID      : Exist
Volume Name    : TYROS3_HD

R/W test       : OK

Press [START/STOP] to test.
Press [DEMO] to format.
Press [EXIT] to quit.

```

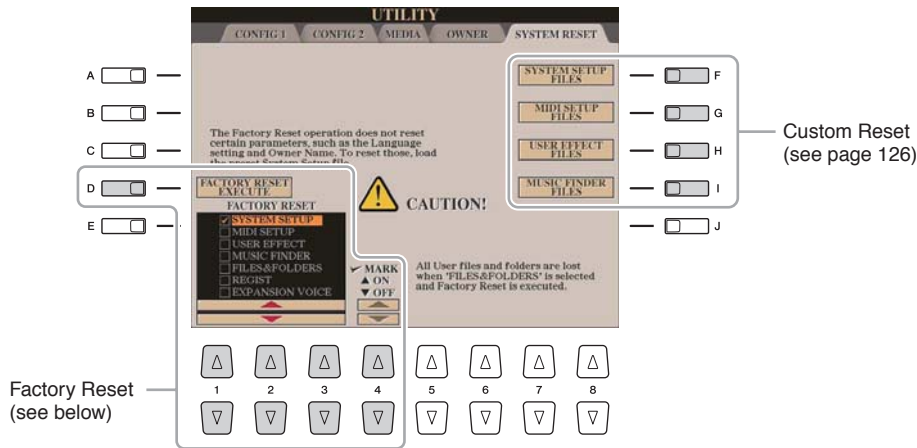
8. When the “OK” is displayed in the Read/Write test, the checking is finished. Turn off the power switch.

• Error messages list

- Unformatted “UNFORMAT DISK”
- Device error “DEVICE ERROR”
- HDD unrecognized “NO DISK”

SYSTEM RESET

There are two reset methods in the SYSTEM RESET display: Factory Reset and Custom Reset.



Factory Reset–Restoring the Factory Programmed Settings

This function lets you restore the status of the Tyros3 to the original factory settings.

- 1** Select the desired item to be restored by using [1▲▼]–[3▲▼] buttons and add a checkmark to it by pressing the [4 ▲] (MARK ON) button.

To remove the checkmark, press the [4▼] (MARK OFF) button.

SYSTEM SETUP	Restores the System Setup parameters to the original factory settings. Refer to the Data List for details about which parameters belong to the System Setup.
MIDI SETUP	Restores the MIDI settings including the MIDI templates on the USER tab display to the original factory status.
USER EFFECT	Restores the User Effect settings including the user effect types, user master EQ types, user compressor types, and user vocal harmony types created via the Mixing Console display to the original factory settings.
MUSIC FINDER	Restores the Music Finder data (all records) to the original factory settings.
FILES & FOLDERS	Deletes all files and folders stored in the USER tab display.
REGIST	Temporarily deletes the current Registration Memory settings of the selected Bank. The same can be done also by turning the [POWER] button ON while holding the B5 key (rightmost B key on the keyboard).
EXPANSION VOICE	Deletes all Expansion Voices.

- 2** Press the [D] (FACTORY RESET) button to execute the Factory Reset operation for all checkmarked items.

Custom Reset—Saving and Recalling Your Original Settings as a Single File

For the items below, you can save your Original Settings as a Single File for future recall.

- 1** Make all desired settings on the instrument.
- 2** Call up the operation display.
[FUNCTION] → [I] UTILITY → TAB [◀|▶] SYSTEM RESET
- 3** Press one of the [F]–[I] buttons to call up the relevant display for saving your data

[F]	SYSTEM SETUP FILES	Parameters set on the various displays such as the [FUNCTION] → [I] UTILITY and microphone setting display are handled as a single System Setup file. Refer to the Data List for details on which parameters belong to the System Setup.
[G]	MIDI SETUP FILES	The MIDI settings including the MIDI templates on the USER tab display are handled as a single file.
[H]	USER EFFECT FILES	The User Effect settings including the user effect types, user master EQ types, user compressor types, and user vocal harmony types created via the Mixing Console displays are managed as a single file.
[I]	MUSIC FINDER FILES	All the preset and created records of the Music Finder are handled as a single file.

- 4** Use the TAB [◀|▶] buttons to select one of the tabs (other than the PRESET) to which your settings will be saved.
- 5** Press the [6▼] (SAVE) button to save your file.
- 6** To recall your file, press the desired [F]–[I] buttons in the SYSTEM RESET display, then select the desired file.

■ OS UPDATE

⚠ CAUTIONS

- While updating the program software, do not turn off the power or do not pull out the USB memory.
- It takes about 5 minutes to update the program software.

1 Preparation

Download the Tyros3 updated program from the download page on the YSISS home page to the USB memory.

(YSISS URL>><http://plaza.yamaha.co.jp/ysiss/exindex.nsf>)

(Insert the USB memory containing only the update program into the USB terminal of the Tyros3.)

Tools required for update:

USB memory

(containing only the update program to be installed)

The program software in the USB memory

- Installer:
TYROS3INST.PRG
- The main body of the program data (Boot part):
TYROS3MAINBOOT.PRG
- The main body of the program data:
TYROS3mainprg1.prg - TYROS3mainprg5.prg

2 Executing the software update

2-1 Connect the USB memory to the Tyros3.

Connect the USB memory containing only the update program data to the [USB TO DEVICE] terminal on the front panel.

CAUTIONS: Make sure of the direction of the USB memory before inserting it.

(The reverse insertion may cause the damage on the [USB TO DEVICE] terminal.)

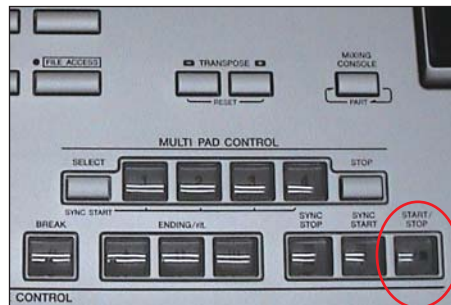
Do not turn off the power during the program update.

Do not remove the USB memory from the [USB TO DEVICE] terminal until the update has been completed.

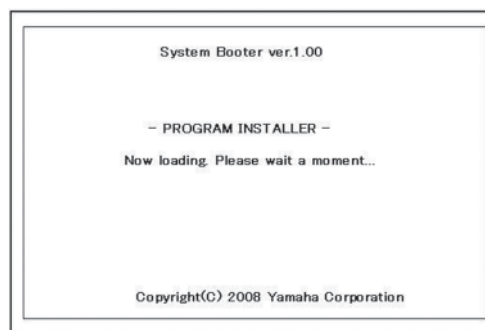


2-2 Installing the update program

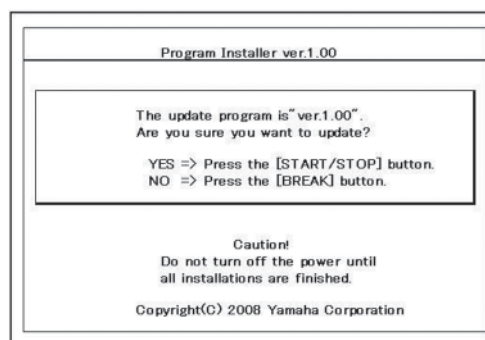
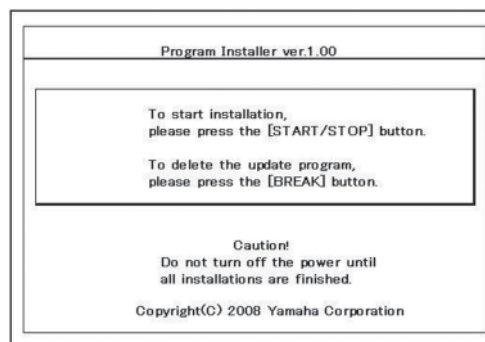
2-2-1 Turn the power on with the [START/STOP] button pressed and held.



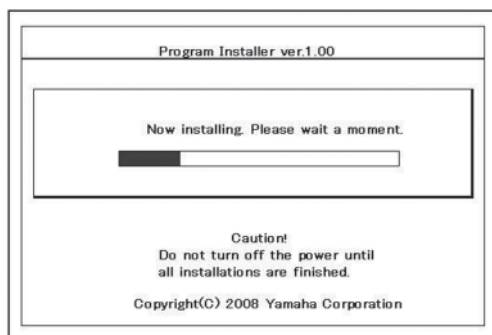
2-2-2 Keep pressing the [START/STOP] button until the following screen is displayed on the LCD.



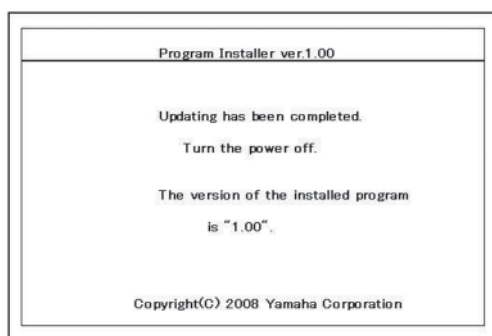
2-2-3 After a while, the following screen is displayed. (Occasionally, it might take more time.)



2-2-4 Press the [START/STOP] button to start the installation.



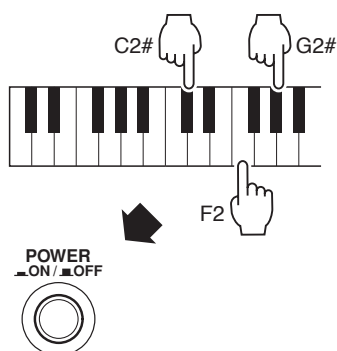
2-2-5 When the installations are finished, the following screen is displayed on the LCD.



2-2-6 Turn the power off.

3 Verifying the program version

3-1 Turn the power on with the [C2#], [F2] and [G2#] keys (C2# major chord) pressed and held.



3-2 "TEST" display appears, and the test mode starts.

3-3 Press the [TEMPO+] button or turn the [DATA ENTRY] dial clockwise to display "001: Version".

3-4 Press the [START/STOP] button to display the version of each data.

3-5 Confirm that the version of the main program is the same as the version installed this time.

3-6 Press the [START/STOP] button again to return to the wait state for test number.

4 Executing the factory set

4-1 Press the [TEMPO-] button or turn the [DATA ENTRY] dial counterclockwise to display "094:Factory Set".

4-2 Press the [START/STOP] button to execute the factory set.

4-3 "Factory Set OK" appears on the LCD.

4-4 Press the [START/STOP] button again to return to the wait state for test number.

4-5 Press the [TEMPO+] button or turn the [DATA ENTRY] dial clockwise to display "063:Test Exit".

4-6 Press the [START/STOP] button to reboot the Tyros3.

4-7 When the main screen appears normally, the factory set is completed. (Occasionally, it might take a few minutes.)

CAUTION: Do not turn the power off before the main screen shows up.

4-8 Turn the power off.

5 Ending the program installation

The program installation is completed here.

● TROUBLESHOOTING

Q1. Power has been turned off or the USB memory has been removed during operation.

A1. It is necessary to re-installation the program. Perform the installation procedure from initial step.

Q2. An error message appears on the screen and installation can not be performed.

A2. Check the following points.

- Is the USB memory is inserted properly?
- Is not there any dirt on the USB memory terminal?
- Does the USB memory contain the whole renewal data (program) in the root directory?
- Is not any damage of the data (program) in the USB memory or the USB memory itself?
- Is the renewal data (program) matched with the model?
- Perform reinstallation using another USB memory.

INITIALIZING INTERNET SETTINGS

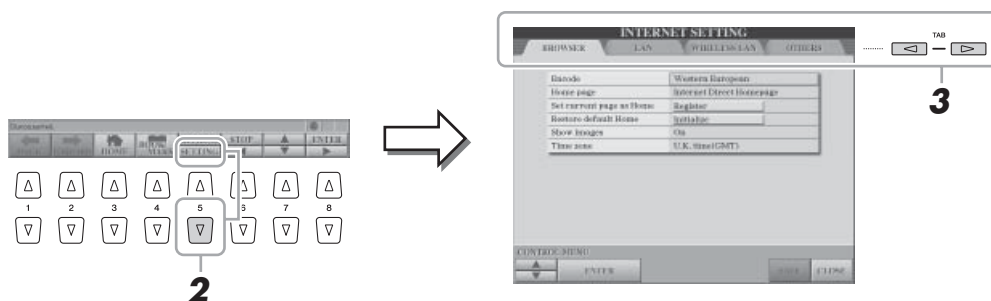
The settings of the Internet function are not initialized when using the Initialize operation of the instrument; Internet settings must be initialized separately, as explained here. Initializing will reset to the default values not only the settings of the browser, but also all settings you have made in the Internet Settings displays (except for the cookies and bookmarks), including those related to Internet connection.

1 Press the INTERNET buttons to connect the Internet.



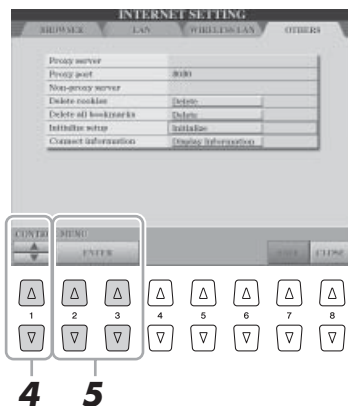
To close the website display and return to the operation display of the instrument, press the [EXIT] button.

2 Press the [5 ▼] (SETTING) button to call up the Internet Settings display.



3 TAB [◀] [▶] button to select the OTHERS.

4 Press the [1 ▲▼] (UP/DOWN) buttons to select "Initialize setup".



5 Use the [2 ▲▼]/ [3 ▲▼] (ENTER) buttons to initialize the Internet settings.

NOTE

Cookies and bookmarks still remain after executing this initialize operation.

To delete the cookies or bookmarks, select "Delete cookies" or "Delete all bookmarks" in step 4.

DATA BACKUP

For maximum data security Yamaha recommends that you copy or save your important data to a USB storage device. This provides a convenient backup if the internal memory is damaged.

1 Insert/connect the backup USB storage device (destination).

NOTE

Completing the backup/restore operation may take a few minutes.

2 Call up the operation display.

[FUNCTION] → [I] UTILITY → TAB [◀] [▶] OWNER



CAUTION

Move the Protected Songs which are saved to the USER display before restoring. If the songs are not moved, the operation deletes the data.

NOTE

To save the Song, Style, Multi Pad, Registration Memory Bank and Voice independently, execute the Copy & Paste operation from the File Selection display.

3 Press the [D] (BACKUP) button to save the data to the USB storage device.

To restore the data, press the [E] (RESTORE) button in this display.

NOTE

To save the Music Finder Record, Effect, MIDI Template and System File, call up the operation display: [FUNCTION] → [I] UTILITY → TAB [◀] [▶] SYSTEM RESET. For more information, refer to the Reference Manual on the website.

■ DISPLAY MESSAGES

[BOOTER]

Displayed message	Meaning	Progress/status	How to service
Now loading. Please wait a while...	Data is being loaded. Wait a while.	The installer file is being loaded.	
Media error!	Media error!	Installer file loading error (media error) Failed in loading the installer file Part of the media is damaged (I/O error)	Replace the installation media and retry.
Installer program checksum error!	Installer checksum error!	Installer file loading error (checksum error) Checksum in the installer file disagrees. File damaged Tampered	Store the installation file again or replace the installation media and perform reinstallation.
Please eject the media.	Remove the media.	When an error occurs	
Please insert the Installer media.	Install the installation media.	A media containing the installer is not connected when the booter is started.	
Installer program not found!	No installer found.	When the installation file is undetected The installer file corresponding to the instrument is not found	
Installer program data error!	Installation program error!	The installer is defective File damaged Tampered Version mismatch	
Installer program data mismatch!	Installation updater error!	When the installer is mismatched Loading of an installer for a different model has been attempted Loading of an installer for a version which cannot be updated has been attempted	Perform reinstallation.
Program error!	Program error!	Starting is disabled because the main program has not been detected The instrument program has not been installed	
Please install the program.	Install the program.	same as above	
Error! Unformatted or incompatible data.	Unformatted or unsupported error!	The installer cannot be loaded from the installer The media is not formatted in any one format of FAT12, FAT16 or FAT32 Unformatted System area in the media is damaged	Format the media in FAT12, FAT16 or FAT32 system.

[INSTALLER]

Displayed message	Meaning	Progress/status	How to service
Now loading. Please wait a moment...	Data is being loaded. Wait a while.	Data is being loaded	
Now installing. Please wait a moment...	During installing. Wait a while.	During installation of data	
Now deleting. Please wait a moment...	Data is being deleted. Wait a while.	During data deletion	
Please insert the media.	Install the media.	There is no media from which data should be loaded	Reinsert the media.
Install data does not exist.	Upgrading data not found.	Data not contained in the media	Install the installation file again.
Can't delete the install data.	The version upgrading data can not be deleted.	When an error occurs (Media writing disabled)	Release the protect of the media.
E001 Install data address error!	E001 Data address error!	When an error occurs (Installation data error)	Install the installation file again.
E002 Install data size error!	E002 Data size error!	When an error occurs (Installation data error)	
E003 Install data checksum error!	E003 Data checksum error!	When an error occurs (Installation data error)	
Install data ID error!	Data ID error!	When an error occurs (Installation data error)	
Install data version error!	Data version error!	When an error occurs (Installation data error)	
Install data read error!	Data loading error!	When an error occurs (Installation data error)	
E004 Flash ID error!	E004 Flash ID error!	When an error occurs (Flash writing disabled)	Perform reinstallation. Replace the Flash ROM even if the result is undesirable after the reinstallation.
E005 Flash erase error!	E005 Flash deletion error!	When an error occurs (Flash writing disabled)	
E006 Flash write error!	E006 Flash writing error!	When an error occurs (Flash writing disabled)	
E007 Flash verify error!	E007 Flash verify error!	When an error occurs (Flash writing disabled)	
E008 Flash checksum error!	E008 Flash checksum error!	When an error occurs (Flash writing disabled)	
Updating has been completed. Turn the power off. The version of the installed program is X.XX.	Installation completed. Turn off the power and then turn on again. The version of the installed program is "X.XX".	When the installing completed	
To start installation, please press the [START/STOP] button. To delete the update program, please press the [BREAK] button.	To start the installation, press the [START/STOP] button. To delete the version upgrading data, press the [BREAK] button.	When the installer is started.	
The update program is ver.X.XX. Are you sure you want to update? YES: Press the [START/STOP] button. NO: Press the [BREAK] button.	Version upgrading data is "ver.X.XX". Do you start installing? YES: Press the [START/STOP] button. NO: Press the [BREAK] button.	When the completion of the installation is detected	
The update program is ver.X.XX. Are you sure you want to delete? YES: Press the [START/STOP] button. NO: Press the [BREAK] button.	Version upgrading data is "ver.X.XX". Do you delete the data? YES: Press the [START/STOP] button. NO: Press the [BREAK] button.	When the deletion of the data is detected	

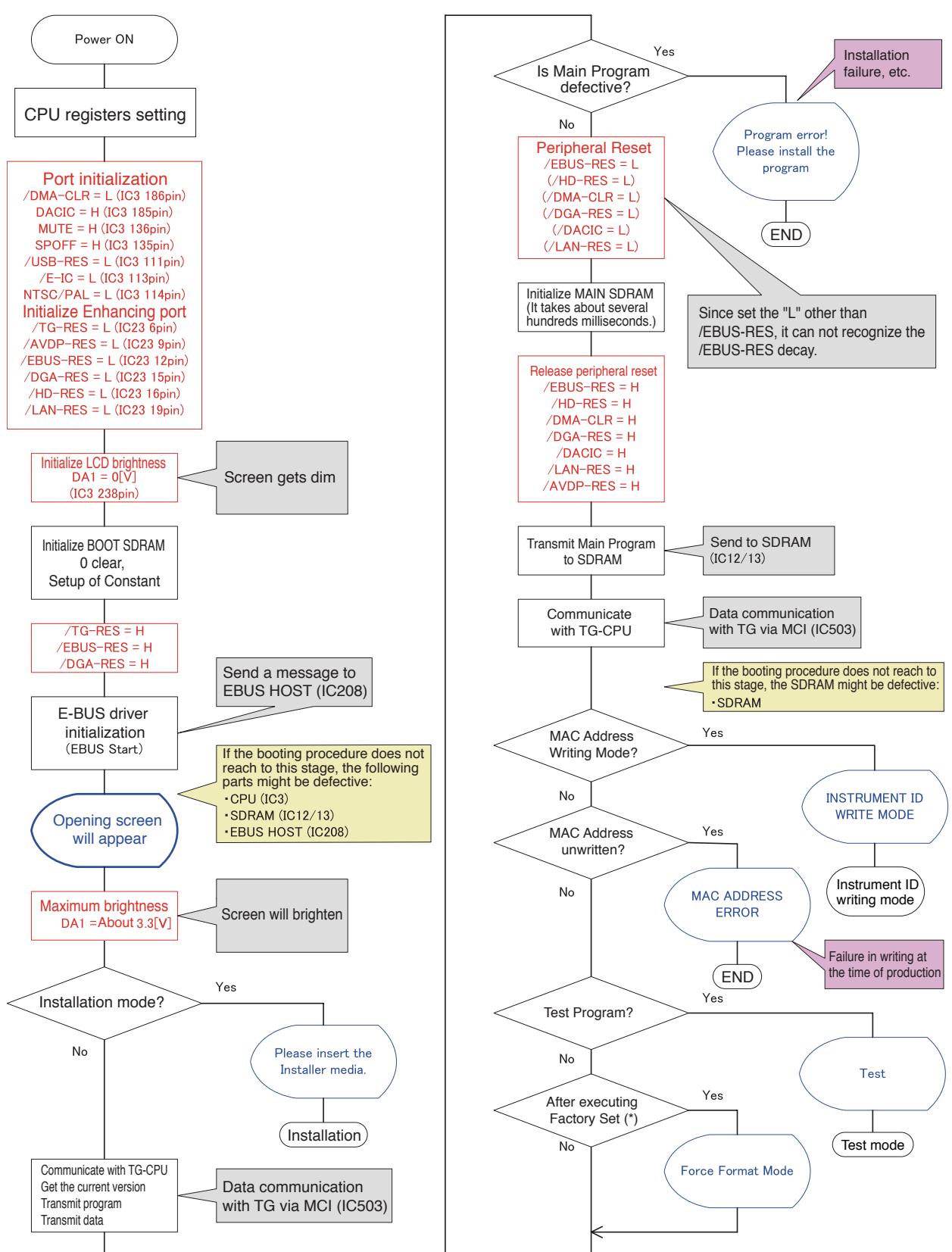
[At start]

Displayed message	Meaning	Progress/status	How to service
Improper power shut down! Backup data and/or User files have been lost.	Power has not been turned off normally. Backup data and user file have been lost.	Data is being restored as defect has been detected in the data backed up in the data flash.	
Initializing system setup.	System setup being initialized	During execution of Factory Set	
Force Format Mode.	Forced clear	Factory Reset is performed in the forced clear mode	
Initializing registration backup.	Registration backup being initialized	When the registration backup data is cleared	
Data Flash ROM Device Error.	Data flash error	Starting is disabled because the data flash is damaged	Perform reinstallation. Replace the Flash ROM even if the result is undesirable after the reinstallation.
MAC ADDRESS ERROR !!	MAC address error	MAC address is not written or defective	

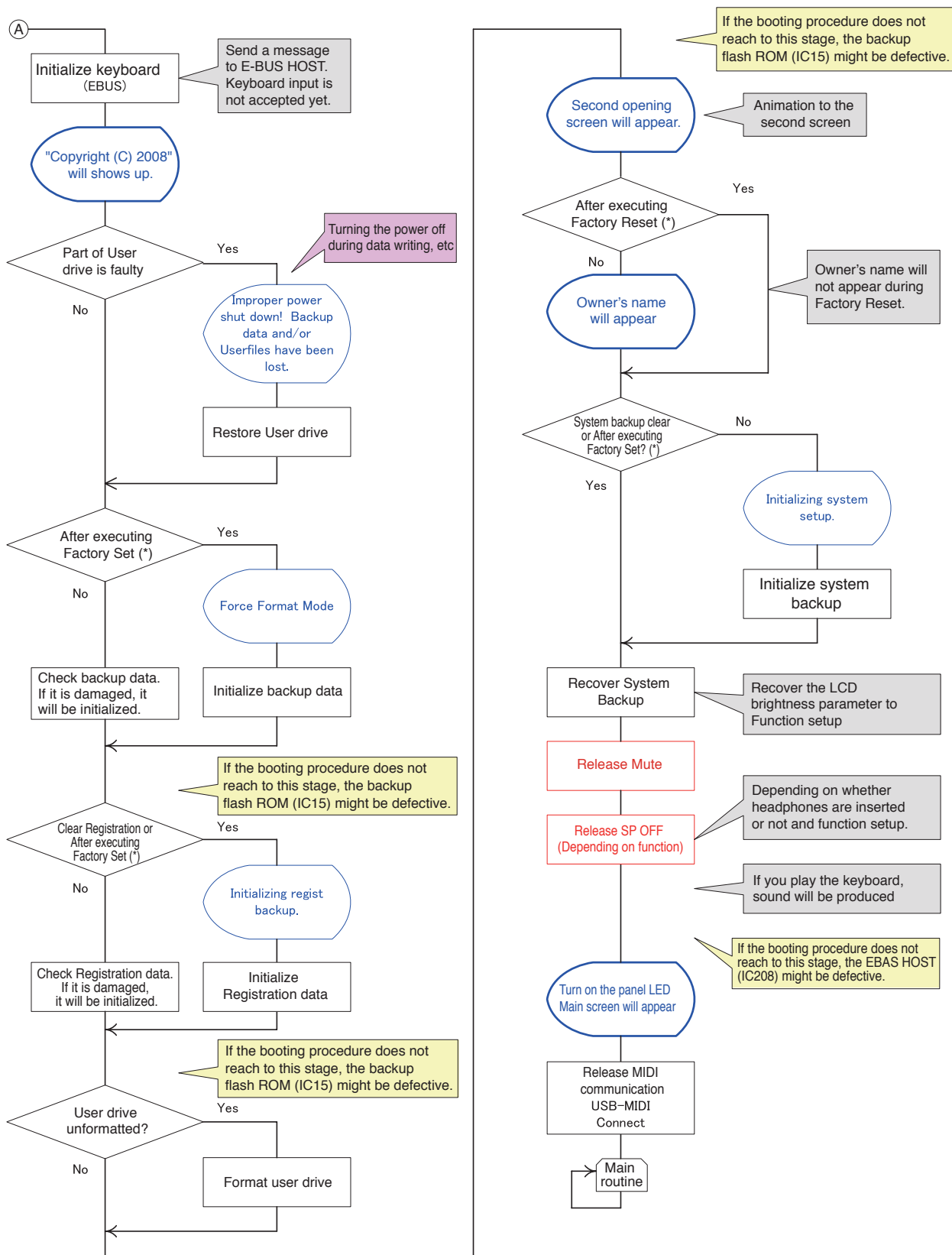
[ASSERTION]

Displayed message	Meaning	Progress/status	How to service
----- Unexpected error! Turn the power off and on again ----- Parameter 1 Parameter 2 / Parameter 3	Fatal error occurred. Turn off the power and then turn on again.	Unexpected error System down	

SYSTEM BOOTING FLOWCHART



* "After executing Factory Set" refers to the condition when the power is turned on after executing "Factory Set" in the Test Program.



MIDI IMPLEMENTATION CHART

YAMAHA [Digital Workstation]
Model TYROS3 MIDI Implementation Chart

Date:17-Apr-2008
Version : 1.0

Function...	Transmitted	Recognized	Remarks
Basic Default Channel Changed	1 - 16 1 - 16	1 - 16 1 - 16	
Mode Default Messages Altered	3 x *****	3 x x	
Note Number : True voice	0 - 127 *****	0 - 127 0 - 127	
Velocity Note ON Note OFF	o 9nH,v=1-127 x 9nH,v=0	o 9nH,v=1-127 x	
After Key's Touch Ch's	x o	o o	
Pitch Bend	o	o 0-24 semi	
Control Change	0,32 o 1,5,7,10,11 o 6,38 o 64,65,66,67 o 71,72,73,74 o 80,81 o 84 o 91,93,94 o 96,97 x 98,99 o 100,101 o	o o o o o o o o o o o	Bank Select Data Entry Sound Controller Portamento Cntrl Effect Depth RPN Inc,Dec NRPN LSB,MSB RPN LSB,MSB
Prog Change : True #	o 0 - 127 *****	o 0 - 127	
System Exclusive	o	o	
: Song Pos. Common : Song Sel. : Tune	x x x	x x x	
System :Clock Real Time:Commands	o o	o o	
Aux :All Sound OFF :Reset All Cntrls :Local ON/OFF :All Notes OFF Mes- :Active Sense sages:Reset	x x x x o x	o(120,126,127) o(121) o(122) o(123-125) o x	
Notes:			

Mode 1 : OMNI ON , POLY
Mode 3 : OMNI OFF, POLY

Mode 2 : OMNI ON , MONO
Mode 4 : OMNI OFF, MONO

o : Yes
x : No