

YAMAHA

GENERAL
MIDI
INSTRUMENT

TONE GENERATOR

TG100

REFERENCE MANUAL

FCC INFORMATION (U.S.A.)

1. IMPORTANT NOTICE: DO NOT MODIFY THIS UNIT!

This product, when installed as indicated in the instructions contained in this manual, meets FCC requirements. Modifications not expressly approved by Yamaha may void your authority, granted by the FCC, to use the product.

2. IMPORTANT: When connecting this product to accessories and/or another product use only high quality shielded cables. Cable/s supplied with this product MUST be used. Follow all installation instructions. Failure to follow instructions could void your FCC authorization to use this product in the USA.

3. NOTE: This product has been tested and found to comply with the requirements listed in FCC Regulations, Part 15 for Class "B" digital devices. Compliance with these requirements provides a reasonable level of assurance that your use of this product in a residential environment will not result in harmful interference with other electronic devices. This equipment generates/uses radio frequencies and, if not installed and used according to the instructions found in the users manual, may cause interference harmful to the operation of other electronic devices. Compliance with FCC regulations does not guarantee that interference will not occur in all installations. If this product is found to be the source of interference, which can be determined by turning the unit "OFF" and "ON", please try to eliminate the problem by using one of the following measures:

Relocate either this product or the device that is being affected by the interference

Utilize power outlets that are on different branch (circuit breaker or fuse) circuits or install AC line filter/s.

In the case of radio or TV interference, relocate/reorient the antenna. If the antenna lead-in is 300 ohm ribbon lead, change the lead-in to co-axial type cable.

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Dette apparat overholder det gældende EF-direktiv vedrørende radiostøj.

Cet appareil est conforme aux prescriptions de la directive communautaire 87/308/CEE.

Diese Geräte entsprechen der EG-Richtlinie 82/499/EWG und/oder 87/308/EWG.

This product complies with the radio frequency interference requirements of the Council Directive 82/499/EEC and/or 87/308/EEC.

Questo apparecchio è conforme al D.M.13 aprile 1989 (Direttiva CEE/87/308) sulla soppressione dei radiodisturbi.

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YAMAHA CORPORATION

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THIS DIGITAL APPARATUS DOES NOT EXCEED THE "CLASS B" LIMITS FOR RADIO NOISE EMISSIONS FROM DIGITAL APPARATUS SET OUT IN THE RADIO INTERFERENCE REGULATION OF THE CANADIAN DEPARTMENT OF COMMUNICATIONS.

LE PRESENT APPAREIL NUMERIQUE N'EMET PAS DE BRUITS RADIOELECTRIQUES DEPASSANT LES LIMITES APPLICABLES AUX APPAREILS NUMERIQUES DE LA "CLASSE B" PRESCRITES DANS LE REGLEMENT SUR LE BROUILLAGE RADIOELECTRIQUE EDICTE PAR LE MINISTERE DES COMMUNICATIONS DU CANADA.

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IMPORTANT NOTICE FOR THE UNITED KINGDOM

Connecting the Plug and Cord

IMPORTANT: The wires in mains lead are coloured in accordance with the following code:

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 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.

Making sure that neither core is connected to the earth terminal of the three pin plug.

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SPECIAL MESSAGE SECTION

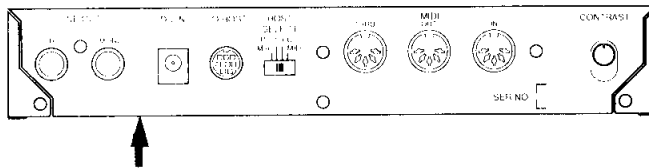
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IMPORTANT NOTICE: This product has been tested and approved by independent safety testing laboratories in order that you may be sure that when it is properly installed and used in its normal and customary manner, all foreseeable risks have been eliminated. **DO NOT** modify this unit or commission others to do so unless specifically authorized by Yamaha. Product performance and/or safety standards may be diminished. Claims filed under the expressed warranty may be denied if the unit is/has been modified. Implied warranties may also be affected.

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NOTICE: Service charges incurred due to a lack of knowledge relating to how a function or effect works (when the unit is operating as designed), are not covered by the manufacturer's warranty. Please study this manual carefully before requesting service.

NAMEPLATE LOCATION: The following graphic indicates the location of the Name Plate on your Yamaha Digital Musical Instrument. The Model, Serial Number, Power requirements, etc., are indicated on this plate.



You should note the model, serial number and the date of purchase in the spaces provided below and retain this manual as a permanent record of your purchase.

Model _____

Serial No. _____

Purchase Date _____

STATIC ELECTRICITY CAUTION: Some Yamaha Digital Musical Instrument products have modules that plug into the unit to perform various functions. The contents of a plug-in module can be altered/damaged by static electricity discharges. Static electricity build-ups are more likely to occur during cold winter months (or in areas with very dry climates) when the natural humidity is low. To avoid possible damage to the plug-in module, touch any metal object (a metal desk lamp, a door knob, etc.) before handling the module. If static electricity is a problem in your area, you may want to have your carpet treated with a substance that reduces static electricity build-up. See your local carpet retailer for professional advice that relates to your specific situation.

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TG100 TONE GENERATOR

REFERENCE MANUAL

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TG100 features

- AWM (Advanced Wave Memory) sound sampling technology
- 192 instrument voices
- 10 drum kits
- 16 voices can be produced simultaneously
- 28-note polyphony (Dynamic allocation)
- DSP (Digital Signal Processor) for digital reverb effects
- Simple editing can be performed on the 64 voices in the Internal voice bank
- Host computer connection allows direct connection to a computer, without a MIDI interface
- External sound sources can be mixed with the TG100's sounds, using the stereo AUDIO IN facility, which provides an input level control and signal level peak indicator.
- Conforms to the General MIDI system Level 1 standard, allowing playback of MIDI songs recorded on other equipment
- Compatible with Yamaha's "Disk Orchestra Collection" range of music software
- Compatibility with CM-64 software
- Comprehensive MIDI implementation for external control via MIDI software
- Includes 1 demo song

Conventions used in this manual

To avoid confusion between the minus symbol (-) and a dash (-), the lower and upper limits of a parameter's adjustable range are separated by three full stops.

For example, EG Attack rate range -7...+7.

When the TG100's push-button switches are mentioned, the name of the button is enclosed in square brackets.

For example, [CURSOR] button.

Cleaning the TG100

If the TG100 should require cleaning use a soft, lightly moistened cloth. Stubborn marks can be removed using a mild detergent. Do not use abrasive cleaners or solvent based cleaning fluids, such as alcohol and benzene.

Trademarks

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1 What is the TG100

The TG100 is a 28-note polyphonic AWM (Advanced Wave Memory) tone generator. It contains 192 instrument voices and 10 drum kits. Up to 16 voices can be produced simultaneously.

The TG100 is best suited to work with a MIDI sequencer, but it can also be used with a synthesizer, for voice layering, etc.

To play the TG100 sound module, MIDI data must be input from either a MIDI keyboard, MIDI sequencer or MIDI data recorder. Data can be input using the TG100's MIDI connections or via the "TO HOST" connection, which allows direct connection to a computer that does not have MIDI inputs and outputs.

If there are any terms that you are not familiar with in the following text, please refer to the "Glossary" on page 64.

AWM (Advanced Wave Memory)

All the sounds in the TG100 are produced using AWM (Advanced Wave Memory). AWM is a technique developed by Yamaha for digitally sampling and reproducing naturally occurring sound.

Elements

Sound samples are stored as elements in the TG100's internal ROM (Read Only Memory).

Voices

Elements are used to form the voices, that is Electric Piano, Acoustic Guitar, etc. The TG100 is a "Multi-Timbral" device, which means that it can produce up to 16 different voices simultaneously. The TG100's 192 instrument voices are arranged into three voice banks: G - General MIDI, D - Disk Orchestra and C - C/M.

Parts

Voices are assigned to one of 16 Parts and can be controlled as 16 independent instruments. Each Part is set to receive controlling data on a different MIDI channel, that is, controlling data sent from your master keyboard or computer sequencer. Any number of Parts can be set to receive MIDI data on the same MIDI channel. This allows you to create complex sounds using a combination of voices, this technique is known as "Layering".

The following parameters can be adjusted for each Part; volume, pan position, attack rate, release rate and the amount of reverb.

Polyphony

The TG100 can play 28 elements simultaneously, which means that it is 28-note polyphonic.

The 28 available notes are dynamically divided among the 16 Parts. This means that notes are automatically allocated to Parts as and when required.

Drums

The TG100 contains 10 drum kits. Part 10 is dedicated to drums and has number one note priority. You cannot select a different type of voice for Part 10, but you can select any one of 10 drum kits: Standard, Room, Power, Electronic, Analog, Brush, Orchestral, Clavinova, RX and C/M.

The Clavinova, RX and C/M kits are related to the TG100's three sound module modes and basically provide compatibility with songs recorded using Yamaha's Clavinova, Yamaha's Disk Orchestra Collection and semi-compatibility for drum patterns recorded on Yamaha's RX range of drum machines and the CM-64. See "Sound module modes" on page 7 for more information.

Digital Reverb

The TG100 contains a DSP (Digital Signal Processor) that is used to generate eight different types of reverb effects: Hall 1 & 2, Room 1 & 2, Plate 1 & 2 and Delay 1 & 2. Reverb is the most commonly used effect for recording music, and usually makes the difference between "lifeless" sounds and the bright, professional sounds that you hear on record.

Editing voices

The TG100 has 64 (1..64) internal memory locations, which can be used for editing voices. When the TG100 is first switched on, preset voices 1..64 from the General MIDI voice bank are automatically copied into these internal memory locations. Simple editing functions can be performed on these 64 voices, such as, volume, detuning and pan. If a voice consists of two elements, independent editing of each element is possible.

To edit the other voices, they must first be copied into one of the 64 internal memory locations. Once a voice has been edited, a new name can be assigned to it.

The TG100 cannot store edited voices when the power is turned off, so if you want to keep your edited voices for future use, you must save them to an MDR (MIDI Data Recorder). This could be a MIDI computer sequencer; a librarian program; a dedicated MIDI data recorder, such as Yamaha's MDF2; or a synthesizer with an MDR function, such as Yamaha's SY99 music synthesizer.

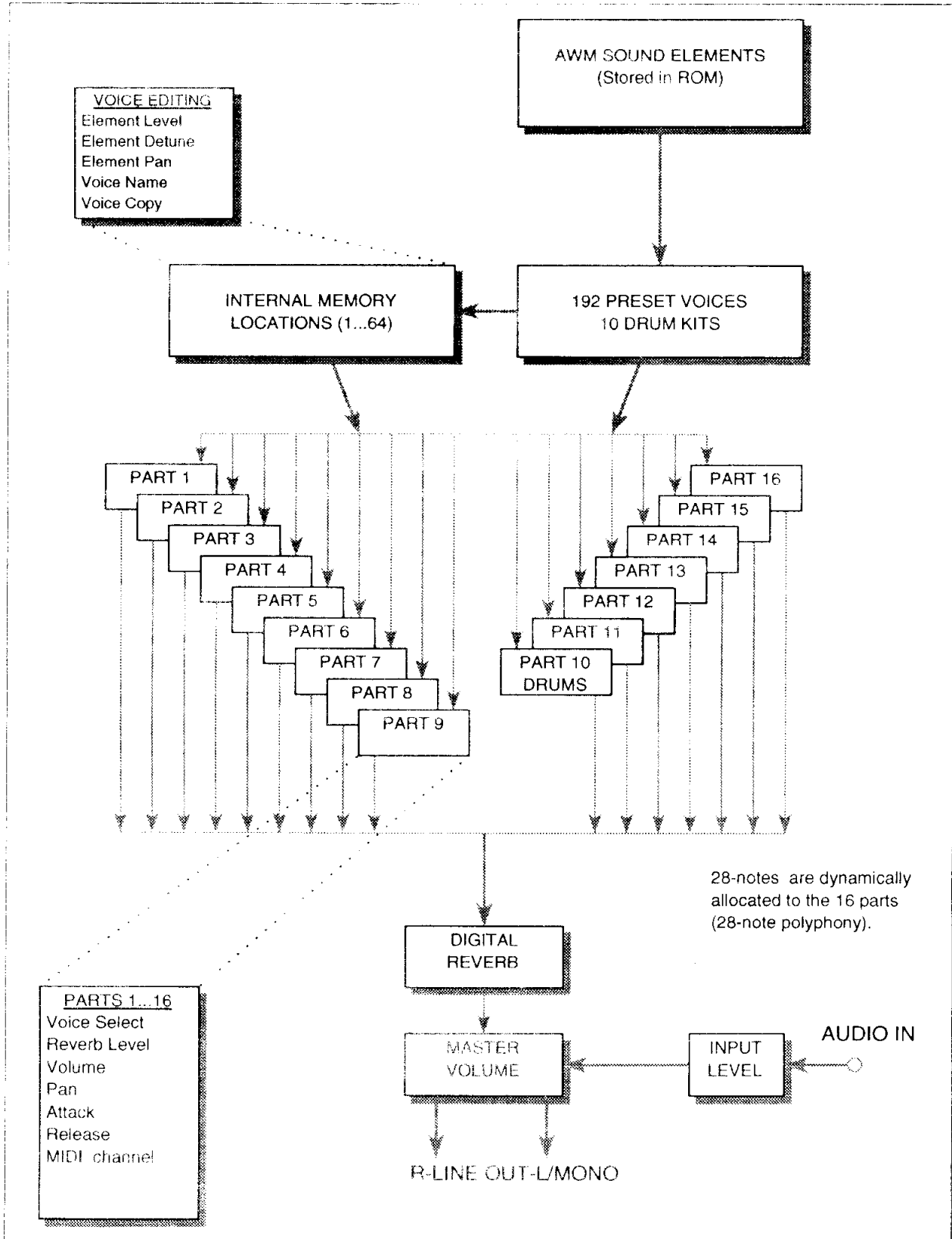
User setup tables

On page 60 of this manual there is an "Internal voice bank table" where you can keep details about the voices you have edited.

On page 62 there is a "TG100 Setup table" where you can keep TG100 setup information, such as multi common edit parameters, system mode parameters and multi Part edit parameters.

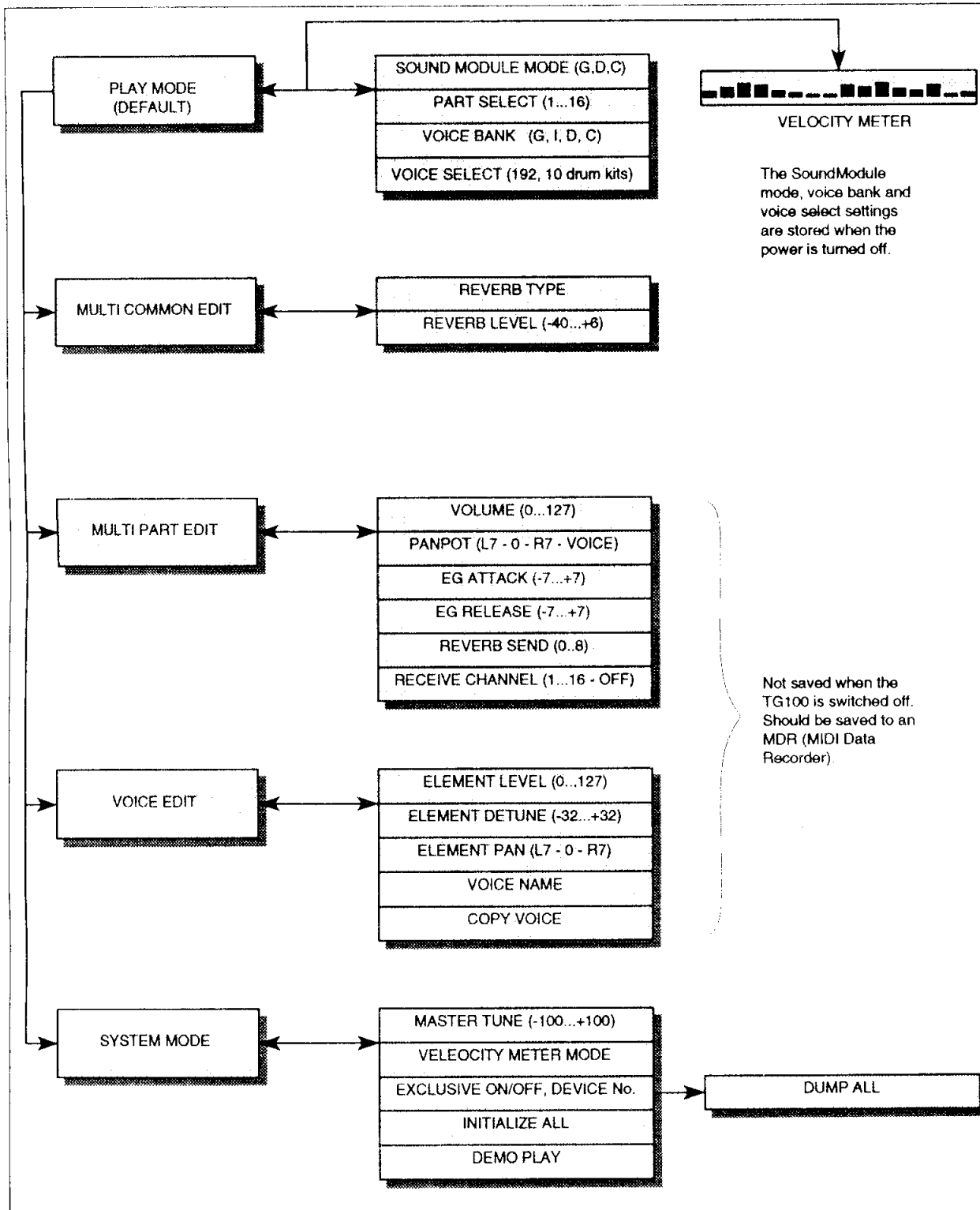
Feel free to photocopy these tables.

Inside the TG100



Menu functions

This diagram shows how the TG100's functions are organized.



Sound module modes

G - General MIDI Level 1

This is the default (factory) mode. General MIDI Level 1 is a recent addition to the MIDI standard. It standardizes the assignment of Program Change numbers to particular voices. For example, if MIDI Program Change number one is sent to a tone generator that complies with the General MIDI standard, the selected voice will always be an Acoustic Grand Piano.

The General MIDI standard gives MIDI song files greater compatibility when transferred between different manufacturers equipment. For example, you could send a MIDI song file, on a floppy disk, to another member of your band, or a friend. Even if he doesn't have the same MIDI instrument as you, so long as it complies with the General MIDI standard, he will quickly and easily be able to play back the song, without having to reassign voices, Parts and MIDI channels.

D - Disk Orchestra/Clavinova

The Disk Orchestra Collection is a series of music titles made by Yamaha, which are available on floppy disk. They cover popular music, classical music and study and each disk contains 7 or 8 pieces of music. Each song is stored as MIDI data in Yamaha's own "ESEQ" file format. These disks can be played using Yamaha's DRC-20, DOM-30 or MDF2.

In this mode, the TG100's Program Change and drum note assignments are set the same as those used by the Disk Orchestra Collection, allowing quick and easy playback, without having to reassign voices, Parts and MIDI channels.

C - C/M

This mode is similar in principle to the Disk Orchestra mode and provides semi-compatibility for songs recorded using a CM-64 sound module.

In this mode, the TG100's Program Change and drum note assignments are set the same as those used by the CM-64, allowing quick and easy playback, without having to reassign voices, Parts and MIDI channels.

<p>NOTE: These sound module modes do not guarantee 100% compatibility for MIDI data files. Different tone generators use different sound generation processes. They also use different note priority systems and have different effects.</p>

Truncation

If all 28 notes are being used simultaneously (sounding at the same time), some sort of priority system must be used to allow new notes to sound.

The TG100 does this by first giving note priority to Part 10, which is always used for drums. It does not matter which MIDI channel Part 10 is set to, Part 10 always has priority. Each drum sound requires one note. For the remaining 15 Parts, priority is given in ascending order of MIDI receive channel.

For example, all 28 notes are currently being used, then some new MIDI note data is received. The TG100 will check to see if any notes are being used by the Part assigned to MIDI channel 16. If yes, the required number of notes from that Part will stop sounding (be truncated) and the new notes will be heard. If no, the TG100 will check the Part assigned to MIDI channel 15, then 14 and so on, until all the new notes are sounding. Remember it doesn't matter which MIDI channel Part 10, drums, is assigned to, it will always have priority.

Effectively, priority means the order in which Parts are checked for available notes. For example, Part 10, drums, always has No. 1 priority, so the TG100 will always check the other 15 Parts before Part 10.

For most applications, 28 notes will be more than adequate, so you shouldn't have to worry about MIDI channel priority and notes being truncated. But, if nearly all 16 Parts are being used and you are using some large sustaining chords, it is a good idea to assign the more important Parts to the lower MIDI channels and to carefully plan your composition with regard to which voices sound at the same time.

Typical Part, voice & MIDI channel setup

The table below shows how the Part, voice and MIDI channels might be setup.

The important voices used in this particular composition are assigned to Parts 1 to 10. Part 10, the drum Part, having number one priority.

The "No. of notes used" column shows the maximum number of simultaneously played notes for each voice, the total being 34. Although we only have 28 notes available, this will not be a problem because at no point in the composition do we have more than 20 notes sounding simultaneously. This is where the TG100's dynamic note allocation function comes in, allocating notes to Parts as and when required.

Part	VOICE	MIDI CH	No. of notes used
1	Acoustic Piano	1	6
2	Electric Bass	2	2
3	String Ensemble 2	3	4
4	Electric Guitar (muted)	4	3
5	Alto Sax	5	2
6	Trumpet	6	2
7	Synth Pad1 (new age)	7	4
8	Synth Drum	8	1
9	Castanets	9	1
10	Drum kit	10	3
11	Synth Effect FX3 (crystal)	11	1
12	Mallet	12	1
13	Triangle	13	1
14	Woodblock	14	1
15	Agogo	15	1
16	Guitar Fret Noise	16	1
			TOTAL 34

MIDI

Control data must be input to the TG100 for it to produce any sound. The format of this data is called MIDI (Musical Instrument Digital Interface). MIDI is quite a comprehensive subject, so here we will just look at the basics. A basic understanding of how MIDI works will help you to get the most out of your TG100. If you want to know more about MIDI, there are many good books available.

MIDI allows communication between electronic musical instruments. MIDI connections do not carry audio signals, they carry a digital, computer type signals. MIDI signals are processed in real-time, which means that when you press a key on your MIDI keyboard, MIDI data such as the note number and velocity (how hard the key was pressed) is transmitted to whatever MIDI device is connected via the keyboard's MIDI OUT connection.

Connected MIDI instruments will only respond to the data if they are set to the same MIDI receive channel as the MIDI keyboards MIDI send channel. There are 16 MIDI channels.

MIDI data is divided into two types: Channel Messages and System Messages.

Channel messages

Channel Messages are sent on the individual MIDI channels. Only the instruments that are set to receive MIDI data on that particular MIDI channel will use the data. Instruments set to a different MIDI receive channel will ignore it. Channel Messages can be further divided into the following data types.

Voice Messages

These are the simplest type of MIDI messages and basically consist of note-on, velocity and note-off data. The TG100 recognizes all voice Messages.

Control Change

Control Change Messages consist of modulation, portamento time, volume, pan-pot, etc., data types. Not all MIDI instruments recognize the same Control Change Messages. See "MIDI implementation chart" on page 78 for details about which Control Change Messages the TG100 recognizes. The TG100's voice banks are selected using this type of message.

Program Change

Program Change Messages are used to select instrument voices. In the TG100, these messages are used to select the voice used by each Part and the different drum kits for Part 10. For example, if the TG100 is set to Disk Orchestra mode and a MIDI song file from the Disk Orchestra Collection is sent to the TG100 via MIDI, at the beginning of the song, Program Change messages will be sent to each of the TG100's Parts to select the correct voice. For example, a piano voice is selected for the Part that is receiving piano data, a bass voice for the Part that is receiving bass data, etc.

Pitch Bend

Pitch Bend data is sent when the pitch bend wheel on a MIDI keyboard is used.

Aftertouch

Aftertouch data is sent when you press down harder on a key, or number of keys, which are currently being held down. This data can control volume, vibrato, LFO, etc. and allows greater expression of sustaining notes. There are two types of Aftertouch Messages; Channel and Polyphonic. Channel applies to all notes on the same MIDI channel and Polyphonic applies to individual notes. The TG100 recognizes only Channel type Aftertouch.

Mode Messages

There are four types of mode messages. These messages determine how a MIDI instrument responds to MIDI data. With OMNI ON, an instrument will respond to all the MIDI data on all 16 channels. With OMNI OFF, an instrument will respond to data on its currently set MIDI receive channel only. "POLY" means polyphonic and "MONO" means monophonic. The TG100 is set to OMNI OFF, POLY (see "Mode 3 - OMNI OFF, POLY" on page 10).

Mode 1 - OMNI ON, POLY

The MIDI instrument will respond to all channel type messages regardless of the MIDI channel setting. Mainly used when two, or three synthesizers or tone generators are being used in unison. This allows new and interesting sounds to be created by having each synthesizer/tone generator set to a different voice, this

technique is known as "layering".

Mode 2 - OMNI ON, MONO

The MIDI instrument will respond to all channel type messages regardless of the MIDI channel setting, but only one note can be played at a time.

Mode 3 - OMNI OFF, POLY

The MIDI instrument will respond to data on its currently set MIDI receive channel only. Mainly used with MIDI sequencers and multi-timbral type tone generators like the TG100. The TG100 is always set to Mode 3 - OMNI OFF, POLY and cannot be changed.

Mode 4 - OMNI OFF, MONO

The MIDI instrument will respond to data on its currently set MIDI receive channel only, but only one note can be played at a time. Mainly used with MIDI guitars and MIDI guitar controllers. Each string is assigned to a different MIDI channel and only one note is sent, per MIDI channel at a time.

System messages

These messages are sent regardless of MIDI channel settings and are used to control all the MIDI instruments connected in a MIDI system.

System Messages can be timing and control data sent from a MIDI sequencer to a MIDI drum machine. The sequencer tells the drum machine when to start playing, when to stop and continuously sends time-clock data so that the drum machine plays in time with the sequencer.

System Exclusive Messages are System Messages that correspond to individual manufacturers MIDI equipment. They allow remote editing of synthesizer, or tone generator voices using voice editing software that is available for most music computers.

Voice settings can be saved to a MIDI sequencer, librarian or MIDI data recorder using System Exclusive Messages. This is usually known as MIDI Bulk Dump.

The TG100 uses System Exclusive Messages to save (or recall) edited voices to an MDR (MIDI data recorder). See "Using MIDI Dump to save data" on page 50.

Although not recommended for the beginner, for the expert MIDI user, all the TG100's parameters can be controlled via System Exclusive Messages. Many parameters that are not accessible using the TG100's control panel, such as element editing are available. See "MIDI Data Format" on page 70.

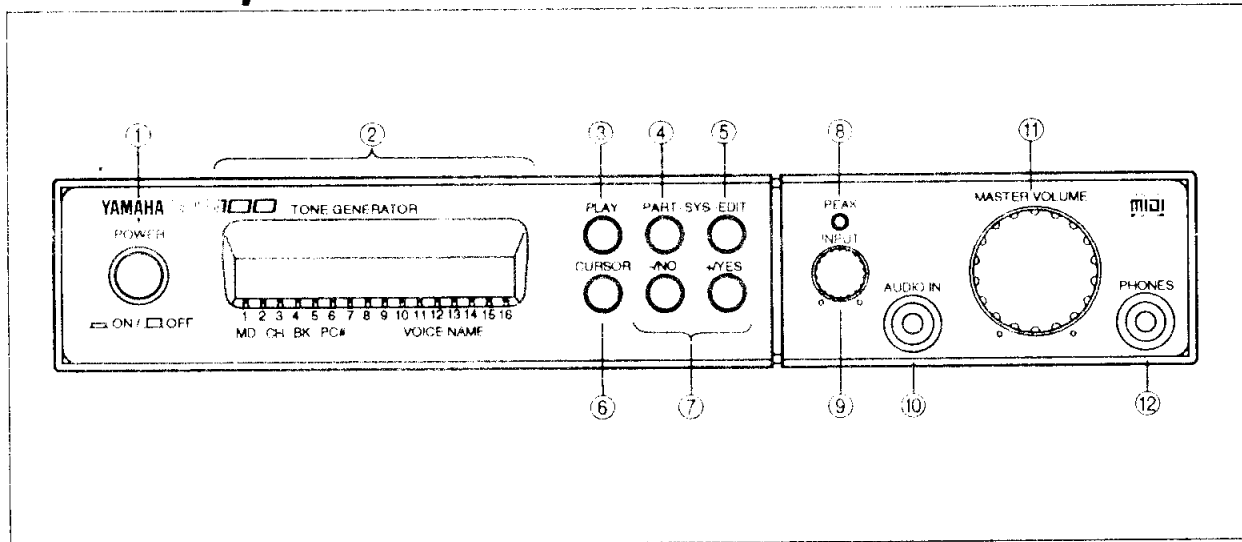
MIDI Song files

Until recently, most MIDI sequencers saved songs in different song file formats. So, transferring songs between sequencers was virtually impossible. The MIDI standard file format (MIDI SNG FILE) allows MIDI songs to be transferred between different sequencers. Most of the popular software and hardware based sequencers can now save and read song files in their own format and the MIDI standard file format. This makes it very easy to transfer MIDI songs between different manufacturers' sequencers.

NOTE: The Disk Orchestra Collection song files use Yamaha's own "ESEQ" file format.

2 Controls & connections

Front panel



① **POWER switch**

Used to turn the power on and off. Press once to switch on, press again to switch off.

② **LCD**

One line, 16 character LCD display.

③ **[PLAY] button**

Selects play mode. If pressed while in any of the edit modes or in system mode, play mode will be selected.

④ **[PART] button**

Used to select the 16 Parts. Pressed simultaneously with the [EDIT] button engages system mode.

⑤ **[EDIT] button**

Used to select one of the three edit modes; Multi Common Edit, Multi Part Edit and voice Edit. The selected edit mode depends on the LCD cursor position before the [EDIT] button is pressed.

⑥ [CURSOR] button

This button is used to move the LCD cursor. Each time it is pressed, the cursor moves one position to the right. When the cursor is positioned at the rightward side of the LCD, the next press of the [CURSOR] button will move the cursor to the leftward side of the LCD.

If the cursor is positioned at the rightward side of the LCD and an “→” symbol is shown, then pressing the [CURSOR] button will move to the next menu function. For example, in voice Edit mode, pressing the [CURSOR] button will change the menu function from “ELEMENT LEVEL” to “ELEMENT DETUNE”, etc.

If the cursor is positioned at the leftward side of the LCD and an “←” symbol is shown, then pressing the [CURSOR] button will move to the previous menu function.

⑦ [-1/NO] & [+1/YES] buttons

These buttons are used to adjust parameter values. The cursor must be positioned underneath the parameter value that is to be adjusted. Pressing the [-1/NO] button decreases the value and pressing the [+1/YES] button increases the value. If you press and hold down either button, the data value will change quickly.

These keys are also used when the TG100 requires a YES or NO answer from you. For example, “Demo Play Start ?”. Pressing the [+1/YES] button will start the demo song playing.

⑧ PEAK indicator

This indicator will light up when the maximum signal level which the TG100 can accept is applied to the AUDIO IN pre-amplifier. The INPUT level control should be adjusted so that this indicator does not light.

⑨ INPUT level control

This control adjusts the amount of signal gain that is applied to the AUDIO IN signal. It allows you to set the sound balance between the AUDIO IN signal and the TG100's sounds.

⑩ AUDIO IN connector

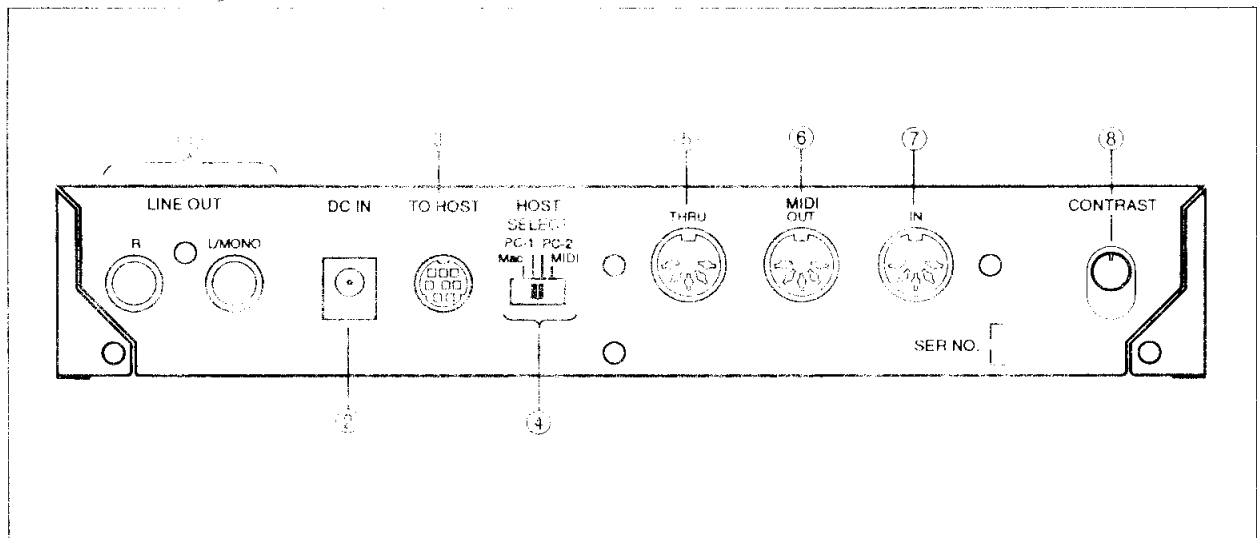
This is a stereo 3.5mm mini jack. Audio signals connected here are first fed to a pre-amplifier circuit, the gain of which is controlled by the INPUT level control, then mixed with the output signal of the TG100 and output to the LINE OUT connectors.

⑪ MASTER VOLUME control

This control adjusts the volume level of the signal appearing at the LINE OUT and PHONES connections (that is, the overall volume level, the TG100 sounds mixed with the AUDIO IN signal).

⑫ PHONES connector

A stereo 3.5mm mini jack, used for connecting headphones. The headphone volume is adjusted by using the MASTER VOLUME control.

Rear panel**① LINE OUT (R, L/MONO) connectors**

A pair of 1/4" mono jack sockets. These should be connected to the inputs of a stereo audio amplifier or an audio mixer. If the audio amplifier you are using is only mono, use only the L/MONO output.

② DC IN connector

The power supply adaptor (PA-1505) is connected here. Before connecting the adaptor, make sure it is disconnected from the wall-power (mains) outlet. Always connect the adaptor to the TG100 and then plug the adaptor into the wall-power (mains) outlet.

③ TO HOST connector

An 8-PIN mini DIN connector that allows direct connection to a computer that is running music software. This can be used when your computer does not have MIDI input and output connections. The TG100 is connected to one of the computer's "Serial Ports". See "Connecting to a computer" on page 53, for full details.

NOTE. Not all music software can use this type of connection, so please consult your Yamaha dealer before making a purchase.

④ HOST SELECT switch

This switch setting depends on the type of computer being used and how it is connected. See "Connecting to a computer" on page 53 for full details.

(5) MIDI THRU

MIDI data appearing at the MIDI IN connection is buffered, then output from the MIDI THRU connector. That is, all MIDI data appearing at the MIDI IN connector is output to the MIDI THRU connector unaffected by the TG100.

This allows a "daisy chain" type connection of MIDI equipment. Each connected MIDI device receives all the data that is being transmitted, but only responds to data on its selected MIDI channel.

(6) MIDI OUT

System Exclusive MIDI data is output from this connector. This is normally connected to the MIDI IN connection of an MDR (MIDI Data Recorder), such as a MIDI computer sequencer; a librarian program; a dedicated MIDI data recorder, such as Yamaha's MDF2; or a synthesizer with an MDR function, such as Yamaha's SY99 music synthesizer.

(7) MIDI IN

The TG100 receives MIDI data via this connection. This is normally connected to the MIDI OUT of a MIDI keyboard, synthesizer, MIDI Sequencer or a MIDI data recorder.

See "Typical System Configurations" on page 57 for more details about connecting equipment to the TG100.

NOTE: The operation of both the MIDI IN and MIDI OUT connections varies depending on the position of the HOST SELECT switch. See "Connecting to a computer" on page 53 for full details.

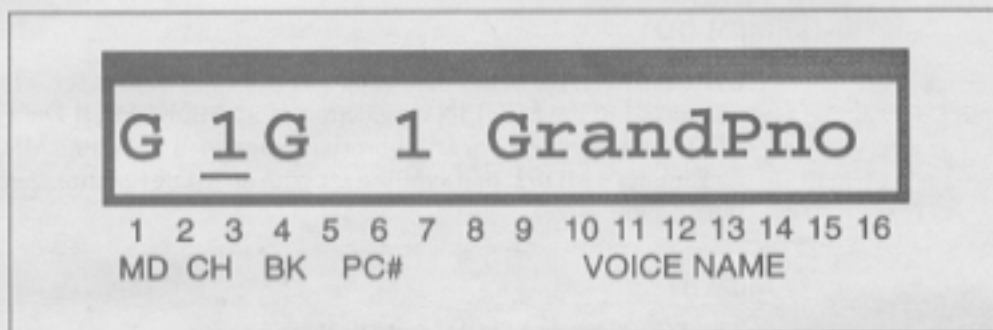
(8) CONTRAST control

This control adjusts the contrast of the LCD display. This is used to optimize the readability of the LCD display when it is viewed from different angles (different heights).

3 Play Mode

When the TG100 is turned on for the first time, or after the INITIALIZE ALL function has been used, the sound module mode is General MIDI. All 16 Parts are assigned voice No. 1, Piano. The assignment of MIDI channels to the 16 Parts is shown on page 16.

The LCD



MD - Indicates the current sound module mode.

G - General MIDI

D - Disk Orchestra

C - C/M

CH - Indicates the MIDI receive channel of the currently selected Part.

If a Part's MIDI receive channel is set to "OFF", "*" will be shown at the "CH" position.

When either the Disk Orchestra or C/M sound module mode is selected, the assignment of the MIDI channels to the 16 Parts will be different. See "Selecting the sound module mode" on page 16.

BK - Indicates the currently selected voice bank.

In the above example, "G" indicates that the General MIDI voice bank has been selected. Other available voice banks are, Internal, Disk Orchestra and C/M.

PC# - Indicates the MIDI Program Change number currently assigned to the selected voice. Remember that the Program Change number currently assigned to a particular voice will depend on the selected sound module mode.

In the LCD shown above, Grand Piano, which is voice number 1, is currently assigned to Program Change number "1". If you look at the "Voice bank table" on page 19, you will see that this is correct for General MIDI mode.

VOICE NAME - Shows the name and number of the voice that is assigned to the currently selected Part.

Selecting the sound module mode

Summary:

Select a sound module mode. This affects how the MIDI channels are assigned to the 16 Parts and how MIDI Program Change numbers are assigned to the TG100's voices.

For a description of each mode, see "Sound module modes" on page 7.

Options:

- G** - General MIDI
- D** - Disk Orchestra
- C** - C/M

Procedure:

- 1) In play mode, move the cursor, using the [CURSOR] button, to the **MD** position.
- 2) Press either the [-1/NO] or [+1/YES] button to select one of the three options.

Details:

When a different sound module mode is selected the following are affected.

- 1) The assignment of MIDI channel numbers to the 16 Parts.

PART No.	General MIDI	Disk Orchestra	C/M
	MIDI RECEIVE CHANNEL		
1	1	1	OFF
2	2	2	2
3	3	3	3
4	4	4	4
5	5	5	5
6	6	6	6
7	7	7	7
8	8	8	8
9	9	9	9
10 (DRUMS)	10	15	10
11	11	OFF	11
12	12	OFF	12
13	13	OFF	13
14	14	OFF	14
15	15	10	15
16	16	OFF	16

Once a sound module mode has been selected, the MIDI receive channel assigned to each Part can be changed, see "Part MIDI receive channel" on page 37.

As well as changing the MIDI receive channel, you can also turn a Part off. As you can see in the above table, some Parts are turned off when Disk Orchestra mode is selected.

You may want to turn a TG100 Part off when a different MIDI instrument in your system is being used to play that particular Part.

You may need to change some of the TG100's MIDI receive channel assignments if

you have other MIDI instruments using those MIDI channels.

It should be remembered however, that the reason for having these different sound module modes, with their preset MIDI channel assignments, etc., is to provide a degree of compatibility for MIDI songs, that will allow you to transfer songs between different MIDI systems. Obviously, the more you change these settings, the less compatible your MIDI songs will be with other MIDI song file users.

2) The voice bank selected for each part.

When a sound module mode is selected the corresponding voice bank is selected for all 16 parts.

For example, if Disk Orchestra is selected as the sound module mode, all 16 parts automatically switch to the Disk Orchestra voice bank.

3) The selected voices for Parts 1 to 9, 11 to 16 and the selected drum kit for Part 10.

PART No.	General MIDI	Disk Orchestra	C/M
	VOICE		
1	GrandPno	GrndPno2	GrandPno
2	GrandPno	GrndPno2	SlapBas1
3	GrandPno	GrndPno2	Ensmble1
4	GrandPno	GrndPno2	BrasSect
5	GrandPno	GrndPno2	SprnoSax
6	GrandPno	GrndPno2	Rain
7	GrandPno	GrndPno2	El.Grand
8	GrandPno	GrndPno2	Bottle
9	GrandPno	GrndPno2	Orch Hit
10 (DRUMS)	Standard kit	Clavinova kit	C/M kit
11	GrandPno	GrndPno2	Fretless
12	GrandPno	GrndPno2	AahChor2
13	GrandPno	GrndPno2	GrandPno
14	GrandPno	GrndPno2	DrawOrgn
15	GrandPno	GrndPno2	Mute Gt2
16	GrandPno	GrndPno2	Trumpet

- It might seem a little strange to have 15 Parts assigned to the same voice. Remember that this is only the initial setting, when a MIDI song starts playing MIDI Program Change Messages are sent to each Part and the correct voice is selected.

4) The TG100's pitch bend range.

	General MIDI	Disk Orchestra	C/M
PITCH BEND RANGE	± 2 semitones	± 3 semitones	± 12 semitones (± 1 octave)

The above table shows how the TG100 responds to pitch bend data in each mode. For example, with your pitch bend wheel turned fully up, in General MIDI mode the pitch will increase by 2 semitones. In Disk Orchestra mode, with the pitch bend wheel turned fully up, the pitch will increase by 3 semitones.

For MIDI experts, the pitch bend range can be changed by sending an RPN (Registered Parameter Change number) MIDI message. See "RPN (Registered Parameter Number)" on page 72.

4 Selecting instrument voices

Summary:

Select an instrument voice for Parts 1 to 9 and 11 to 16. See also, "Selecting drum kits (Part 10)" on page 23.

Options:

For Parts 1 to 9 and 11 to 16, voices can be selected from one of four voice banks:

G - General MIDI (128 voices)

I - Internal (64 voices)

D - Disk Orchestra (72 voices)

C - C/M (128 voices for parts 1 to 9 and 64 voices for parts 11 to 16)

Procedure:

- 1) Use the [CURSOR] button to position the cursor at the **CH** position.
- 2) Use the [-1/NO] and [+1/YES] buttons to select the required Part.



- 3) With the required Part selected, move the cursor, using the [CURSOR] button, to the **BK** position.
- 4) Press either the [-1/NO] or [+1/YES] button, to select the required voice bank.
- 5) Now move the cursor to the **PC#** position, using the [CURSOR] button.
- 6) Press either the [-1/NO] or [+1/YES] button, to select the required voice. The Program Change number of the selected voice will be shown at the "PC#" position on the LCD.

Details:

- The voices available from banks "G", "D" and "C" can be seen in the "Voice bank table" on page 19.
- The C/M voice bank is different for Parts 1 to 9, (with 128 voices) and Parts 11 to 16 (with 64 voices).
- The Internal voice bank, "I" which can hold 64 voices, is where your edited voices are kept. Every time the TG100 is switched on, voices 1...64 from the "G" voice bank are copied into the internal voice bank. These can then be edited. See "Voice edit mode" on page 39 for full details about editing voices.
- The TG100's voices are numbered from 1 to 192, but these numbers do not actually appear on the LCD. The number that identifies each voice is actually the MIDI Program Change number shown at the PC# position.
- The pitch rate scaling (interval between notes) of voices 116...128, excluding voice 122, is not 100%. In other words, if you play a C Major chord using voice 124, "Bird Tweet", the intervals between the notes will not be the same as if it were a Piano voice.
- Voice banks can be selected using MIDI Controllers 0 and 32. See "Control Change" on page 71. If the sound module mode is set to Disk Orchestra or C/M, voice bank select messages are ignored.

Voice bank table

Voice No.	Voice name	LCD	Elements	Voice bank			
				Program Change number assignments			
				General MIDI	Disk Orchestra	C/M	
Parts 1...9	Parts 11...16						
	Piano						
1	Acoustic Grand Piano	GrandPno	1	1		1	1, 2, 5
2	Bright Acoustic Piano	BritePno	1	2		2	6, 7
3	Electric Grand Piano	ElGrand	2	3	52	4, 5	3
4	Honky-tonk Piano	HnkyTonk	2	4	50	8	4
5	Rhodes Piano	ElPiano1	2	5	51	7	8, 9, 10
6	Chorused Piano	ElPiano2	2	6		3, 6	
7	Harpischord	Harpstich	1	7	15	17, 18, 19	
8	Clavinet	Clavinet	1	8	19	20, 21, 22	
	Chromatic Percussion						
9	Celesta 1	Celesta	1	9		23, 24	
10	Glockenspiel	Glocken	1	10	20	102	
11	Music Box	MusicBox	2	11			
12	Vibraphone	Vibes	1	12	17	98, 99	
13	Marimba	Marimba	1	13	18	105	
14	Xylophone	Xylophon	1	14		104	
15	Tubular Bells	TubulBel	1	15		103	
16	Dulcimer	Dulcimer	2	16			
	Organ						
17	Hammond Organ	DrawOrgn	1	17		9	38, 39, 42, 43
18	Percussive Organ	PercOrgn	1	18		10, 11	40, 44
19	Rock Organ	RockOrgn	1	19		12	
20	Church Organ	ChrcOrgn	1	20	77	13, 15	
21	Reed Organ	ReedOrgn	1	21		14	
22	Accordion	Acordion	2	22	8	16	
23	Harmonica	Harmnica	1	23	42	88	
24	Tango Accordion	TangoAcod	2	24			
	Guitar						
25	Acoustic Nylon Guitar	NylonGtr	1	25	25	60	
26	Acoustic Steel Guitar	SteelGtr	1	26	54	61	11, 12
27	Electric Jazz Guitar	JazzGtr	1	27	26, 73	62	
28	Electric Clean Guitar	CleanGtr	1	28	27, 55, 70	63	
29	Electric muted Guitar	MuteGtr	1	29	71		
30	Overdriven Guitar	Ovrdrive	1	30			
31	Distortion Guitar	Distortd	1	31			53
32	Guitar Harmonics	Harmnics	1	32			
	Bass						
33	Acoustic Bass	WoodBass	1	33	29, 72	65, 66	29
34	Electric Bass fingered	FngrBass	1	34	30	67	24
35	Electric Bass picked	PickBass	1	35		68	26
36	Fretless Bass	Fretless	1	36		71, 72	28
37	Slap Bass 1	SlapBas1	1	37		69	
38	Slap Bass 2	SlapBas2	1	38		70	
39	Synth Bass 1	SynBas1	1	39		29, 31	
40	Synth Bass 2	SynBas2	1	40	32	30, 32	
	Strings						
41	Violin	Violin	1	41	10, 76	53	
42	Viola	Viola	1	42		54	
43	Cello	Cello	1	43		55, 56	
44	Contrabass	Contra	1	44		57	
45	Tremolo Strings	TremStrg	1	45			

Voice No.	Voice name	LCD	Elements	Voice bank			
				Program Change number assignments			
				General MIDI	Disk Orchestra	C/M	
Parts 1...9	Parts 11...16						
46	Pizzicato Strings	Pizzicto	1	46	57	52	
47	Orchestral Harp	Harp	1	47	58	58, 59	
48	Timpani 1	Timpani	1	48		113	
	Ensemble						
49	String Ensemble1	Ensemble1	1	49	63	49	35
50	String Ensemble2	Ensemble2	1	50	75	50	34
51	Synth Strings 1	SynStrg1	2	51		51	
52	Synth Strings 2	SynStrg2	2	52			
53	Choir Aahs	AahChoir	1	53	43, 64		31
54	Voice Oohs	OohChoir	1	54			
55	Synth Voice	SynChoir	1	55			
56	Orchestral Hit	Orch Hit	1	56		123	64
	Brass						
57	Trumpet	Trumpet	1	57	2	89, 90	47, 48
58	Trombone	Trombone	1	58		91, 92	49, 50, 51
59	Tuba	Tuba	1	59		95	
60	Muted Trumpet	MuteTrum	1	60	41		
61	French Horn	FrenchHr	1	61	3	93, 94	
62	Brass Section	BrasSect	1	62	1, 61	96, 97	59
63	Synth Brass 1	SynBras1	2	63		25, 27	
64	Synth Brass 2	SynBras2	2	64		26, 28	
	Reed						
65	Soprano Sax	SprnoSax	1	65		79	55
66	Alto Sax	Alto Sax	1	66		80	56
67	Tenor Sax	TenorSax	1	67		81	57
68	Baritone Sax	Bari Sax	1	68		82	58
69	Oboe	Oboe	1	69	6	85	
70	English Horn	EnglHorn	1	70		86	
71	Bassoon	Bassoon	1	71	81	87	
72	Clarinet	Clarinet	1	72	5	83, 84	
	Pipe						
73	Piccolo	Piccolo	1	73		75, 76	
74	Flute	Flute	1	74	7, 62	73, 74	
75	Recorder	Recorder	1	75		77	
76	Pan Flute	PanFlute	1	76		78	
77	Bottle Blow	Bottle	2	77		111	
78	Shakuhachi	Shakhchi	2	78		108	
79	Whistle	Whistle	1	79		109, 110	
80	Ocarina	Ocarina	1	80			
	Synth Lead						
81	Lead 1 (square)	SquareLd	2	81		48	
82	Lead 2 (saw tooth)	Saw Ld	2	82			
83	Lead 3 (callope)	CallopLd	2	83			
84	Lead 4 (chiff)	Chiff Ld	2	84			
85	Lead 5 (charang)	ChranLd	2	85			
86	Lead 6 (voice)	Voice Ld	2	86			
87	Lead 7 (fifths)	Fifth Ld	2	87			
88	Lead 8 (bass+lead)	Bass &Ld	2	88			
	Synth Pad						
89	Pad 1 (new age)	NewAgePd	2	89		33	
90	Pad 2 (warm)	War Pd	2	90			
91	Pad 3 (polysynth)	PolySyPd	2	91			
92	Pad 4 (choir)	Choir Pd	2	92		35	

Voice No.	Voice name	LCD	Elements	Voice bank			
				Program Change number assignments			
				General MIDI	Disk Orchestra	C/M	
				Parts 1...9	Parts 11...16		
93	Pad 5 (bowed)	Bowed Pd	2	93		36	
94	Pad 6 (metallic)	Metal Pd	2	94			
95	Pad 7 (halo)	Halo Pd	2	95			
96	Pad 8 (sweep)	Sweep Pd	2	96			
	Synth Effect						
97	SFX 1 (rain)	Rain	2	97		42	
98	SFX 2 (soundtrack)	SoundTrk	2	98		37	
99	SFX 3 (crystal)	Crystal	2	99			
100	SFX 4 (atmosphere)	Atmospher	2	100		38	
101	SFX 5 (brightness)	Bright	2	101			
102	SFX 6 (goblins)	Goblin	2	102			
103	SFX 7 (echoes)	Echoes	2	103			
104	SFX 8 (sci-fi)	SciFi	2	104			
	Ethnic						
105	Sitar	Sitar	1	105	28	64	
106	Banjo	Banjo	1	106	56		
107	Shamisen	Shamisen	1	107			
108	Koto	Koto	1	108		106	
109	Kalimba	Kalimba	1	109			
110	Bag pipe	Bagpipe	2	110			
111	Fiddle	Fiddle	1	111			
112	Shanai	Shanai	1	112			
	Percussive						
113	Tinkle Bell	TnkBell	2	113			
114	Agogo	Agogo	1	114			
115	Steel Drums	Stl Drum	2	115	59		
116	Woodblock	WoodBlok	1	116			
117	Taiko Drum	TaikoDrm	1	117		118	
118	Melodic Tom	MelodTom	1	118		114	
119	Synth Drum	SynthTom	1	119		116	
120	Reverse cymbal	RevCymbl	1	120			
	Sound Effects						
121	Guitar Fret Noise	FretNoiz	1	121			
122	Breath Noise	BrthNoiz	1	122			
123	Seashore	Seashore	2	123			
124	Bird Tweet	Tweet	2	124			
125	Telephone Ring	Telephone	1	125		124	
126	Helicopter	Helicptr	2	126			
127	Applause	Applause	2	127			
128	Gun Shot	Gunshot	1	128			
	Various						
129	SynHarmo	SynHarmo	2			34	
130	SynWarm	SynWarm	2			39	
131	SynFunny	SynFunny	1			40	
132	SynEcho1	SynEcho1	2			41	
133	SynOboe	SynOboe	2			43	
134	SynEcho2	SynEcho2	2			44	
135	SynSolo	SynSolo	2			45	
136	SynReedOrgan	SynRdOrg	2			46	
137	SynBell	SynBell	2			47	
138	MalletSy	MalletSy	1			100	
139	MalletWind	MalletWin	2			101	
140	Sho	Sho	1			107	

Voice No.	Voice name	LCD	Elements	Voice bank			
				Program Change number assignments			
				General MIDI	Disk Orchestra	C/M	
Parts 1...9	Parts 11...16						
141	Breathy	Breathy	2			112	
142	DeepSnare	DeepSnar	1			115	
143	Syn Tom2	Syn Tom2	1			117	
144	TaikoRim	TaikoRim	1			119	
145	Cymbal	Cymbal	1			120	
146	Castanet	Castanet	1			121	
147	Triangle	Triangle	1			122	
148	Bird	Bird	1			125	
149	Jam	Jam	2			126	
150	EffectWater	EfctWatr	2			127	
151	EffectJungle	EfctJngl	2			128	
152	Acoustic Steel guitar 2	SteelGt2	2				13
153	Electric muted guitar 2	Mute Gt2	2				14
154	Electric muted guitar 3	Mute Gt3	1				15
155	Slap Bass 3	SlapBas3	2				16
156	Slap Bass 4	SlapBas4	2				17
157	Slap Bass 5	SlapBas5	2				18, 22
158	Slap Bass 6	SlapBas6	2				19
159	Slap Bass 7	SlapBas7	2				20
160	Slap Bass 8	SlapBas8	2				21
161	Slap Bass 9	SlapBas9	2				23
162	Electric Bass fingered 2	FngrBas2	2				25
163	Electric Bass picked 2	PickBas2	2				27
164	Choir Aah 2	AahChor2	1				30
165	Choir Aah 3	AahChor3	2				32
166	Choir Aah 4	AahChor4	2				33
167	String Ensemble 3	Ensmble3	2				36, 37
168	Percussive Organ 2	PrcOrgn2	2				41, 45, 46
169	Brass section 2	Brassec2	2				54, 61, 62, 63
170	Electric Piano DX	EIPno DX	1		14		
171	Synth Piano	SynPiano	2		53		
172	Celesta 2	Celesta2	1		16		
173	Clavinova tone	Clavinova	2		69		
174	Jazz Organ	JazzOrgn	2		12, 66, 83		
175	Combo Organ	CombOrgn	2		44		
176	Pipe Organ	PipeOrgn	2		11, 65		
177	Slap Bass 10	SlpBas10	2		31		
178	Brass section 3	BrasSec3	2				53
179	Pop Brass	PopBrass	1		74		52, 60
180	Synth Brass 3	SynBras3	2		21, 67		
181	Saxophone 1	Sax 1	2		4, 68		
182	Saxophone 2	Sax 2	2		78		
183	Synth crystal	SynCrstl	2		23		
184	Synth Wood	Syn Wood	2		45		
185	String Ensemble 4	Ensmble4	2		9		
186	Synth Strings 3	SynStrg3	2		46		
187	Synth choir 2	Synchor2	2		47		
188	Flute 2	Flute 2	1		80		
189	Acoustic Grand piano 2	GrndPno2	1		13, 49		
190	Bright Acoustic piano 2	BritePn2	1		48		
191	Timpani 2	Timpani2	1		24		
192	Electric bass Heavy	Hvy Bass	2		79		

Selecting drum kits (Part 10)

Summary:

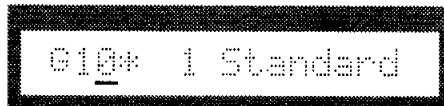
Select a drum kit for Part 10.

Options:

PC# No.	KIT NAME
1	Standard
9	Room
17	Power
25	Elctrnic (Electronic)
26	Analog
33	Jazz (same as the standard kit)
41	Brush
49	Orchestra (Orchestra)
126	Clavinov (Clavinova)
127	RX
128	C/M

Procedure:

- 1) Use the [CURSOR] button to position the cursor at the **CH** position.
- 2) Repeatedly press the [+1/YES] button to select Part 10.



- 3) Use the [CURSOR] button to position the cursor at the **PC#** position.
- 4) Use the [-1/NO] or [+1/YES] buttons, to select one of the drum kits listed above.

Details:

- The PC# number is the MIDI Program Change number.
- The Standard kit is the main drum kit and the other kits are basically variations of it. If you look at the drum/keyboard layouts, on the following pages, you will see that the other drum kits have some different drum sounds. For example, the "Orchestra Kit" has some tuned timpani and the "Room Kit" has some "room-sound" tom-toms.
- The Jazz kit is the same as the Standard kit.
- If the sound module mode is set to Disk Orchestra or C/M, Part 10 drums ignores Program Change messages.

Clavinova - kit corresponds to the Disk Orchestra Collection.

C/M - provides semi-compatibility for MIDI song files recorded using a CM-64.

RX - kit provides semi-compatibility for MIDI drum patterns recorded on one of Yamaha's RX drum machines.

The main difference between these kits is the way that MIDI note numbers are assigned to each drum sound. Unlike the first 8 drum kits, where the difference is in the choice of drum sound, in the last three kits the MIDI note assignments are completely different.

Page 16, "Selecting the sound module mode", shows which drum kit is selected when the sound module mode is changed.

Using the drum/keyboard layouts

The following drum/keyboard layouts show the drum sounds that are in each drum kit and which keyboard note each drum sound is assigned to.

The Jazz kit is the same as the Standard kit, so there is no Jazz kit layout. When the Jazz kit is selected, please refer to the Standard kit layout.

The Standard kit layout is shown twice, once before the room, Power and Electronic kits, and also before the Analog, brush and Orchestra kit. This is because drum sounds that are not changed between the kits remain the same as the Standard kit layout.

For example, we have selected the "Power kit". For note "A0 (33)" there is no drum sound listed. If we look at the "Standard kit" we can see that the "Metronome click" drum sound is assigned to that note.

If we look at note "C1 (36)", the drum sound is "MONDO kick". This has replaced the "Bass Drum 1" that is used by the Standard kit.

The Clavinova, C/M and RX drum/keyboard layouts show which keyboard note each drum sound is assigned to for the Clavinova, RX and C/M drum kits.

Standard, Room, Power & Electronic drum kit layouts

	Standard Kit	Room Kit	Power Kit	Electronic Kit
	PC No. 1	PC No. 9	PC No. 17	PC No. 25
	D#0 (27)			
E0 (28)				
F0 (29)		Scratch Push		
G0 (31)	F#0 (30)	Scratch Pull		
A0 (33)	G#0 (32)	Stick		
B0 (35)	A#0 (34)	Click Noise		
C1 (36)		Metronome Click		
D1 (38)	C#1 (37)	Metronome Bell		
E1 (40)	D#1 (39)	Acoustic Bass Drum		
F1 (41)	F#1 (42)	Bass Drum 1		
G1 (43)	G#1 (44)	Side Stick		
A1 (45)	A#1 (46)	Acoustic Snare		
B1 (47)		Hand Clap		
C2 (48)	C#2 (49)	Electric Snare		
D2 (50)	D#2 (51)	Low Floor Tom		
E2 (52)	F#2 (54)	Closed Hi-Hat		
F2 (53)	G#2 (56)	High Floor Tom		
G2 (55)	A#2 (58)	Pedal Hi-Hat		
A2 (57)		Low Tom		
B2 (59)	C#3 (61)	Open Hi-Hat		
C3 (60)	D#3 (63)	Low Mid Tom		
D3 (62)	F#3 (66)	Hi-Mid Tom		
E3 (64)	G#3 (68)	Crash Cymbal 1		
F3 (65)	A#3 (70)	High Tom		
G3 (67)	C#4 (73)	Ride Cymbal 1		
A3 (69)	D#4 (75)	Chinese Cymbal		
B3 (71)	F#4 (78)	Ride Bell		
C4 (72)	G#4 (80)	Tambourine		
D4 (74)	A#4 (82)	Splash Cymbal		
E4 (76)		Cowbell		
F4 (77)	C#5 (85)	Crash Cymbal 2		
G4 (79)	D#5 (86)	Vibraslap		
A4 (81)		Ride Cymbal 2		
B4 (83)		Hi Bongo		
C5 (84)		Low Bongo		
D5 (86)		Mute Hi Conga		
		Open Hi Conga		
		Low Conga		
		High Timbale		
		Low Timbale		
		High Agogo		
		Low Agogo		
		Cabasa		
		Maracas		
		Short Whistle		
		Long Whistle		
		Short Guiro		
		Long Guiro		
		Claves		
		Hi Wood Block		
		Low Wood Block		
		Mute Cuica		
		Open Cuica		
		Mute Triangle		
		Open Triangle		
		Shaker		
		Castanets		
		Taiko-Drum High		
		Taiko-Drum Low		

Standard, Analog, Brush & Orchestra drum kit layouts

	Standard Kit	Analog Kit	Brush Kit	Orchestra Kit
	PC No. 1	PC No. 26	PC No. 41	PC No. 49
	D#0 (27)			Closed Hi-Hat
E0 (28)				Pedal Hi-Hat
F0 (29)		Scratch Push		Open Hi-Hat
	F#0 (30)	Scratch Pull		Ride Cymbal
G0 (31)		Stick		
	G#0 (32)	Click Noise		
A0 (33)		Metronome Click		
	A#0 (34)	Metronome Bell		
B0 (35)		Acoustic Bass Drum		
		Bass Drum 1	Analog Bass Drum	Concert BD
C1 (36)		Side Stick		
	C#1 (37)	Acoustic Snare	Analog Snare Drum	Concert SD
D1 (38)		Hand Clap		Castanets
	D#1 (39)	Electric Snare		Concert SD
E1 (40)		Low Floor Tom	Analog Low Tom 2	Timpani F
	F#1 (42)	Closed Hi-Hat	Analog CHH	Timpani F#
G1 (43)		High Floor Tom	Analog Low Tom 1	Timpani G
	G#1 (44)	Pedal Hi-Hat	Analog CHH	Timpani G#
A1 (45)		Low Tom	Analog Mid Tom 2	Timpani A
	A#1 (46)	Open Hi-Hat	Analog OHH	Timpani A#
B1 (47)		Low-Mid Tom	Analog Mid Tom 1	Timpani B
		Hi-Mid Tom	Analog Hi Tom 2	Timpani C
C2 (48)		Crash Cymbal 1		Timpani C#
	C#2 (49)	High Tom	Analog Hi Tom 1	Timpani D
D2 (50)		Ride Cymbal 1		Timpani D#
	D#2 (51)	Chinese Cymbal		Timpani E
E2 (52)		Ride Bell		Timpani F
	F#2 (54)	Tambourine		
G2 (55)		Splash Cymbal		
	G#2 (56)	Cowbell		
A2 (57)		Crash Cymbal 2		Crash Cymbal
	A#2 (58)	Vibraslap		
B2 (59)		Ride Cymbal 2		Concert Cymbal
		Hi Bongo		
C3 (60)	MIDDLE C	Low Bongo		
	C#3 (61)	Mute Hi Conga	Analog Hi Conga	
D3 (62)		Open Hi Conga	Analog Mid Conga	
	D#3 (63)	Low Conga	Analog Low Conga	
E3 (64)		High Timbale		
	F#3 (66)	Low Timbale		
G3 (67)		High Agogo		
	G#3 (68)	Low Agogo		
A3 (69)		Cabasa		
	A#3 (70)	Maracas		
B3 (71)		Short Whistle		
		Long Whistle		
C4 (72)		Short Guiro		
	C#4 (73)	Long Guiro		
D4 (74)		Claves	Analog Claves	
	D#4 (75)	Hi Wood Block		
E4 (76)		Low Wood Block		
	F#4 (78)	Mute Cuica		
G4 (79)		Open Cuica		
	G#4 (80)	Mute Triangle		
A4 (81)		Open Triangle		
	A#4 (82)	Shaker		
B4 (83)				
C5 (84)		Castanets		
	C#5 (85)	Taiko Drum High		
D5 (86)		Taiko-Drum Low		
	D#5 (87)			

RX drum kit layout

RX Kit		
PC No. 127		
E0 (28) D#0 (27)	Bass Drum 1	
F0 (29)	Bass Drum 1	
G0 (31) F#0 (30)	Bass Drum 1	
A0 (33) G#0 (32)	Bass Drum 1	
B0 (35) A#0 (34)	Bass Drum 1	
C1 (36)	Acoustic Bass Drum	
D1 (38) C#1 (37)	Bass Drum 1	
E1 (40) D#1 (39)	Acoustic Bass Drum	
F1 (41)	Bass Drum 1	
G1 (43) F#1 (42)	Low Floor Tom	
A1 (45) G#1 (44)	High Floor Tom	
B1 (47) A#1 (46)	Low Tom	
C2 (48) C#2 (49)	Hi Mid Tom	
D2 (50) D#2 (51)	Acoustic Bass Drum	
E2 (52)	Bass Drum 1	
F2 (53) F#2 (54)	Side Stick	
G2 (55) G#2 (56)	Low Floor Tom	
A2 (57) A#2 (58)	High Floor Tom	
B2 (59)	Acoustic Snare	
C3 (60) MIDDLE C	Low Tom	
D3 (62) C#3 (61)	Side Stick	
	Acoustic Snare	
	Hi Mid Tom	
	Hand Clap	
	Cowbell	
	Closed Hi Hat	
	Tambourine	
	Open Hi Hat	
	Crash Cymbal 1	
	Chinese Cymbal	
	Ride Bell	

E3 (64) D#3 (63)	Ride Cymbal 1
F3 (65)	Low Conga
G3 (67) F#3 (66)	Open Hi Conga
A3 (69) G#3 (68)	Mute Hi Conga
B3 (71) A#3 (70)	Low Bongo
C4 (72)	Hi Bongo
D4 (74) C#4 (73)	Low Timbale
E4 (76) D#4 (75)	High Timbale
F4 (77)	
G4 (79) F#4 (78)	Claves
A4 (81) G#4 (80)	Low Agogo
B4 (83) A#4 (82)	High Agogo
C5 (84)	
D5 (86) C#5 (85)	Short Whistle
E5 (88) D#5 (87)	
F5 (89)	Electric Snare
G5 (91) F#5 (90)	Electric Snare
A5 (93) G#5 (92)	Electric Snare
B5 (95) A#5 (94)	Acoustic Snare
C6 (96)	Acoustic Snare
D6 (98) C#6 (97)	Acoustic Snare
	Acoustic Snare
	Electric Snare
	Acoustic Snare
	Electric Snare

Clavinova & C/M drum kit layouts

Clavinova Kit

PC No. 126

F0 (29)	F#0 (30)
G0 (31)	G#0 (32)
A0 (33)	A#0 (34)
B0 (35)	C#1 (37)
C1 (36)	D#1 (39)
D1 (38)	F#1 (42)
E1 (40)	G#1 (44)
F1 (41)	A#1 (46)
G1 (43)	C#2 (49)
A1 (45)	D#2 (51)
B1 (47)	F#2 (54)
C2 (48)	G#2 (56)
D2 (50)	A#2 (58)
E2 (52)	MIDDLE C
F2 (53)	C#3 (61)
G2 (55)	D#3 (63)
A2 (57)	F#3 (66)
B2 (59)	G#3 (68)
C3 (60)	A#3 (70)
D3 (62)	C#4 (73)
E3 (64)	D#4 (75)
F3 (65)	F#4 (78)
G3 (67)	G#4 (80)
A3 (69)	A#4 (82)
B3 (71)	
C4 (72)	
D4 (74)	
E4 (76)	
F4 (77)	
G4 (79)	
A4 (81)	
B4 (83)	

BRUSH ROLL
HH closed-heavy
Crash CYM-light
BD light
SD+RIM-heavy
RIDE CYM-cup
SD+RIM light
BRUSH CYMBAL
SD echo 2
BD normal
RIMSHOT
SD heavy
BRUSH SHOT
SD-light
HH-pedal
SD echo
TOM-4
HH-closed-normal
TOM-3
HH-open
TOM 2
TOM 1
RIDE CYM-normal
E.TOM 3
Crash CYM-normal
E.TOM 2
Crash CYM-normal
E.TOM 1
CONGA low
CABASA
CONGA-high
METRONOME
BONGO-high
TIMBALE-low
CLAVES
TIMBALE high
CASTANETS
CUICA-low
COWBELL
CUICA-high
HANDCLAPS
AGOGO-low
AGOGO high
BONGO-low
CUICA low
TAMBOURINE
Crash CYM normal
TRIANGLE-closed
BRUSH ROLL
TRIANGLE-open

C/M Kit

PC No. 128

A0 (33)	A#1 (34)
B0 (35)	C#1 (37)
C1 (36)	D#1 (39)
D1 (38)	F#1 (42)
E1 (40)	G#1 (44)
F1 (41)	A#1 (46)
G1 (43)	C#2 (49)
A1 (45)	D#2 (51)
B1 (47)	F#2 (54)
C2 (48)	G#2 (56)
D2 (50)	A#2 (58)
E2 (52)	MIDDLE C
F2 (53)	C#3 (61)
G2 (55)	D#3 (63)
A2 (57)	F#3 (66)
B2 (59)	G#3 (68)
C3 (60)	A#3 (70)
D3 (62)	C#4 (73)
E3 (64)	D#4 (75)
F3 (65)	F#4 (78)
G3 (67)	G#4 (80)
A3 (69)	A#4 (82)
B3 (71)	
C4 (72)	
D4 (74)	
E4 (76)	

Acoustic B Drum
Acoustic B Drum
Rim Shot
Acoustic S Drum
Hand Clap
Electric S Drum
Acoustic L Tom
Closed High Hat
Acoustic L Tom
Open Hi-Hat 2
Acoustic N Tom
Open Hi-Hat 1
Acoustic M Tom
Acoustic H Tom
Crash Cymbal
Acoustic H Tom
Ride Cymbal
Tambourine
Cowbell
High Bongo
Low Bongo
Mute Hi Conga
Open Hi Conga
Low Conga
High Timbale
Low Timbale
High Agogo
Low Agogo
Cabasa
Maracas
Short Whistle
Long Whistle
Quijada
Claves

5 Multi Common Edit Mode

Selecting the type of reverb

Summary:

Select the type of reverb effect.

Options:

Hall 1, Hall 2

Room 1, Room 2

Plate 1, Plate 2

Delay 1, Delay 2

Procedure:

- 1) In play mode, move the cursor, using the [CURSOR] button, to the **MD** position.
- 2) Repeatedly press the [EDIT] button until the LCD display shown below appears.



- 3) Press either the [-1/NO] or [+1/YES] button, to select the required reverb type.
- 4) Press the [PLAY] button to return to play mode.

Details:

- If you cannot hear the reverb effect, check the master Reverb Send level setting. See "Setting the reverb level" on page 30. The amount of reverb effect applied to each Part can also be adjusted. See "Part reverb send level" on page 36.
- When a different type of reverb is selected, the reverb level does not change.

The table below provides details about the different reverb types.

Effect	Description	Detail	Reverb time (sec)	Left delay (ms)	Right delay (ms)
Hall 1	Reverb characteristics of a concert hall	Medium size hall	2.4	30	-
Hall 2	As above	Large size hall	3.2	60	-
Room 1	Reverb characteristics of a room	Large room	0.6	8	-
Room 2	As above	Slightly smaller than Room 1, but with solid walls	0.9	12	-
Plate 1	Reverb characteristics of a steel plate type reverb unit	Short	3	16	-
Plate 2	As above	Hard	6	20	-
Delay 1	Delay and reverb used in parallel	Stereo delay effect	1.2	150	300
Delay 2	Delay and reverb used in series, first delay then reverb	Delay reverb effect	2	190	380

Setting the reverb level

Summary:

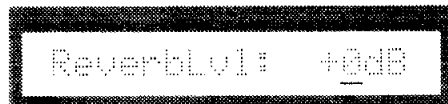
Set the overall volume level of the reverb effect.

Settings:

-40...+6dB

Procedure:

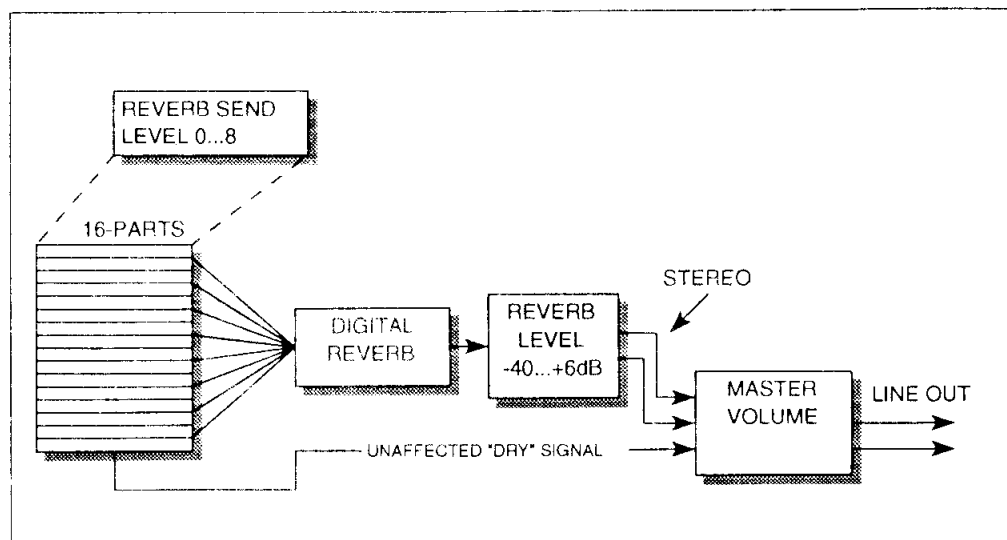
- 1) In play mode, move the cursor, using the [CURSOR] button, to the **MD** position.
- 2) Repeatedly press the [EDIT] button until the LCD display shown below appears.



- 3) Use the [-1/NO] or [+1/YES] button, to adjust the level.
- 4) Press the [PLAY] button to return to play mode.

Details:

- When set to "+0dB", the dry signal level and the reverb signal level will be the same.
- This setting affects the overall volume of the reverb effect. The reverb volume for each Part can be set independently. See "Part reverb send level" on page 36.
- To select the reverb type, see "Selecting the type of reverb" on page 29.
- The diagram below shows the position of this function in relation to the 16 Parts and the master volume control. The direct connection from the 16 Parts to the master volume control, is the unaffected "dry" signal path. At the master volume control, the unaffected "dry" signal and the reverb signal are mixed together.



6 Multi Part Edit Mode

NOTE: Multi Part edit mode settings are not stored when the TG100 is switched off. If you want to keep the settings they must be saved to an MDR (MIDI Data Recorder). See “Using MIDI Dump to save data” on page 50.

Part volume

Summary:

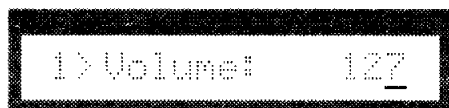
Adjust the volume level of each Part.

Settings:

0...127

Procedure:

- 1) In play mode, move the cursor, using the [CURSOR] button, to the **CH** position.
- 2) Repeatedly press the [EDIT] button until the LCD display shown below appears.



- 3) The number at the leftward side of the display shows the currently selected Part. Repeatedly press the [PART] key to select the Part whose volume you want to adjust.
- 4) Use the [-/NO] and [+/YES] buttons, to adjust the volume level.
- 5) Press the [PLAY] button to return to play mode.

Details:

- Using this function, you can balance the volume level of the 16 Parts just like a mixing console.
- When a Part's volume is set to "0", no sound will be produced by that Part.
- The maximum volume level of each Part is affected by the volume level of the elements used by the voice, which is assigned to the Part. See "Adjusting the volume of voice elements" on page 41.
- MIDI Control change expression data also affects the maximum volume level of a Part. So if the maximum volume level is not being produced, it could be that MIDI Control change expression data is being input to the TG100 from your MIDI master keyboard, synthesizer or MIDI controller.
- Remember, an instrument's volume level is also controlled by MIDI note velocity data.

Part panpot (stereo position)

Summary:

Set the pan position of each Part.

Settings:

L7 - L6 - L5 - L4 - L3 - L2 - L1 - 0 - R1 - R2 - R3 - R4 - R5 - R6 - R7 - VOICE

Procedure:

- 1) In play mode, move the cursor, using the [CURSOR] button, to the **CH** position.
- 2) Repeatedly press the [EDIT] button until the LCD display shown below appears.



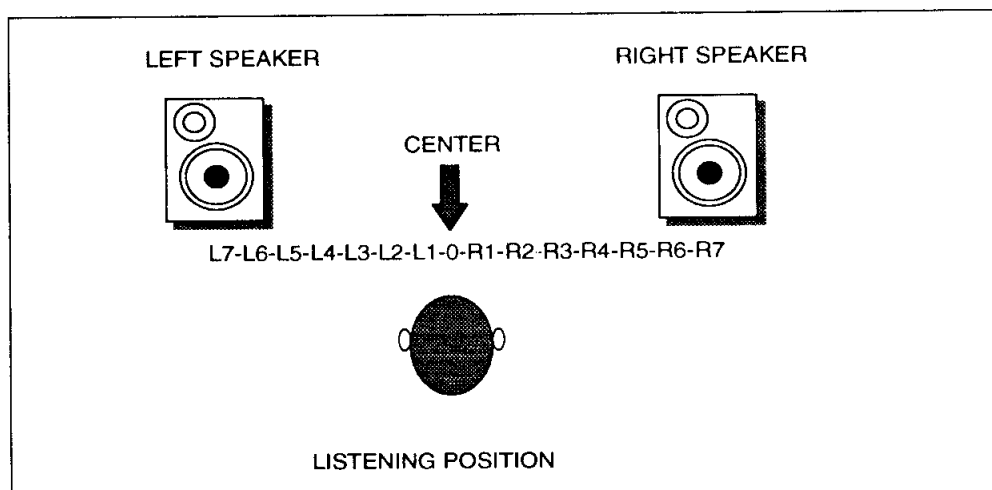
- 3) The number at the leftward side of the display shows the currently selected Part. Repeatedly press the [PART] key to select the Part whose volume you want to adjust.
- 4) Use the [-/NO] button to select a leftward setting and the [+1/YES] button to select a rightward setting.
- 5) Press the [PLAY] button to return to play mode.

Details:

- This function allows you to position sounds any where between your left and right speakers, and stereo headphones. It works like the balance control found on most hi-fi systems. Effectively, the TG100 has 15 balance controls, one for each Part (Part 10, drums, cannot be panned).
- A pan setting of "0" will position the sound centrally between the speakers. A setting of "L7" will position the sound to the left, a setting of "R7", to the right.
- For a more subtle panning effect, sounds can be positioned at any one of the 15 positions between the left L7 and right R7 positions.
- The pan function does not affect Part 10, drums. When Part 10 is selected, the LCD will show "***".
- Many of the drum sounds are already set at various pan positions, try playing the tom-toms from high to low and see how they sweep from right to left.

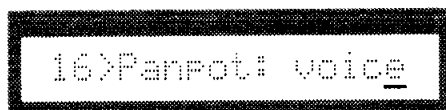
NOTE: The pan positions set by this function and those set by the voice edit mode's element pan function, are ignored if only the "L/MONO" output connection is used.

The following diagram shows the pan positions relative to the left and right speakers.



The "voice" setting

- There is one more setting at the far right, just after setting "R7". This is called "voice". If "voice" is selected, using the [+1/YES] button, the LCD display shown below appears.



This allows you to use the pan position set by the voice edit mode's element pan function, on page 43.

Why use panning

Panning is a very useful function and all stereo recordings use panning to position sounds between the left and right speakers.

If your composition contains a lot of instruments, or if you have some instruments playing notes that are close in range, for example, two guitar parts playing similar riffs. Things might start to sound a bit crowded and some instruments might be heard only when other instruments have stopped playing.

Using this pan function, you can position instruments between the speakers giving each instrument its own space.

Studio engineers often compare the process of positioning sounds to that of painting a picture. With the left speaker being at the left side of the canvas and the right speaker being at the right side of the canvas. Sounds can then be positioned at the edges of the canvas or anywhere in-between, effectively building a sound picture.

Part EG attack rate

Summary:

Set the attack rate for each Part.

Settings:

-7...+7

Procedure:

- 1) In play mode, move the cursor, using the [CURSOR] button, to the CH position.
- 2) Repeatedly press the [EDIT] button until the LCD display shown below appears.



- 3) The number at the leftward side of the display shows the currently selected Part. Repeatedly press the [PART] key to select the Part whose attack rate you want to adjust.
- 4) Press the [-1/NO] button to select minus values and the [+1/YES] button to select plus values.
- 5) Press the [PLAY] button to return to play mode.

Details:

- This function allows you to set the speed at which the volume of a Part rises when a key is pressed.
 - 7 produces a slow attack.
 - +7 produces a fast attack.
 - +0 is the default setting.
- Although the attack rate for the TG100's preset voices has already been set, you may want to adjust those settings to suit your own taste.
- Some of the preset voice's attack rates are already set to the fastest or slowest setting. In this case further adjustment is not possible. You can change the value, but no change will be heard.
- This attack rate function does not affect Part 10, drums. When Part 10 is selected, the LCD will show "***".
- The letters "EG" on the LCD display stand for "Envelope Generator". Attack rate is one of the TG100's internal envelope generator parameters. Release rate is also a parameter of the envelope generator. See "Part EG release rate" on page 35.

Part EG release rate

Summary:

Set the release rate for each Part.

Settings:

-7...+7

Procedure:

- 1) In play mode, move the cursor, using the [CURSOR] button, to the **CH** position.
- 2) Repeatedly press the [EDIT] button until the LCD display shown below appears.



- 3) The number at the leftward side of the display shows the currently selected Part. Repeatedly press the [PART] button to select the Part whose release rate you want to adjust.
- 4) Press the [-1/NO] button to select minus values and the [+1/YES] button to select plus values.
- 5) Press the [PLAY] button to return to play mode.

Details:

- This function allows you to set the speed at which the volume of a Part falls when a key is released.
 - 7 produces a slow release.
 - +7 produces a fast release.
 - +0 is the default settings.
- Although the release rate for the TG100's preset voices has already been set, you may want to adjust those settings to suit your own taste.
- Some of the preset voice's release rates are already set to the fastest or slowest setting. In this case further adjustment is not possible. You can change the value, but no change will be heard.
- This release rate function does not affect Part 10, drums. When Part 10 is selected, the LCD will show "***".
- The letters "EG", on the LCD display stand for "Envelope generator". Release rate is one of the TG100's internal envelope generator parameters. Attack rate is also a parameter of the envelope generator. See "Part EG attack rate" on page 34.

Part reverb send level

Summary:

Set the reverb send level for each Part.

Settings:

0...8

Procedure:

- 1) In play mode, move the cursor, using the [CURSOR] button, to the CH position.
- 2) Repeatedly press the [EDIT] button until the LCD display shown below appears.



- 3) The number at the leftward side of the display shows the currently selected Part. Repeatedly press the [PART] key to select the Part whose reverb send level you want to adjust.
- 4) Use the [-1/NO] and [+1/YES] buttons, to adjust the level.
- 5) Press the [PLAY] button to return to play mode.

Details:

- This function allows you to set the amount of reverb effect applied to each Part.
- When set to "0", no reverb is applied to a Part.
- The overall volume level of the reverb effect is set independently, so if you set a Part's reverb level to 8, but can't hear any reverb, see "Setting the reverb level" on page 30.

Using reverb

Reverb is an exciting effect and can really bring sounds to life. However, a common mistake is to apply it to all instruments in a composition. This leads to a "washy" sound with little definition between instruments.

Reverb can be used just for effect, to make sounds appear bigger, or to simulate naturally occurring reverb.

Reverb can also be used to create depth in what is effectively a "one dimensional" system, that is two speakers on the same axis. As we mentioned earlier, "Part panpot (stereo position)" on page 32, the area between the left and right speakers can be thought of as a sound picture. Using reverb we can position sounds in front of and behind that picture, creating a more realistic "two dimensional" sound.

Basically, a sound with little, or no reverb will appear closer to the listener than a sound with reverb.

Part MIDI receive channel

Summary:

Set the MIDI receive channel for each Part.

Settings:

1...16 - OFF

Procedure:

- 1) In play mode, move the cursor, using the [CURSOR] button, to the **CH** position.
- 2) Repeatedly press the [EDIT] button until the LCD display shown below appears.



- 3) The number at the leftward side of the display shows the currently selected Part. Repeatedly press the [PART] key to select the Part whose MIDI receive channel you want to change.
- 4) Use the [-1/NO] and [+1/YES] buttons, to select MIDI receive channel, or off.
- 5) Press the [PLAY] button to return to play mode.

Details:

- When a Part is set to off, it does not respond to any MIDI channel Messages. See "Channel messages" on page 9.
- On Page 16, "Selecting the sound module mode", the assignment of MIDI receive channels to Parts for each of the sound module modes is shown.
- The MIDI receive channel affects the way note-priority is given to each Part. Basically, priority is given in ascending order of MIDI receive channel. See also, "Truncation" on page 7.
- The following two tables, show the relationship between MIDI receive channels and note allocation priority.

- In the following table, General MIDI sound module mode has been selected. As you can see, priority is given to Parts by ascending order of MIDI receive channel, except for Part 10, Drums, which always takes number one priority.

PART No.	MIDI RECEIVE CHANNEL	PRIORITY
1	1	2
2	2	3
3	3	4
4	4	5
5	5	6
6	6	7
7	7	8
8	8	9
9	9	10
10 (DRUMS)	10	1
11	11	11
12	12	12
13	13	13
14	14	14
15	15	15
16	16	16

- In the following table, all the MIDI receive channel to Part assignments have been changed. As you can see, priority is still given to Parts by ascending order of MIDI receive channel, except for Part 10, drums. Although it is set to MIDI receive channel "15", it still has number one priority.

PART No.	MIDI RECEIVE CHANNEL	PRIORITY
1	16	16
2	7	8
3	8	9
4	9	10
5	10	11
6	11	12
7	12	13
8	13	14
9	14	15
10 (DRUMS)	15	1
11	1	2
12	2	3
13	3	4
14	4	5
15	5	6
16	6	7

7 Voice edit mode

Summary:

Edit the one of the 64 voices in the Internal voice bank.

Settings:

- Element level (see “Adjusting the volume of voice elements” on page 41).
- Element detune (see “Detuning voice elements” on page 42).
- Element pan (see “Panning voice elements” on page 43).
- Voice name (see “Naming voices” on page 44).

Procedure:

- 1) In play mode, move the cursor, using the [CURSOR] button, to either the **BK** or **PC#** position.
- 2) Press the [EDIT] button.
If the currently selected Part is assigned a voice from the Internal voice bank, voice edit mode will engaged.
If the currently selected Part’s voice is not from the Internal voice bank, the Voice Copy function will appear. This allows you to copy the voice into the Internal voice bank, where it can then be edited. See “Copying voices” on page 45.
- 3) Once voice edit mode is entered, repeated pressing of the [EDIT] button allows you to select the editing functions listed above, under “Settings”.
- 4) Once editing is completed, press the [PLAY] button to return to play mode.

Details:

- While in voice edit, the number of the internal voice being edited is shown at the leftward side of the LCD display, as shown below.



- If you edit an internal voice, but then decide you preferred the original, use the Voice Copy function to copy the original voice bank into the internal voice bank.
- While in voice edit mode, the [PART] button cannot be used to select different Parts. To edit another Part’s voice, return to play mode, select the Part, using the [PART] button, then re-enter voice edit mode.
- If you return to voice edit mode from play mode, the edit function that was used before you returned to play mode will be shown.

Elements

Some voices consist of two elements, some of one. If a voice consists of two elements, individual level, detune and pan editing is possible for each element.

When a voice with only one element is selected for editing, the LCD display will show “***”, at the position used by element number two. Also, the [CURSOR] button will not function.

The “Voice bank table” on page 19 shows which voices consist of two elements.

When the TG100 is switched on

Every time the TG100 is switched on, voices 1...64 from the General MIDI voice bank are copied into the Internal voice bank. If you want to edit the other voices, use the “COPY VOICE” function to copy the voice into the Internal voice bank. See “Copying voices” on page 45.

Storing voices

The TG100 does not contain any internal memory for storing edited voices, so when the power is turned off your edits will be lost. If you wish to save edited voices, they must be transferred to an MDR (MIDI Data Recorder). This could be a MIDI computer sequencer; a librarian program; a dedicated MIDI data recorder, such as Yamaha’s MDF2; or a synthesizer with an MDR function, such as Yamaha’s SY99 music synthesizer.

Drums

The drum voices cannot be edited. When Part 10 drums is selected, the [EDIT] button does not work.

User setup tables

On page 60 of this manual there is an “Internal voice bank table” where you can keep details about the voices you have edited.

On page 62 there is a “TG100 Setup table” where you can keep TG100 setup information. Such as, multi common edit parameters, System mode parameters and multi Part edit parameters.

Feel free to photocopy these tables.

Adjusting the volume of voice elements

Summary:

Adjust the volume of voice element(s).

Settings:

0...127

Procedure:

- 1) Enter voice edit mode, as described on page 39.
- 2) Repeatedly press the [EDIT] button until the LCD display shown below appears.



- 3) Use the [CURSOR] button to select the element whose volume level you want to adjust, "1" or "2".
- 4) Use the [-1/NO] button to decrease the volume and the [+1/YES] button to increase the volume.
- 5) Press the [PLAY] button to return to play mode, or the [EDIT] button to select another voice edit function.

Details:

- This function allows you to balance the volume between the two elements. As the volume level of one element is reduced, the tonal characteristics of the voice will change.
- If a voice uses only one element, this function will effectively work as a volume control.
- When an element's volume level is set to "0", no sound is produced by that element.
- The maximum volume level is also affected by the Part volume level setting. So if both elements are set to 127, but the maximum volume level is not being produced, check the Part's volume level setting. See "Part volume" on page 31. MIDI Control change expression data also affects the maximum volume level of a Part. So if the maximum volume level is not being produced, it could be that MIDI Control change expression data is being input to the TG100 from your MIDI master keyboard, synthesizer or MIDI controller.

Detuning voice elements

Summary:

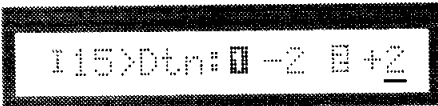
Detune voice element(s).

Settings:

-32...+32 cents

Procedure:

- 1) Enter voice edit mode, as described on page 39.
- 2) Repeatedly press the [EDIT] button until the LCD display shown below appears.



115>Dtn: 1 -2 2 +2

- 3) Use the [CURSOR] button to select the element you want to detune, "1" or "2".
- 4) Use the [-1/NO] button to decrease the value and the [+1/YES] button to increase the value.
- 5) Press the [PLAY] button to return to play mode, or the [EDIT] button to select another voice edit function.

Details:

- By detuning one of the elements, a chorus type effect can be produced.
- If a voice uses only one element, you could still detune it a little. The voice will then be slightly out of tune relative to the rest of the voices. Maybe you want to simulate that guitarist who is never quite in tune with the rest of the band.
- To produce a chorus type effect with voices that use only one element, you could select the same voice for two Parts. Set the Parts to the same MIDI receive channel, then detune one of the voice elements of one Part.

Panning voice elements

Summary:

Set the pan position of an element.

Settings:

L7-L6-L5-L4-L3-L2-L1-0-R1-R2-R3-R4-R5-R6-R7

Procedure:

- 1) Enter voice edit mode, as described on page 39.
- 2) Repeatedly press the [EDIT] button until the LCD display shown below appears.



- 3) Use the [CURSOR] button to select the element you want to detune, "1" or "2".
- 4) Use the [-1/NO] button to select a leftward setting and the [+1/YES] button to select a rightward settings.
- 5) Press the [PLAY] button to return to play mode, or the [EDIT] button to select another voice edit function.

Details:

- For more details about panning, see "Part panpot (stereo position)" on page 32.
- This function is affected by the setting of a Part's pan position.

When a Part's pan position is set to one of the 15 positions, from L7-0-R7, the elements pan position settings are ignored.

When a Part's pan position is set to "voice", the Part's pan position setting is ignored and the element's pan position is used.

NOTE: The pan positions set by this function and those set by the Multi Part edit mode's pan function, see "Part panpot (stereo position)" on page 32, are ignored if only the "L/MONO" output connection is used

Naming voices

Summary:

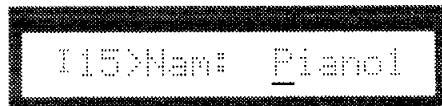
Give a name to a voice that you have edited.

Settings:

space	!	"	#	\$	%	&	'	()	*	+	,	-	.	/
0	1	2	3	4	5	6	7	8	9	:	;	<	=	>	?
@	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
P	Q	R	S	T	U	V	W	X	Y	Z	[¥]	^	_
a	b	c	d	e	f	g	h	i	j	k	l	m	n	o	p
q	r	s	t	u	v	w	x	y	z	{		}	→	←	

Procedure:

- 1) Enter voice edit mode, as described on page 39.
- 2) Repeatedly press the [EDIT] button until the name of the voice that you are currently editing appears on the LCD display. Example below.



- 3) Use the [CURSOR] button to select the character that you want to change.
- 4) Use the [-1/NO] and [+1/YES] button to change the character.
- 5) Press the [PLAY] button to return to play mode, or the [EDIT] button to select another voice edit function.

Details:

- Voice names can be up to eight characters long.
- When you have edited a voice, it's a good idea to give it a new name. That way you won't get it confused with the preset voices.

Copying voices

Summary:

Copy a voice from any voice bank into the Internal voice bank.

Settings:

Voices can be copied into any one of the Internal voice bank's 64 memories.

Procedure:

- 1) Enter voice edit mode, as described on page 39.

This function appears automatically if the currently selected Part's voices is not from the Internal voice bank.

- 2) The LCD display shown below will appear.



- 3) Use the [-1/NO] and [+1/YES] buttons to select the destination where you want to copy the voice to (1...64).
- 4) Press the [CURSOR] button. The following LCD display will appear.



- 5) Press the [+1/YES] button to copy the voice, or the [-1/NO] button to cancel the operation.
Any Parts that were using the voice at the copy destination, will now use the new voice.
The previous LCD display will be shown.
- 6) Press the [PLAY] button to return to play mode, or the [EDIT] button to select another voice function.

Details:

- As well as copying preset voices into the Internal voice bank, you can also copy voices already in the Internal voice bank to different locations (1...64).

8 System Mode Functions

Master tuning

Summary:

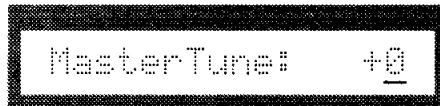
Set the overall tuning for the TG100.

Settings:

-100...+100 cents (± 1 semitone)

Procedure:

- 1) Simultaneously press the [PART] and [EDIT] buttons.
- 2) Repeatedly press the [EDIT] button until the LCD display shown below appears.



- 3) Use the [-1/NO] button to decrease the value and the [+1/YES] button to increase the value.
- 4) Press the [PLAY] button to return to play mode, or the [EDIT] button to select another system function.

Details:

- This function sets the overall tuning of the TG100, that is all voices.
- When individual voice elements are detuned, that detuning is relative to this master tuning setting.
- This function may be used when you are playing with another instrument that is not tuned to A3 (440Hz).

Velocity meter mode setting

Summary:

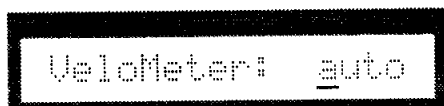
Select the LCD MIDI note velocity meter mode.

Settings:

off - auto - on

Procedure:

- 1) Simultaneously press the [PART] and [EDIT] buttons.
- 2) Repeatedly press the [EDIT] button until the LCD display shown below appears.



- 3) Use the [-1/NO] and [+1/YES] buttons to select the mode.
- 4) Press the [PLAY] button to return to play mode, or the [EDIT] button to select another system function.

off mode

The velocity meter does not function.

auto mode

- In play mode, if a MIDI note-on message is received, the velocity meter appears.
- If no MIDI note-on messages are received for more than 10 seconds the play mode display appears.
- If one of the TG100's front panel buttons is pressed while the velocity meter is displayed, the play mode display will appear. If after two seconds, a MIDI note-on message is received, the velocity meter display will appear.
- If a Part receives a Program Change message, while the velocity meter is being shown, the play mode display will appear. Indicating the Part, voice bank, Program Change number and the voice name. If after two seconds, a MIDI note-on message is received, the velocity meter display will appear.

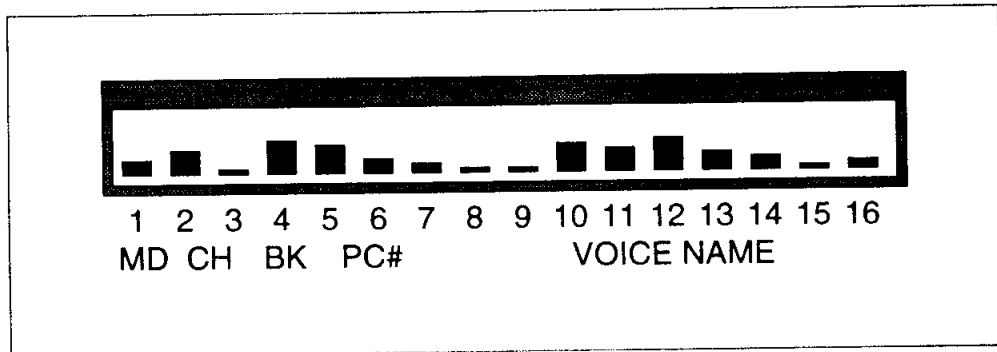
on mode

- In play mode, the velocity meter is shown.
- If one of the TG100's front panel buttons is pressed while the velocity meter is displayed, the play mode display will appear. If after two seconds, a MIDI note-on message is received, the velocity meter display will appear.
- If a Part receives a Program Change message, while the velocity meter is being shown, the play mode display will appear. Indicating the Part, voice bank, Program Change number and the voice name. If after two seconds, a MIDI note-on message is received, the velocity meter display will appear.

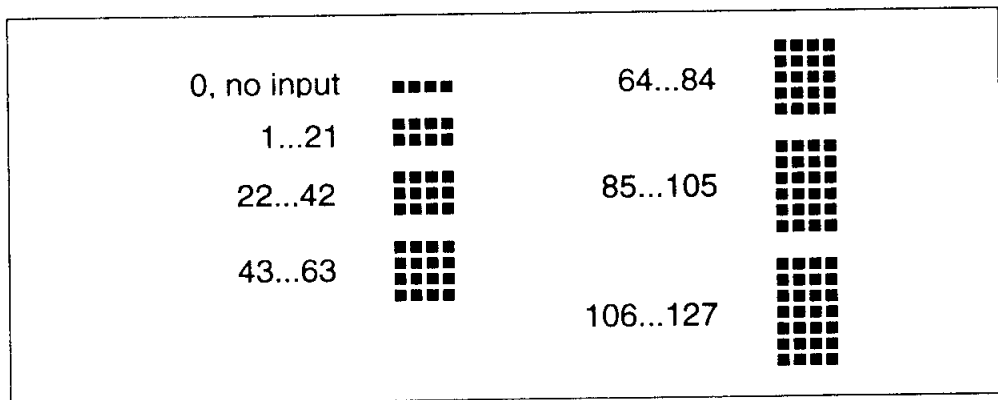
Details:

- The velocity meter does not show the audio volume level of each Part, it shows the MIDI note velocity currently being received on each MIDI channel.
- If a MIDI receive channel is set to "OFF", velocity information will not be shown for that MIDI channel.
- The velocity meter can also be used for troubleshooting. For example, if a Part is not producing any sound, but the velocity meter indicates that MIDI note data is being received, maybe the Parts volume level is turned down.

Typical velocity meter display.



The following diagram shows how MIDI note velocity values between 0 and 127 are represented on the LCD.



MIDI Exclusive on/off, device number

Summary:

Turn the MIDI Exclusive function on or off and set the device number.

Settings:

Exclusive-on/off. Device No. 1....16, or all.

Procedure:

- 1) Simultaneously press the [PART] and [EDIT] buttons.
- 2) Repeatedly press the [EDIT] button until the LCD display shown below appears.

The image shows a rectangular LCD display with a black border. Inside the display, the text "Exc:off Dev#:all" is shown in a monospaced font. The text is centered and appears to be on a light background within the display area.

- 3) Use the [CURSOR] button to select either "Exc" or "Dev".
- 4) Use the [-1/NO] and [+1/YES] buttons to change the settings.
- 5) Press the [PLAY] button to return to play mode, or the [EDIT] button to select another system function.

Exclusive on/off

on:

- MIDI System Exclusive Messages can be received and sent.

off:

- MIDI System Exclusive Messages cannot be received or sent.

Device number

- The device number is actually the MIDI channel that will be used for receiving and sending System Exclusive Messages (MIDI dump).
- For correct operation, both the sending and the receiving devices must be set to the same device number.
- If "all" is selected, the TG100 can receive System Exclusive Messages sent on any MIDI channel (1...16). The TG100 will send System Exclusive Messages on MIDI channel 1.

Details:

- If the Exclusive is set to "off", the next function, "Using MIDI Dump to save data" on page 50, cannot be used.
- The Exclusive is automatically turned "on" when the Sound Module mode is changed.

Using MIDI Dump to save data

Summary:

Save the following data to a computer or MDR (MIDI Data Recorder).

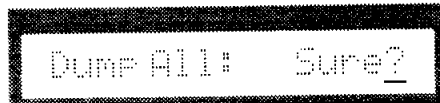
- System mode settings
- Multi Common Edit settings
- Multi Part edit mode settings
- Drum setup
- Internal voice bank data (1...64)

Settings:

Dump All: Yes or No.

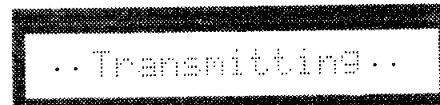
Procedure:

- 1) Simultaneously press the [PART] and [EDIT] buttons.
- 2) Repeatedly press the [EDIT] button until the LCD display shown below appears.



Dump All: Sure?

- 3) Press the [+1/YES] button to send all the data listed above as a System Exclusive (Bulk dump) Message to an awaiting MIDI device.
Or, press the [-1/NO] button to cancel this function and return to play mode.
- 4) While the TG100 is sending data, the LCD display shows the following message.



.. Transmitting ..

- 5) When data sending is complete, the TG100 returns to play mode.

Details:

- If the Exclusive function is set to off, see “MIDI Exclusive on/off, device number” on page 49, the “Dump All” function will not appear on the LCD.
- Before using this function, see “MIDI Exclusive on/off, device number” on page 49.
- If the “HOST SELECT” switch is set to “MIDI”, the System Exclusive Messages will be sent via the “MIDI OUT” connector.
- If the “HOST SELECT” switch is set to either “Mac”, “PC-1”, or “PC-2”, the System Exclusive Messages will be sent via the “TO HOST” connector.
- See “Editing & Saving Voices” on page 11 of the *Getting Started Manual* for more details.

Initialize All (reset to default settings)

Summary:

Reset all internal parameters to the default (factory) settings.

Settings:

Initialize All: Yes or No.

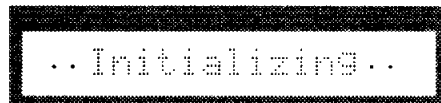
Procedure:

- 1) Simultaneously press the [PART] and [EDIT] buttons.
- 2) Repeatedly press the [EDIT] button until the LCD display shown below appears.



Init All: Sure?

- 3) Press the [+1/YES] button to reset all internal parameters to the default (factory) settings.
Or, press the [-1/NO] button to cancel this function and return to play mode.
- 4) While the TG100 is resetting its parameters, the LCD display shows the following message.



.. Initializing ..

- 5) When initialization is complete, the TG100 returns to play mode.

Details:

- This function is useful when you want to create a new setup starting with the default parameter settings.

Playing the Demo song

Summary:

Play the TG100's internal demonstration song.

Settings:

Start - Stop

Procedure:

- 1) Simultaneously press the [PART] and [EDIT] buttons.
- 2) Repeatedly press the [EDIT] button until the LCD display shown below appears.



Demo Play:Start?

- 3) Press the [+1/YES] button to start the demo song playing.
Or, press the [-1/NO] button to cancel this function and return to play mode.
- 4) While the demo song is playing, the LCD display shows the following message.



♪♪(NO to Stop)♪♪

- 5) Press the [-1/NO] button to stop the demo song.
- 6) Press the [+1/YES] button to start the demo song playing again, or the [PLAY] button on return to play mode.

Details:

- The demo song is stored inside the TG100's internal ROM circuit.
- The demo song lets hear the TG100's voices in action.
- While the demo song is playing, the MIDI and HOST connections do not function.
- The demo song will stop playing if the HOST SELECT select switch is adjusted.

NOTE: When the demo song is played, some of the TG100's Part and voice assignments are changed. This means that your original settings will be lost, unless you have saved them using the MIDI Bulk Dump function.

9 Connecting to a computer

The TG100 can be connected to all computers that are used with MIDI music software.

As well as the standard MIDI IN, OUT and THRU connections, the TG100 also has a "TO HOST" connection. This allows direct connection to computers that do not have a built-in MIDI interface and to computers that are not fitted with an optional MIDI interface card.

The TG100 has four interface modes: MIDI, Mac, PC-1 and PC-2. These are explained below.

Select the mode that is most appropriate for your computer and music software. If you are not sure, please consult your Yamaha dealer.

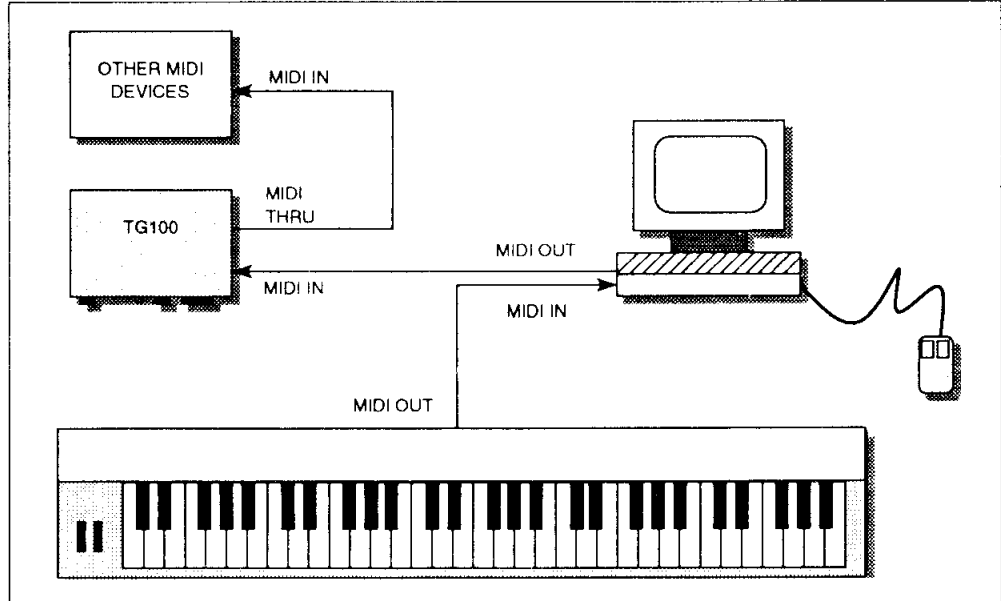
MIDI

This mode is for use with a computer that has a MIDI interface. That is, a computer with a built-in MIDI interface, such as the Atari ST™ range of computers, an Apple Macintosh™ computer with an external MIDI interface unit, or a PC-9800 or PC-AT compatible type computer fitted with an MPU-401, or compatible MIDI interface.

Most MIDI music software can be used with this type of connection.

The "HOST SELECT" switch should be set to MIDI.

The connecting MIDI cable should be of the type described in the "Host computer connecting cables" on page 67. To use the TG100's bulk dump function, the TG100's MIDI OUT should be connected to the computer's MIDI IN.



The table below explains how the MIDI data signals are handled in MIDI mode.

Connector	Function
TO HOST: IN	No function.
:OUT	No function.
MIDI IN	MIDI data is input and processed.
MIDI OUT	System Exclusive data is output.
MIDI THRU	Data appearing at the MIDI IN port is fed directly to the MIDI THRU port.

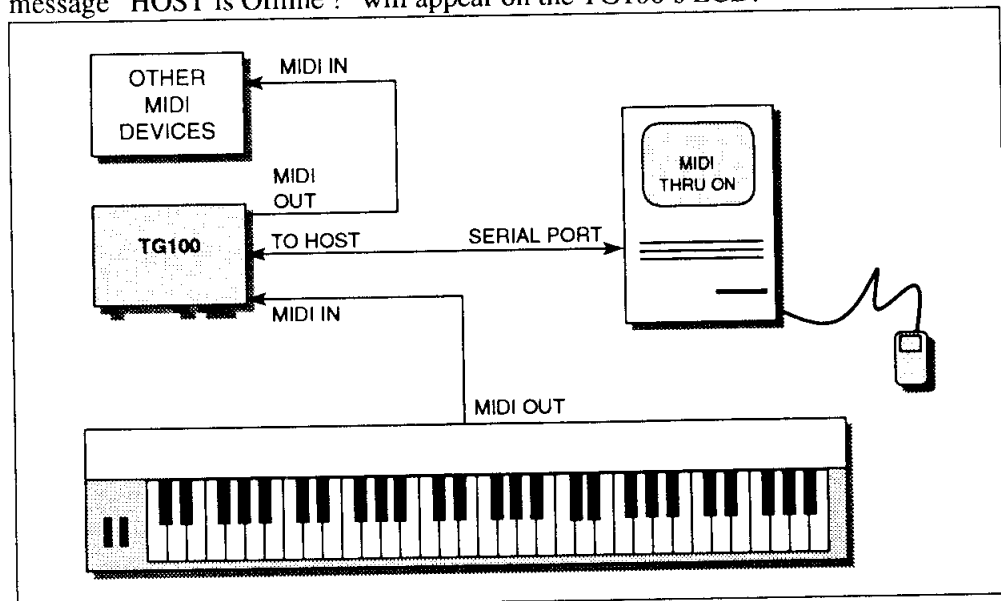
Mac

This mode is for use with an Apple Macintosh™ computer, which is not connected to an external MIDI interface unit. The TG100 can be connected directly to one of the Apple Mac's serial (RS-422) ports.

- 1) Connect the TG100's "TO HOST" connector to one of the Apple Mac's serial ports using the "Mac" connecting cable shown on page 67.
- 2) Switch on your Apple Mac.
- 3) Switch on the TG100.
- 4) Set the TG100's "HOST SELECT" switch to **Mac**.
- 5) Start your Apple Mac music software.

Your music software will probably require you to specify the type of MIDI interface you are using. You should specify "Standard MIDI interface", or if it has a "MIDI Time Piece option", turn it off. If your software also requires you to specify the data rate, select 1MHz.

If your Apple Mac is not switched on, or your music software is not running, the message "HOST is Offline !" will appear on the TG100's LCD.



The table below explains how the MIDI data signals are handled in "Mac" mode. MIDI data is carried to and from the computer using the "TO HOST" connection.

Connector	Function	Details
TO HOST: IN	MIDI data is input, processed, then fed to the MIDI OUT port.	Synchronized. Data format: 8 bit, 1 stop bit, no parity. 1MHz clock from TG100 to serial ports' HSK1 data pin.
:OUT	MIDI data received at the MIDI IN port is output.	When System Exclusive Message is sent, data from the MIDI IN port is not output.
MIDI IN	MIDI data received is output to the TO HOST port.	The TG100 does not respond to the MIDI data appearing at the MIDI IN port, but to the MIDI data FROM HOST.
MIDI OUT	MIDI data received at the HOST IN port is output.	
MIDI THRU	MIDI data appearing at the MIDI IN port is fed directly to the MIDI THRU.	

PC-1

This mode is for use with a PC-9800 type computer. The PC-9800 is a very popular computer in Japan. The specifications are the same as those for "PC-2", mode except for the baud rate. See "Technical specifications" on page 66.

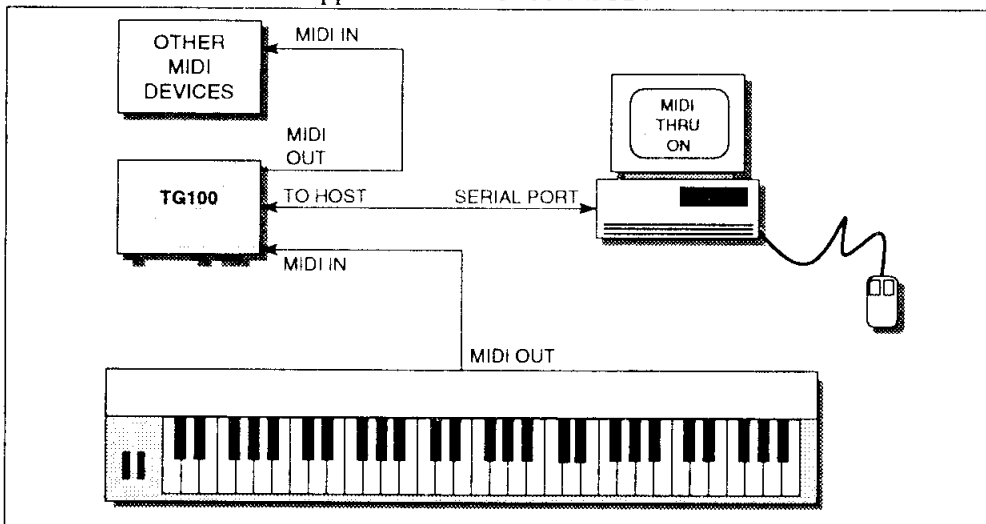
PC-2

This mode is for use with an IBM-PC, PC-AT compatible and PS/2 type computer, which does not have a MIDI interface card installed. The TG100 can be connected directly to the computers serial (RS-232C) port.

The music software used must be able support the TG100's "TO HOST" connection. Please consult your Yamaha dealer for more details. If your software does not support the "TO HOST" connection, the TG100 can still be connected to this type of computer by installing a MIDI interface card (MPU-401, or compatible) in the computer.

- 1) Connect the TG100's "TO HOST" connector to one of the PC's serial ports using the "PC-2" connecting cable shown on page 67.
- 2) Switch on your PC.
- 3) Switch on the TG100.
- 4) Set the TG100's "HOST SELECT" switch to PC-2.
- 5) Start your PC music software.

If your PC is not switched on, or your music software is not running, the message "HOST is Offline !" will appear on the TG100's LCD.



The table below explains how the MIDI data signals are handled in PC-2 mode. MIDI data is carried to and from the computer using the "TO HOST" connection.

Connector	Function	Details
TO HOST: IN	MIDI data is input, processed, then fed to the MIDI OUT port.	Synchronized. Data format: 8 bit, 1 stop bit, no parity.
:OUT	MIDI data received at the MIDI IN port is output.	When System Exclusive Message is sent, data from the MIDI IN port is not output.
MIDI IN	MIDI data received is output to the TO HOST port.	The TG100 does not respond to the MIDI data appearing at the MIDI IN port, but to the MIDI data FROM HOST.
MIDI OUT	MIDI data received at the HOST IN port is output.	
MIDI THRU	MIDI data appearing at the MIDI IN port is fed directly to the MIDI THRU.	

10 Other Functions

Adjusting the LCD contrast

- The contrast control, on the TG100's rear panel, should be adjusted so that the LCD display is easy to read.
- When the LCD display is viewed from a different height or angle, the contrast may need to be adjusted.

AUDIO IN connection

Summary:

This function allows you to mix sounds from another instrument or audio device with the TG100's sounds.

Procedure:

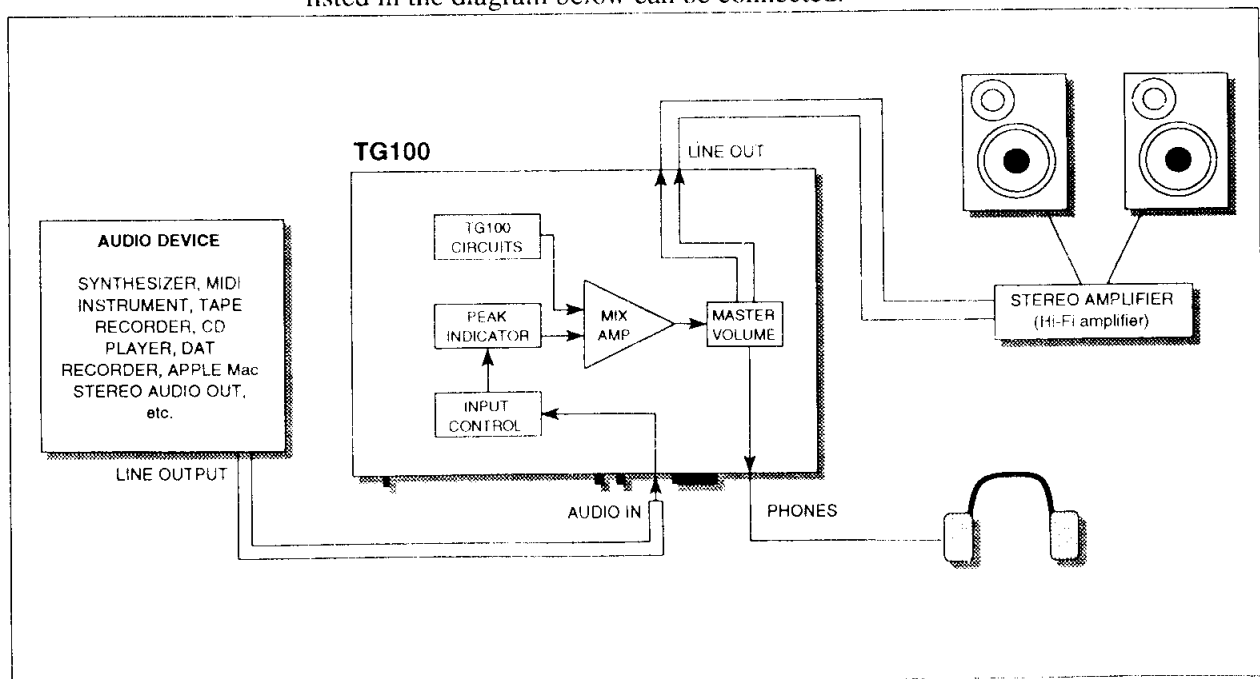
- 1) Connect the line output of the other instrument, or audio device to the "AUDIO IN" connector on the TG100's front panel.

The TG100's AUDIO IN connection is stereo. It uses a 3.5 mm mini jack, so you might need to buy a connecting cable, or some connector adaptors.

- 2) Use the "INPUT" level control to set the sound balance between the AUDIO IN sound and the TG100's sounds. When the control is set to minimum, a small amount of AUDIO IN sound can still be heard, this is normal.
- 3) If the "PEAK" indicator lights up, turn down the "INPUT" level control, otherwise the input signal will be distorted.

Details:

- This function is useful if you don't have an audio mixer. Any of the audio devices listed in the diagram below can be connected.



11 Typical System Configurations

MIDI keyboard

MIDI keyboard, this could be a MIDI master keyboard, a synthesizer or any electronic keyboard instrument that can transmit MIDI data. See "Using the TG100 with a MIDI keyboard" on page 4 of the *Getting Started Manual*.

Computer sequencer

See "Using the TG100 with a computer that has a MIDI interface" on page 7 and "Using the TG100 with a computer that has a MIDI interface" on page 7 of the *Getting Started Manual*.

Disk Orchestra system

Yamaha's Disk Orchestra Collection can be played using one of the following Yamaha products:

DRC-20 Disk player

DOM-30 Disk Orchestra Module

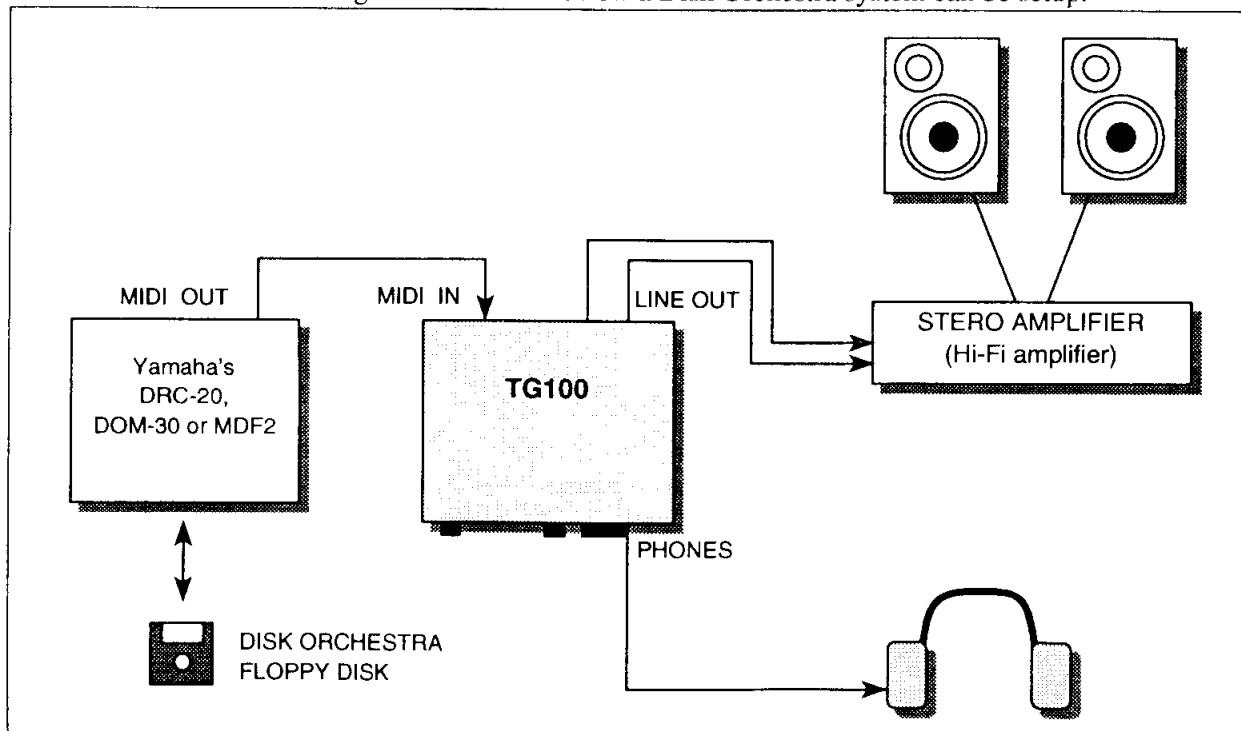
MDF2 MIDI data recorder.

The TG100 should be set to "Disk Orchestra mode". This will automatically select the Clavinova drum kit and the correct voice to Program Change number assignments.

As well as playing the Disk Orchestra Collection's disks, the DOM-30 works as a multi-timbral tone generator too. So, you could use some voices from the TG100 and some from the DOM-30. In this case, the unused Part's MIDI receive channel should be set to OFF.

The audio output of the DOM-30 could be connected to the TG100's AUDIO IN facility, allowing you to mix the sound output of both tone generators.

The diagram below shows how a Disk Orchestra system can be setup.

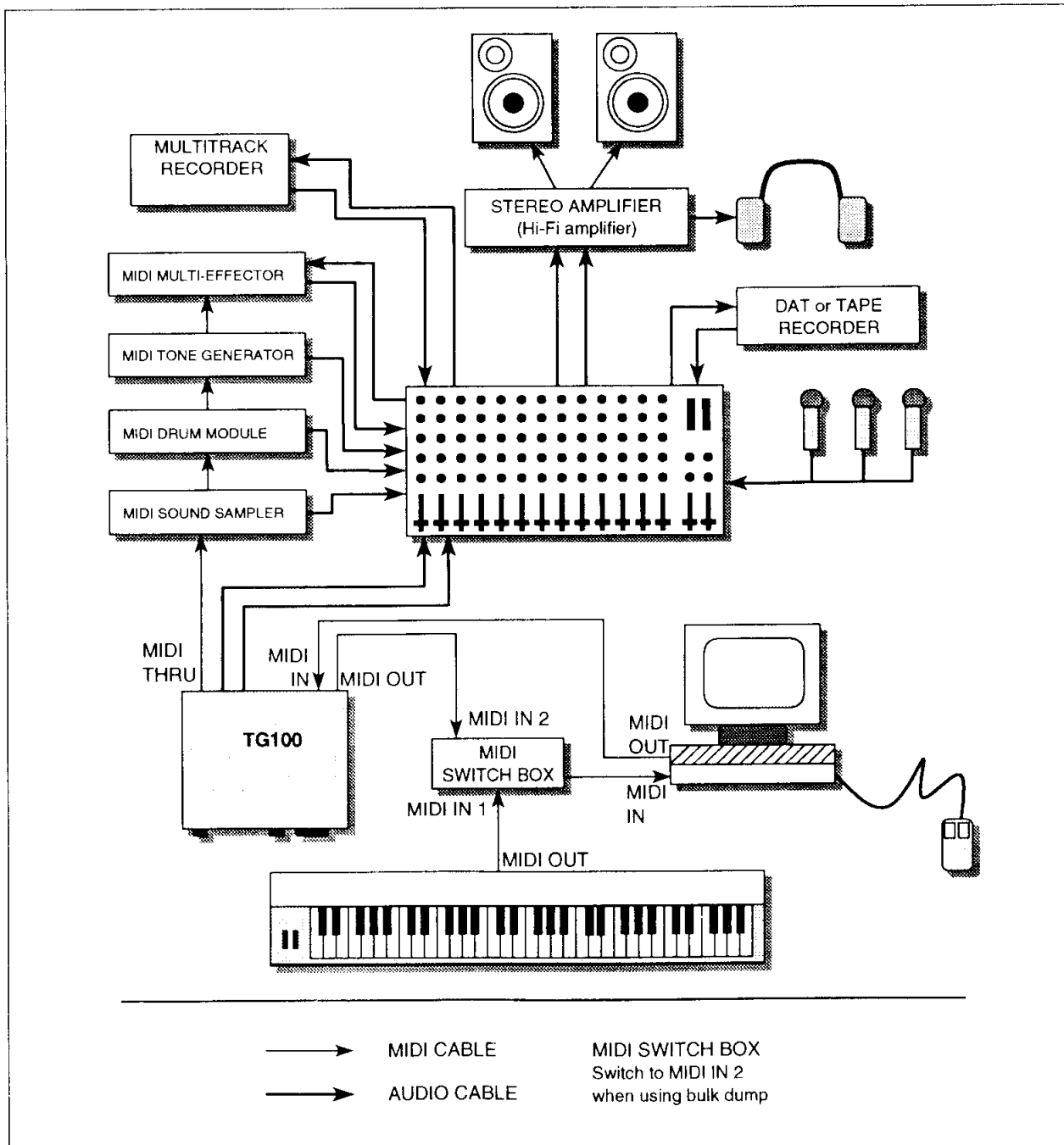


Sequencer system

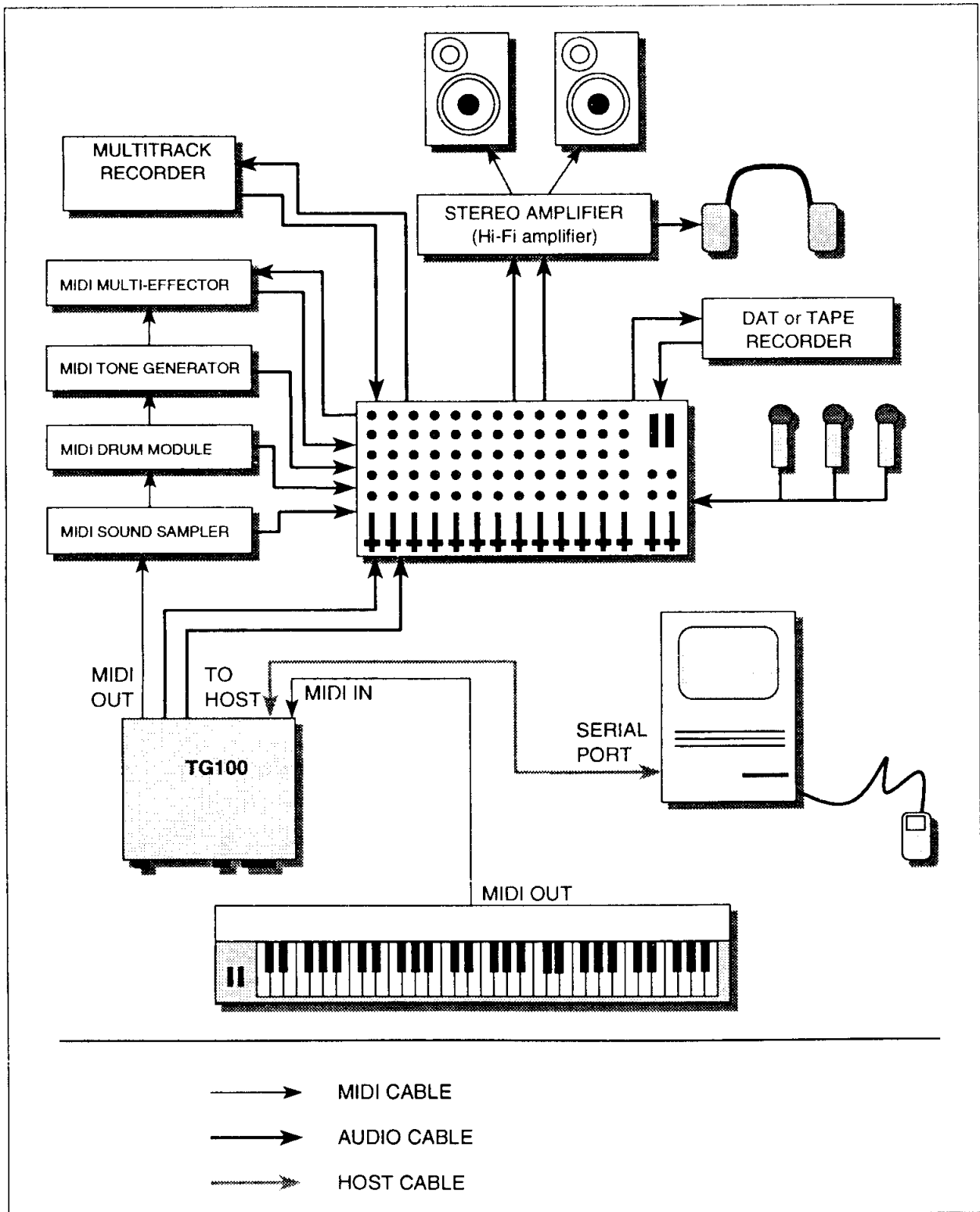
The following system is quite an advanced MIDI music production system. It is intended to show how your MIDI system can be expanded and the benefits of having a TG100 tone generator at the heart of your system.

Connecting the TG100 to a computer with a MIDI interface and connecting to a Mac, PC-1 or PC-2 type computer without a MIDI interface, using the TG100 as the MIDI interface, is a little different. So, for the sake of clarity the system is shown twice; first, with a MIDI host connection, second, with the TO HOST connection.

MIDI connection



TO HOST connection



As you can see from the above diagram, not only does the TG100 work as a MIDI interface for the other MIDI devices, it also eliminates the need for a MIDI switcher box when the bulk dump function is used.

12 Appendix

Internal voice bank table

Voice No.	Voice name	PC No.	Element 1			Element 2		
			LEVEL	DETUNE	PAN	LEVEL	DETUNE	PAN
1		1						
2		2						
3		3						
4		4						
5		5						
6		6						
7		7						
8		8						
9		9						
10		10						
11		11						
12		12						
13		13						
14		14						
15		15						
16		16						
17		17						
18		18						
19		19						
20		20						
21		21						
22		22						
23		23						
24		24						
25		25						
26		26						
27		27						
28		28						
29		29						
30		30						
31		31						
32		32						

Voice No.	Voice name	PC No.	Element 1			Element 2		
			LEVEL	DETUNE	PAN	LEVEL	DETUNE	PAN
33		33						
34		34						
35		35						
36		36						
37		37						
38		38						
39		39						
40		40						
41		41						
42		42						
43		43						
44		44						
45		45						
46		46						
47		47						
48		48						
49		49						
50		50						
51		51						
52		52						
53		53						
54		54						
55		55						
56		56						
57		57						
58		58						
59		59						
60		60						
61		61						
62		62						
63		63						
64		64						

Troubleshooting

Symptom	What to do
No sound	Check all your equipment is switched on.
	Check the audio connections, including cables.
	Make sure the TG100's master volume control is turned up.
	Check the settings on your amplifier, or mixer; input select, volume, speakers, headphones, etc.
	Start the demo song, see page 52. If you still have no sound, the problem must be somewhere between the TG100's outputs and your speakers.
The demo song plays OK, but the TG100 does not respond to your MIDI keyboard.	Check the MIDI connections.
	Make sure your MIDI keyboard's MIDI transmit channel matches that of the TG100 Part you want to play, see page 37.
	Set the Velocity meter mode to ON, see page 47. This will tell you whether or not the TG100 Part is receiving MIDI data.
	Make sure that the "HOST SELECT" switch is set correctly.
Velocity meter is registering MIDI data, but no sound is heard.	Make sure the TG100's master volume control is turned up.
	Check the Part's volume setting, see page 31.
	Check the Part's voice element volume, see page 41.
Sound is produced from only one speaker.	Check the audio connections, including cables.
	Check the Part's pan setting, page 32.
	If the Part pan is set to "voice", check the voice element pan setting, page 43.
The voice elements pan position has been edited, but the effect cannot be heard.	Make sure that the Part's pan setting is "voice", see page 32.
Two or more voices are playing the same thing.	Check the Parts' MIDI channel assignment, see page 37.
The bulk dump function does not appear on the LCD.	Turn the MIDI Exclusive function ON, see page 49.
Bulk dump messages cannot be sent or received.	Check the MIDI connections.
	Make sure that the TG100's device number matches the transmitting or receiving unit's device number, see page 49.
The reverb effect cannot be heard.	Check that the overall reverb volume level setting, see page 30.
	Check the Part reverb send level, see page 36.
MIDI program change numbers don't select the correct voices.	Check the sound module mode, see page 16.
The pitch sounds wrong.	Check the master tuning, see page 46.
	Check the voice element's detuning, see page 42.

Glossary

Attack rate: The speed at which a sound reaches its maximum initial volume.

AWM: Advanced Wave Memory, a technique developed by Yamaha for digitally sampling and reproducing naturally occurring sound.

Bulk dump: The transfer of a MIDI instrument's setup data to a music computer or MDR (MIDI Data Recorder).

Channel messages: MIDI messages that are received and sent on the individual MIDI channels. Only MIDI instruments set to the same receive channel number as the transmitting device's transmit channel number will respond to the data. Channel messages consist of voice, Control Change, Program Change, pitch bend, Aftertouch and mode data.

C/M: One of the TG100's sound module modes, which provides semi-compatibility with the Roland CM-64 and associated equipment.

Default: Sometimes known as the "factory" setting. It's the value of a parameter that is set when the unit is manufactured.

Detune: The detuning of one voice element to produce a chorus type effect.

Disk Orchestra Collection: a series of music titles, made by Yamaha, which are available on floppy disk. Each song is stored as MIDI data in Yamaha's own "ESEQ" file format. Disks can be played using Yamaha's DRC-20, DOM-30 or MDF2.

DSP: Digital Signal Processor, an IC (Integrated Circuit) designed specifically for digital audio data processing. The TG100 uses a DSP to create its reverb effects.

Dynamic allocation: The automatic allocation of notes to Parts as and when required.

Element: A TG100 sound sample. Some voices consist of one element, some of two.

General MIDI: An addition to the MIDI 1.0 standard that provides greater compatibility for MIDI song files when they are transferred between different manufacturers' MIDI equipment.

Host connection: For connecting the TG100 directly to a computer, running music software, that does not have a MIDI interface. Connection is made directly to the computers' serial port (RS-422, or RS-232).

Internal voice bank: The TG100 voice bank where voices can be edited. It contains 64 voices.

MDR: MIDI Data Recorder, a device that can record MIDI data. This could be a MIDI computer sequencer; a librarian program; a dedicated MIDI data recorder, such as Yamaha's MDF2; or a synthesizer with an MDR function, such as Yamaha's SY99 music synthesizer.

MIDI: Musical Instrument Digital Interface. MIDI allows electronic musical instruments to communicate with each other.

MIDI Song File: A computer type file, which contains MIDI song data. A lot of MIDI equipment can use this type of file. MIDI songs saved in this format can easily be transferred to equipment from other manufacturers.

Multi-timbral: The name generally applied to a MIDI instrument that can produce many different voices (sounds) at the same time.

Music computer: A computer that can use MIDI music software.

Panning: The positioning of instruments between the left and right speakers to produce a stereo effect.

Part: The TG100 has 16 Parts. Each Part is assigned a voice and receives MIDI data on its own channel. The volume, pan position, attack rate, release rate, reverb level and MIDI receive channel can be independently set for each Part.

Polyphony: The maximum number of notes that can be played simultaneously. The TG100 is 28-note polyphonic. Sometimes other manufacturers refer to this as the number of voices that can sound simultaneously (28-voice polyphonic).

Program Change message: A MIDI channel message used to select a different voice for a Part.

RAM: Random Access Memory, a type of memory IC that contains data which can be edited, but requires a continuous electrical supply to be able to store the data. The TG100's internal voice bank is stored in RAM. If you want to keep the internal voice bank data, it must be saved to a music computer or MDR (MIDI Data Recorder) before the TG100 is switched off.

ROM: Read Only Memory, a type of memory IC whose data cannot be edited, but does not need a continuous electrical supply to store data. The TG100's voice elements are stored in ROM.

RX: The prefix given to Yamaha's drum machines: RX8, RX7, etc. The TG100 has an RX drum kit that provides semi-compatibility for drum patterns and drum sequences recorded on an RX drum machine.

Release rate: The speed at which a sound decreases to zero volume.

Serial Port: A computer connection that can receive and transmit digital data serially (RS-232C or RS-422).

Sound module mode: The TG100 has three sound module modes: General MIDI, Disk Orchestra Collection and C/M. Each mode uses the same voices, but the Program Change number assignments are different.

System Exclusive messages: A type of MIDI message sent exclusively to an individual MIDI device. These messages contain information such as manufacturer and product type. Bulk dump messages are a type of System Exclusive message.

System messages: MIDI messages that are received from and sent to MIDI devices regardless of MIDI channel assignments. System messages consist of time information, for synchronizing MIDI devices; start, stop commands, for drum machines and sequencers and System Exclusive messages.

Split point: A position on a keyboard where notes either side of the split point can play a different voice and transmit MIDI data on different channels. Some MIDI keyboards allow 2, 3 or 4 split points.

Techno-fear: A human phobia brought on when confronted by a complex, technical piece of equipment. Not associated with Yamaha equipment.

Timbre: The characteristics of a voice that differentiates it from other voices.

Truncation: When notes are cut off to allow new notes to sound. Used if all the TG100's 28 notes are sounding simultaneously.

Voice: The TG100 contains 192 instrument voices. Some manufacturers refer to these as sounds.

Voice bank: The TG100's 192 instrument voices are arranged into three voice banks: General MIDI, Disk Orchestra and C/M. Sixty four editable voices are held in the internal voice bank.

13 TG100 specifications

Technical specifications

Internal ROM voices	192 instrument voices and 10 drum kits
Internal RAM voices	64 Internal voice
Polyphony	28-note (Dynamically allocated)
Multi-timbral	16 voices simultaneous (voices assigned to 16 Parts)
Sound sampling	AWM (Advanced Wave Memory)
Reverb effect	Yamaha custom DSP (Digital Signal Processor)
Sound module mode	General MIDI LEVEL1
	Disk Orchestra (Yamaha)
	C/M (CM-64 semi-compatible)
Demo song	1 (not editable, stored in ROM)
Controls	MASTER VOLUME, INPUT, CONTRAST
Buttons	PLAY, PART, EDIT, CURSOR, -1/NO, +1/YES
Indicators	PEAK
LCD display	1-line 16-character
Audio connections	
LINE OUT	1/4" (6.35mm) mono jack socket x2
AUDIO IN	3.5mm stereo mini jack x1
PHONES	3.5mm stereo mini jack x1
MIDI connections	
TO HOST	8-PIN mini DIN socket
Host computer selection and data transfer rate	MIDI - 31,250 bps (bits per second)
	Mac - 31,250 bps
	PC-1 - 31,250 bps
	PC-2 - 38,400 bps
Power supply voltage	15V, 500mA
DC IN connection	2.1mm mini power type (for use with PA-1505 adaptor)
Dimensions	220 x 196.5 x 40.6 mm (8.6" x 7.7" x 1.6") W x D x H
Weight	1.0kg
Supplied accessories	PA-1505 power supply adaptor
Optional accessories	RK101 19" rack mounting adaptor

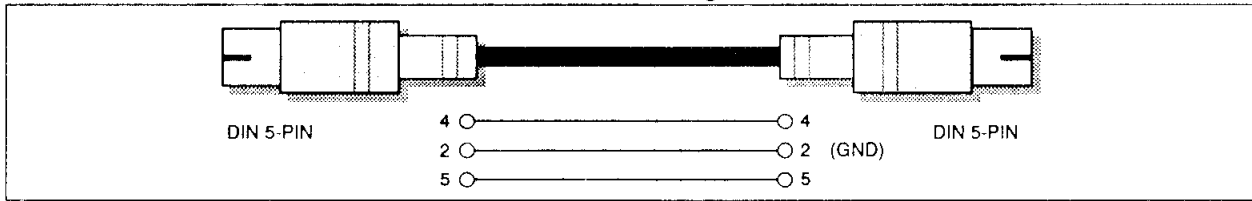
Rack mounting

The TG100 can be rack-mounted using one of the "half-rack-size" adaptors that are available (i.e. Yamaha RK101). The TG100 is supplied with two screws for fixing it to an adaptor. Use either these screws, or the screws supplied with the adaptor. Screws must be M3 x 8mm.

Host computer connecting cables

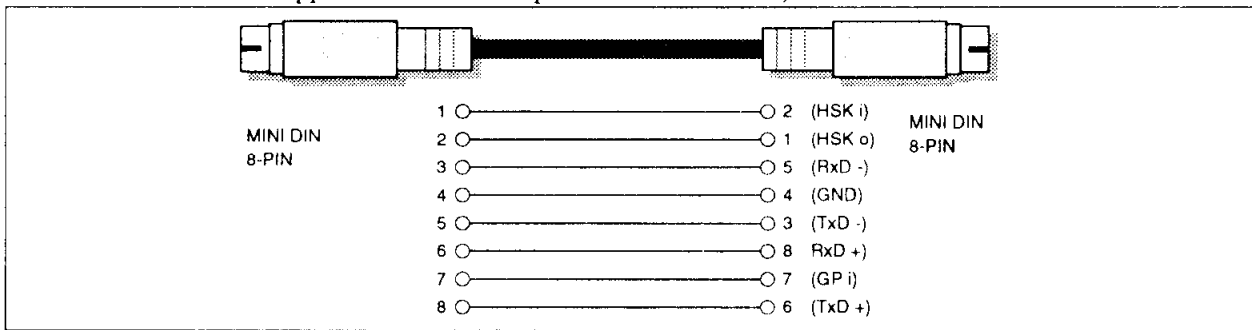
MIDI

Standard MIDI cable. Maximum length 15 metres.



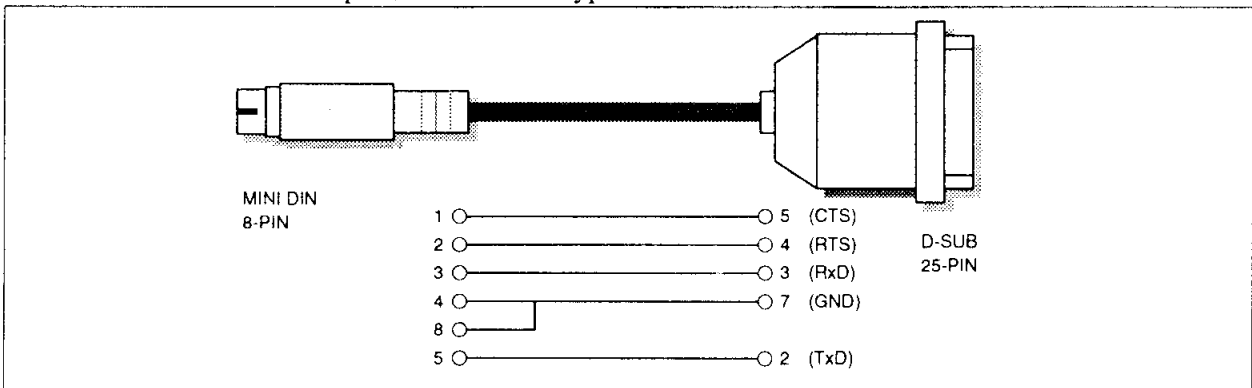
Mac

Apple Macintosh Peripheral cable "M0197).



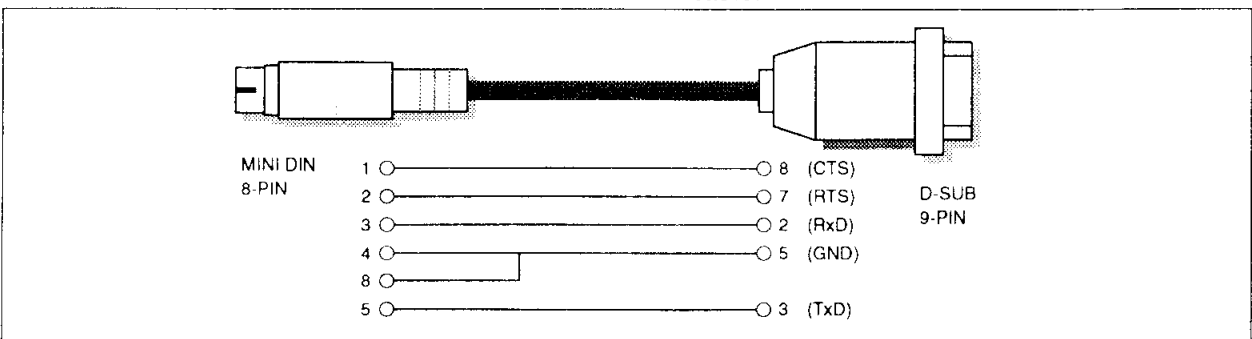
PC-1

8-PIN MINI DIN to D-SUB 25-PIN cable. If your PC-1 type computer has a 9-PIN serial port, use the PC-2 type cable.



PC-2

8-PIN MINI DIN to D-SUB 9-PIN cable.



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15 MIDI Data Format

1. GENERAL

1.1 Application

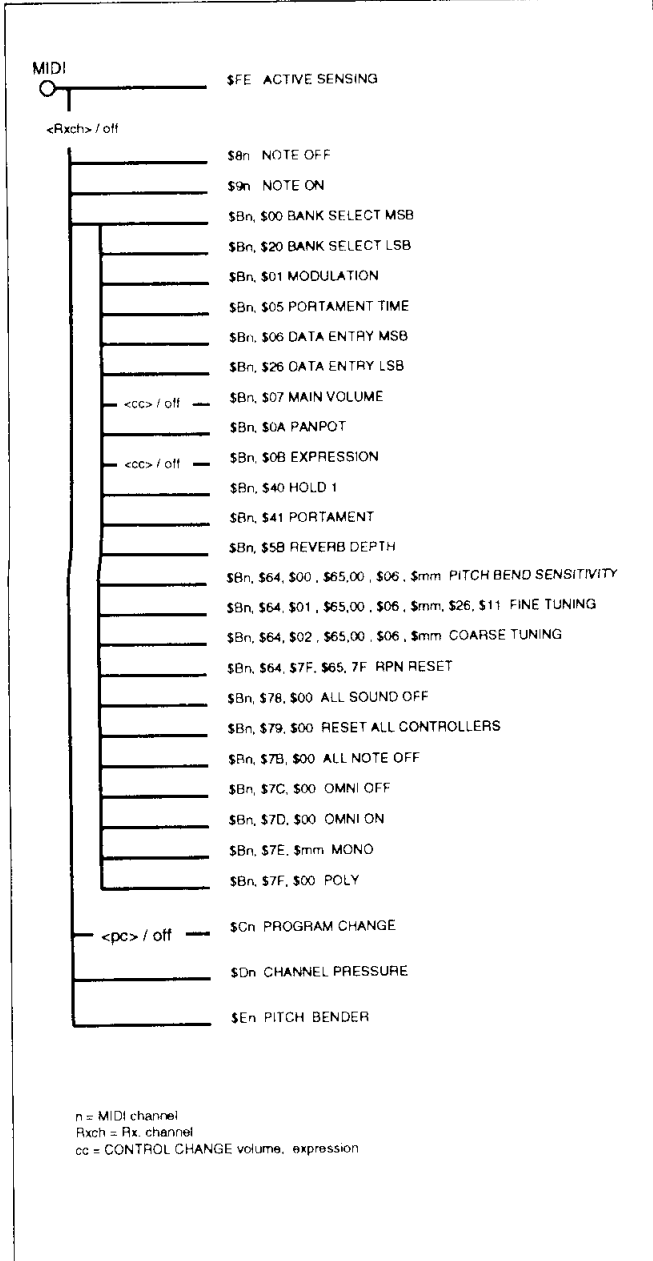
The following MIDI data and specifications apply to the TG100.

1.2 Applied standards

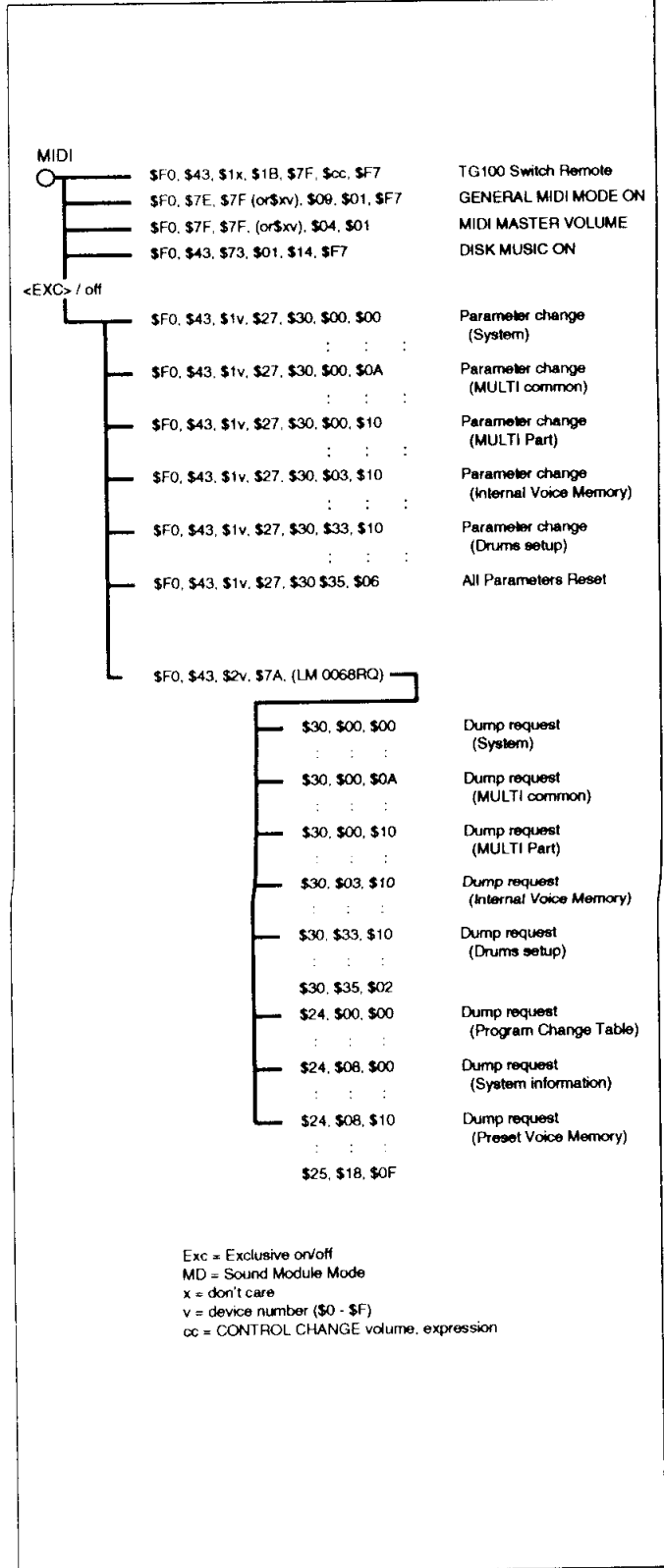
MIDI 1.0 standard.

2. MIDI receive & send diagrams

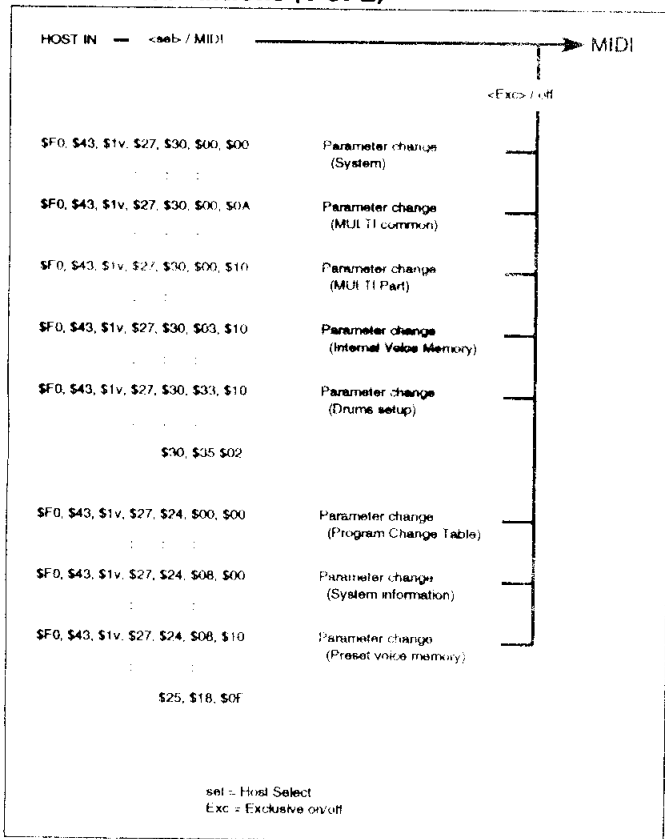
MIDI receive conditions (1 of 2)



MIDI receive conditions (2 of 2)



MIDI send conditions (1 of 2)



- *1 Used to select parameter value specified by, "3.2.7RPN (Registered Parameter Number)" on page 72.
- *2 Portamento work as follows:
 - When a key of a higher pitch than the currently held key is played the pitch sweeps up from a value 100 cents below the key's pitch.
 - When a key of a lower pitch than the currently held key is played the pitch sweeps down from a value 100 cents above the key's pitch.
- *3 Used to select the unit's voice banks shown below.

MSB	LSB	Bank Name
0..63	0	General MIDI
64..111	0	INTERNAL
112..126	0	DISK ORCHESTRA
127	0	C/M (CM-64)

If a Program Change Message is received immediately after a Bank Select Message has been received, the Program Change number will correspond to the selected voice bank.

- *4 When a Part's PANPOT setting is VOICE, the pan position is adjusted relative to the pan position of the elements used by the voice.

When a Part's PANPOT position is not set to VOICE, the elements pan position is ignored and complete adjustment of pan position is possible.

3.2.3 Program Change

You can select one of two Program Change receive modes.

- 1) off: Ignore Program Changes.
- 2) on: respond to Program Changes.

In Disk Orchestra mode, if a Program Change number that is not assigned to a voice is received, it is ignored.

In Disk Orchestra, and C/M modes, Program Change numbers are ignored by the drum Part 10

3.2.4 Pitch Bend

Responds to 14-bit pitch bend data (-8192...+8191).

3.2.5 Channel Pressure

3.2.6 Channel Mode Message

The following Channel Mode messages can be received.

2nd byte	3rd byte	
120	0	All Sound Off
121	0	Reset All Controller
123	0	All Note Off
124	0	Omni Off
125	0	Omni On
126	0...16	Mono
127	0	Poly

3.2.6.1 All Sound Off

Any sound being produced is stopped. However, parts that are receiving Channel Messages such as Note-on, Hold-on etc., will continue.

3. Channel Messages

3.1 Send

Channel Messages not sent.

When the Host Select switch is set to anything other than "MIDI", MIDI data is echoed back as follows.

HOST IN → MIDI OUT

MIDI IN → HOST OUT

3.2 Receive

3.2.1 Note on/off

Note range = C-2...G8

Velocity range 1...127 (only applies to note-on)

3.2.2 Control Change

The following parameters can be controlled using MIDI Control Change messages.

Ctrl No.	Parameter	Data range
0	Bank Select MSB	0...127
32	Bank Select LSB	0...127
1	Modulation	0...127
5	Portamento Time	0...127
6	Data Entry MSB	0...127
38	Data Entry LSB	0...127
7	Main Volume	0...127
10	Panpot	0...127
11	Expression	0...127
64	Hold 1	0...127
65	Portamento	0...127
91	Reverb Depth	0...127

3.2.6.2 Reset All Controllers

Controllers are set to the following values.

Controller	Reset Value
Pitch Bend	±0 (neutral)
Channel Pressure	0 (off)
Modulation	0 (off)
Expression	127 (maximum)
Hold 1	0 (off)
Portamento	0 (off)
RPN	Not set. Internal data does not change.

3.2.6.3 All Note Off

All Notes currently on will be turned off. However, if Hold 1 is on, sound generation will not stop until Hold 1 stops.

3.2.6.4 Omni Off

Processing is the same as that for "All Note Off".

3.2.6.5 Omni On

Processing is the same as that for "All Note Off".

3.2.6.6 Mono

Processing is the same as that for "All Note Off". If the 3rd byte (Mono value) is between 0...16, the relevant Part is set to Mode 4 (m=1).

3.2.6.7 Poly

Processing is the same as that for "All Note Off". The relevant Part will be set to Mode 3.

3.2.7 RPN (Registered Parameter Number)

Select the control parameter, giving RPN MSB and RPM LSB, then put the parameter value in the Data Entry.

The unit responds to the following RPN.

RPN MSB LSB	Data Entry MSB LSB	
\$00 \$00	\$mm---	Pitch bend sensitivity mm: \$00...\$18 (0...24 semitones). ---: don't care. A range of 2 octaves can be selected. At switch on range is set to 2 semitones.
\$00 \$01	\$mm\$11	Master fine tuning (mm, 11): (\$00, \$00)...(\$40, 400)...(\$7F, \$7F) (-8192 x 100/8192...0...+8191 x 100/8192 cents)
\$00 \$02	\$mm---	Master course tuning mm: \$28...\$40...\$58 (-24...0...+24 semitones) ---: don't care
\$7F \$7F	--- ---	RPN reset ---: don't care RPN Not set. Internal data does not change

4. System Exclusive Message

4.1 Parameter Change

The unit works with the following parameter changes.

- 1) System Data Parameter Change
- 2) Multi Common Data parameter change
- 3) Multi Part Data parameter change
- 4) Internal Voice Memory parameter change
- 5) Drums Setup Data parameter change
- 6) Preset Voice Memory parameter change
- 7) Program Change Table parameter change
- 8) System Information
- 9) All Parameter Reset
- 10) TG100 Switch remote
- 11) General MIDI Mode On
- 12) MIDI Master Volume
- 13) Disk Music On

Parameter change transmission is switched off only when Exclusive is set to off.

The parameter change format is as follows

```

11110000  F0      = Exclusive status
01000011  43      = YAMAHA ID
0001nnnn  nnnn    = Device Number
00100111  27      = Model ID
0aaaaaaa  aaaaaaa = Start Address b20 - b14
0aaaaaaa  aaaaaaa = Start Address b13 - b7
0aaaaaaa  aaaaaaa = Start Address b6 - b0
0ddddddd  ddddddd = Data

|          |
0ccccccc  ccccccc = Check-sum
11110111  F7      = End of exclusive
    
```

Data is correctly processed if the Dump request receive address corresponds with the Start Address and the Dump Request's byte count is correct.

For the Start Address and byte count, see the tables on page 75 to page 77.

The sending device must add the header to each parameter. For example, when sending System and Multi parameters with only one header, the receiver can only identify System parameters. Therefore, the sending device must not skip these characters.

- System
- Multi
- Internal voice
- Drums Part
- All parameters reset

Do not send more than 256 bytes in one transmission.

If you have a Dump request of more than 256 bytes, split it into sections, then transmit them at 20ms intervals.

The check sum's lowest 7-bit value is zero after adding the Start Address, Data and check sum.

While sending the data, the "HOST" in echo back does not function

4.1.1 System Data Parameter Change

Refer to "Parameter base address" on page 75 and "MIDI Parameter Change table (System)" on page 75.

4.1.2 Multi Common Data parameter change

Refer to "Parameter base address" on page 75 and "MIDI Parameter Change table (MULTI common)" on page 75.

4.1.3 Multi Part Data parameter change

The actual address value = the start address + the offset address.

Refer to "Parameter base address" on page 75 and "MIDI Parameter Change table (MULTI Part)" on page 75.

4.1.4 Drums Setup Data parameter change

The actual address value = the address at the top of each block + the offset address.

If a different Drum kit is selected, the Drum Setup parameters are initialized.

Refer to "Parameter base address" on page 75 and "MIDI Parameter Change table (Drums Setup)" on page 76.

4.1.5 Internal Voice Memory parameter change

The actual address value = the address at the top of each block + the offset address.

Refer to "Parameter base address" on page 75 and "MIDI Parameter Change table (VOICE Memory)" on page 76.

4.1.6 Preset Voice Memory parameter change

This data can be sent, but it is ignored if received.

The actual address value = the address at the top of each block + the offset address.

Refer to "Parameter base address" on page 75 and "MIDI Parameter Change table (VOICE Memory)" on page 76.

4.1.7 Program Change Table parameter change

This data can be sent, but it is ignored if received.

Refer to "Parameter base address" on page 75 and "MIDI Parameter Change table (Program change table)" on page 77.

4.1.8 System Information parameter change

This data can be sent, but it is ignored if received.

Refer to "Parameter base address" on page 75 and "MIDI Parameter Change table (System information)" on page 77.

4.1.9 All Parameters Reset

11110000	F0	= Exclusive status
01000011	43	= YAMAHA ID
0001nnnn	nnnn	= Device Number
00100111	27	= Model ID
00110000	30	= Start Address b20 - b14
00111001	35	= Start Address b13 - b7
00000100	06	= Start Address b6 - b0
00000000	00	= Data
00010011	15	= Check-sum
11110111	F7	= End of exclusive

Reset the system. All internal parameters are reset to the default (factory) settings.

4.1.10 TG100 Switch remote

11110000	F0	= Exclusive status
01000011	43	= YAMAHA ID
0001xxxx	xxxx	= don't care
00011011	1B	= Switch remote ID
01111111	7F	= Switch remote sub ID
0ddddddd	ddddddd	= Data
11110111	F7	= End of exclusive

The LCD screen will show the same as when the power is turned on.

The following data is received even if the Exclusive is turned off.

Data	Switch
0	PLAY
1	PART
2	EDIT
3	CURSOR
4	-1/NO
5	+1/YES

4.1.11 General MIDI Mode On

11110000	F0	= Exclusive status
01111110	7E	= Universal Non-Real time
01111111	7F	= ID of target device
00001001	09	= Sub-ID No.1=General MIDI Message
00000001	01	= Sub-ID No.2=General MIDI On
11110111	F7	= End of exclusive

OR;

11110000	F0	= Exclusive status
01111110	7E	= Universal Non-Real time
0XXXnnnn	nnnn	= Device Number, XXX=don't care
00001001	09	= Sub-ID No.1=General MIDI Message
00000001	01	= Sub-ID No.2=General MIDI On
11110111	F7	= End of exclusive

The Sound Module mode changes to General MIDI mode when the ON data is received.

The above data is received even if the Exclusive is set to off.

4.1.12 MIDI Master Volume

11110000	F0	= Exclusive status
01111111	7F	= Universal Real time
01111111	7F	= ID of target device
00000100	04	= Sub-ID No.1=Device control Message
00000001	01	= Sub-ID No.2=Master Volume
01111111	11	= Volume LSB
0mmmmmmm	mm	= Volume MSB
11110111	F7	= End of exclusive

OR;

11110000	F0	= Exclusive status
01111111	7F	= Universal Real time
0XXXnnnn	nnnn	= Device Number, XXX=don't care
00000100	04	= Sub-ID No.1=Device Control Message
00000001	01	= Sub-ID No.2=Master Volume
01111111	11	= Volume LSB
0mmmmmmm	mm	= Volume MSB
11110111	F7	= End of exclusive

When the "Volume MSB" is received, the Master Volume is set.

The above data is received even if the Exclusive is set to off.

4.1.13 Disk Music On

11110000	F0	= Exclusive status
01000011	43	= YAMAHA ID
01110011	73	= Instrument Classified (CLAVINOVA)

00000001	01	= Disk Music On
00010100	14	= Disk Music On
11110111	F7	= End of exclusive

The Sound Module mode changes to Disk Orchestra when the ON data is received.

The above data is received even if the Exclusive is set to off.

4.2 Dump request

The following Dump requests can be carried out.

- 1) System Data
- 2) Multi Common Data
- 3) Internal Voice Memory
- 4) Preset Voice Memory
- 5) Program Change Table

Dump request can only be switched off by setting Exclusive to off.

This unit cannot make Dump requests.

Dump requests to this unit should be as follows.

```

11110000 F0 = Exclusive status
01000011 43 = YAMAHA ID
0010nnnn nnnn = Device Number
01111010 7A = Format number
01001100 4C = "L"
01001100 4D = "M"
00100000 20 = " "
00100000 20 = " "
00110000 30 = "0"
00110000 30 = "0"
00110110 36 = "6"
00110110 38 = "8"
01010010 52 = "R"
01010001 51 = "Q"
0aaaaaaa aaaaaaa = Start Address b20 - b14
0aaaaaaa aaaaaaa = Start Address b13 - b7
0aaaaaaa aaaaaaa = Start Address b6 - b0
0sssssss sssssss = Byte Count b20 - b14
0sssssss sssssss = Byte Count b13 - b7
0sssssss sssssss = Byte Count b6 - b0
00000000 00
00000000 00
00000000 00
00000000 00
00000000 00
00000000 00
00000000 00
00000000 00
00000000 00
00000000 00
00000000 00
00000000 00
0ccccccc ccccccc = Check-sum
11110111 F7 = End of exclusive

```

Data is correctly processed if the Dump request receive address corresponds with the Start Address and the Dump Requests' byte count is correct.

For the Start Address and byte count, see the tables on page 75 to page 77.

The check sum's lowest 7-bit value is zero after adding the Start Address, Data and check sum.

Dump request, the sending device must add the header to each parameter.

For example, when a request for System and Multi parameters is sent with only one header, the unit will send back only the System parameters.

- System
- Multi common
- Multi Part
- Internal voice
- Drums Part
- All parameters reset

4.2.1 System Data parameter change

Refer to "Parameter base address" on page 75 and "MIDI Parameter Change table (System)" on page 75.

4.2.2 Multi Common Data parameter change

Refer to "Parameter base address" on page 75 and "MIDI Parameter Change table (MULTI common)" on page 75.

4.2.3 Multi Part Data parameter change

Refer to "Parameter base address" on page 75 and "MIDI Parameter Change table (MULTI Part)" on page 75.

4.2.4 Drums Setup Data parameter change

Refer to "Parameter base address" on page 75 and "MIDI Parameter Change table (Drums Setup)" on page 76.

4.2.5 Internal Voice Memory parameter change

Refer to "Parameter base address" on page 75 and "MIDI Parameter Change table (VOICE Memory)" on page 76.

4.2.6 Preset Voice Memory parameter change

Refer to "Parameter base address" on page 75 and "MIDI Parameter Change table (Program change table)" on page 77.

4.2.7 Program Change table parameter change

Refer to "Parameter base address" on page 75.

4.2.8 System Information parameter change

Refer to "Parameter base address" on page 75 and "MIDI Parameter Change table (System information)" on page 77.

5. Status FE (active sensing)

A) Sending

Not sent.

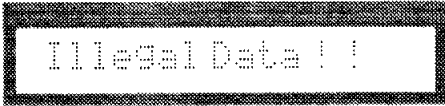
B) receiving

After receiving one FE message, if no MIDI data is received for more than 300msec, the unit will activate ALL SOUND OFF, ALL NOTE OFF and RESET ALL CONTROLLERS, as if no FE message had been received.

6. MIDI LCD messages

While exclusive data is being received, there are no messages on the LCD display.

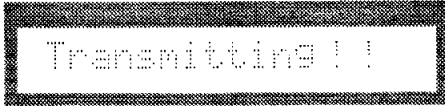
If an error occurs, such as a check sum error, the following message appears, transmission stops, then the previous LCD display appears.



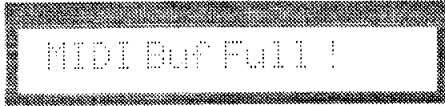
Disconnect the line, and the previously displayed message will appear.

If the device numbers don't match, or the Exclusive is set to off, data is ignored and no message is displayed.

While exclusive data is being transmitted, the following LCD display is shown.



If many MIDI messages are received in too short a time, the following message appears for a few seconds, receiving is stopped, then the previously displayed message appears.



When Program Change messages are received in play mode, the Part, BANK, PC VALUE and VOICE NAME are shown on the LCD display.

1.1 Parameter base address

Parameter change			
Start Address (H)			Description
30	00	00	System
30	00	0A	Multi common
30	00	10	Multi Part 10
30	00	28	Multi Part 1
			⋮
30	02	60	Multi Part 15
30	02	78	Multi Part 16
30	03	10	Internal voice 0
30	03	70	Internal voice 1
			⋮
30	31	70	Internal voice 62
30	32	50	Internal voice 63
30	33	10	Drums Part key No.27
30	33	13	Drums Part key No.28
			⋮
30	35	00	Drums Part key No.107
30	35	03	Drums Part key No.108
30	35	06	All parameters reset
			⋮
			<Program change table>
24	00	00	General MIDI LEVEL 1
24	02	00	DISK ORCHESTRA
24	04	00	C/M TYPE 1
24	06	00	C/M TYPE 2
24	08	00	System Information
24	08	10	Preset voice 0
24	08	70	Preset voice 1
			⋮
25	16	A0	Preset voice 190
25	17	30	Preset voice 191

Voice Memory

Parameter change		
Offset Address (H)		Description
00	00	Common parameter
00	18	Element 1 parameter
00	3C	Element 2 parameter

The actual address value = the address at the top of each block + the offset address.

1.2 MIDI Parameter Change table (System)

Address (H)	Size (H)	Data (H)	Parameter	Description	Default value (H)
30 00 00	02	1C-E4	MASTER TUNE	-100...+100(cent)	08 00 (80)
30 00 01	#			1st b3-0 → b7-4 2nd b3-0 → b3-0	
30 00 02	01	28-58	TRANSPOSE	-24...+24 semitones	40
30 00 03	01	00-10	DEVICE NUMBER	0...15, 16: all	10
30 00 04	01	00-01	EXCLUSIVE	0: off, 1: on	01
30 00 05	01	00-01	PROGRAM CHANGE	0: off, 1: on	01
30 00 06	01	00-01	CONTROL CHANGE	0: off, 1: on	
			VOLUME, EXPRESSION		01

Address (H)	Size (H)	Data (H)	Parameter	Description	Default value (H)
30 00 07	01	00-7F	SOUND MODULE MODE	0: General MIDI 1: Disk Orchestra 2: C/M	00
30 00 08	01	00-7F	MASTER VOLUME	0...127 (=F0 7F 7F 04 01 xx vv F7)	7F
30 00 09	01	00-02	VELOCITY METER	0: off 1: auto 2: on	01
TOTAL SIZE	0A				

REMARKS:

The address marked with "#", cannot be used as the "Start address".

1.3 MIDI Parameter Change table (MULTI common)

Address (H)	Size (H)	Data (H)	Parameter	Description	Default value (H)
30 00 0A	01	00-07	REVERB TYPE	0: Hall 1 1: Hall 2 2: Room 1 3: Room 2 4: Plate 1 5: Plate 2 6: Delay 1 7: Delay 2	00
30 00 0B	01	03-36	REVERB TIME	3...54	21
30 00 0C	01	18-46	REVERB OUTPUT LEVEL	-40...+6dB	3E
TOTAL SIZE	03				

1.4 MIDI Parameter Change table (MULTI Part)

Offset Address (H)	Size (H)	Data (H)	Parameter	Description	Default value (H)
00 00	02	00-7F	VOICE BANK	0...63 General MIDI 64...111: INTERNAL 112...126: DISK ORCHESTRA 127: C/M (=Bx 00 vv 20 00)	38
00 01	#	00-7F	PC VALUE	(=Cx vv)	00
00 02	01	00-10	RX CHANNEL	0...15 16: off	n
00 03	01	00-01	MONO/POLY MODE	0: Mono (Bx 7E 01) 1: Poly (=Bx 7F 00)	01
00 04	02	1C-E4	DETUNE	-100...+100(cent)	08 00 (80)
00 05	#			1st b3-0 \$ b7-4 2nd b3-0 \$ b3-0 (=Bx 64 01 65 00 06 vv 26 vv)	
00 06	01	28-58	NOTE SHIFT	-24...+24 semitones (=Bx 64 02 65 00 06 vv)	40
00 07	01	00-7F	VOLUME	0...127 (=Bx 07 vv)	64
00 08	01	00-0F	VELOCITY SENSE	0...15	08
00 09	01	00-0F	PANPOT	8: voice 9: left ⋮ 15: left center 0: center	08

Offset Address (H)	Size (H)	Data (H)	Parameter	Description	Default value (H)
7: right (=Bx 0A vv' except voice)					
00 0A	01	00 - 7F	NOTE LIMIT LOW	C-2...G8	00
00 0B	01	00 - 7F	NOTE LIMIT HIGH	C-2...G8	7F
00 0C	01	00 - 08	REVERB SEND DEPTH	0: min 8: max (=Bx 5B vv')	04
00 0D	01	39 - 47	LFO SPEED	-7...+7	40
00 0E	01	31 - 4F	LFO DEPTH	-15...+15	40
00 0F	01	0C - 7F	LFO DELAY	-64...+64	40
00 10	01	39 - 47	EG. ATTACK RATE	7...+7	40
00 11	01	39 - 47	EG. RELEASE RATE	7...+7	40
00 12	01	00 - 18	PITCH BEND RANGE	0...24 semitones (=Bx 64 00 65 00 06 vv')	02
00 13	01	00 - 0F	MOD LFO PITCH DEPTH	0...15	0F
00 14	01	00 - 7F	don't care	0...127	00
00 15	01	28 - 58	CAF PITCH CONTROL	-24...+24 (semitone)	40
00 16	01	00 - 0F	CAF LFO PITCH DEPTH	0...15	0F
00 17	01	00 - 7F	don't care	0...127	00
TOTAL SIZE	18				

REMARKS:

n: block number (0 - F) Part 1 n = 1
 : :
 Part 9 n = 9
 Part 10 n = 0
 Part 11 n = A
 : :
 Part 16 n = F

x: MIDI channel number (0 - F)

When n = 0 (Drums), the following parameters are ignored.

- PC VALUE
- VOLUME
- PANPOT
- REVERB SEND DEPTH

vv' After conversion, it will be written.

The address marked with "#", cannot be used as the "Start address".

The actual address value = the address at the top of each block + the offset address.

1.5 MIDI Parameter Change table (Drums Setup)

Offset Address (H)	Size (H)	Data (H)	Parameter	Description	Default value (H)
00 00	01	00 - 7F	LEVEL	0...127	
00 01	01	00 - 0F	PANPOT	9: left 15: left center 0: center	
7: right					
00 02	01	00 - 08	REVERB DEPTH	0: min 8: max	
TOTAL SIZE	03				

REMARKS:

The actual address value = the address at the top of each block + the offset address.

1.6 MIDI Parameter Change table (VOICE Memory)

1) Common parameter

Offset Address (H)	Size (H)	Data (H)	Parameter	Description	Default value (H)
00 00	01	00 - 01	VOICE MODE	0: 1 element 1: 2 element	00
00 01	01	00 - 7F	ELEMENT1 LEVEL	0...127	7F
00 02	01	00 - 7F	ELEMENT2 LEVEL	0...127	7F
00 03	01	20 - 5F	ELEMENT1 DETUNE	-32...+31	40
00 04	01	20 - 5F	ELEMENT2 DETUNE	-32...+31	40
00 05	01	00 - 7F	PORTAMENTO TIME	0...127	01
00 06	01	00 - 0F	MOD LFO PITCH DEPTH	0...15	0F
00 07	01	00 - 7F	don't care	0...127	00
00 08	01	00 - 0F	CAF LFO PITCH DEPTH	0...15	00
00 09	01	00 - 7F	don't care	0...127	00
00 0A	01	00 - 04	ELEMENT 1 PITCH RATE SCALING	0: 100% 1: 50% 2: 20% 3: 10% 4: 5% 5: 0%	00
00 0B	01	00 - 7F	ELEMENT 1 PITCH RATE SCALING CENTER NOTE	0...127 (C-2...G8)	3C
00 0C	01	28 - 58	ELEMENT 1 NOTE SHIFT	-24...+24 semitones	40
00 0D	01	28 - 58	ELEMENT 2 NOTE SHIFT	-24...+24 semitones	40
00 0E	01	00 - 04	ELEMENT 2 PITCH RATE SCALING	0: 100% 1: 50% 2: 20% 3: 10% 4: 5% 5: 0%	00
00 0F	01	00 - 7F	ELEMENT 2 PITCH RATE SCALING CENTER NOTE	0...127 (C-2...G8)	3C
00 10	01	20 - 7F	VC NAME1	ASCII character	
00 11	01	20 - 7F	VC NAME2	ASCII character	
00 12	01	20 - 7F	VC NAME3	ASCII character	
00 13	01	20 - 7F	VC NAME4	ASCII character	
00 14	01	20 - 7F	VC NAME5	ASCII character	
00 15	01	20 - 7F	VC NAME6	ASCII character	
00 16	01	20 - 7F	VC NAME7	ASCII character	
00 17	01	20 - 7F	VC NAME8	ASCII character	
TOTAL SIZE	18				

REMARKS:

The actual address value = the address at the top of each block + the offset address.

2) Element parameter

Offset Address (H)	Size (H)	Data (H)	Parameter	Description	Default value (H)
00 00	02	00 - 8B	WAVEFORM	0: 139	00 00 (00)
00 01#				1st b3-0 → b7-4 2nd b3-0 → b3-0	
00 02	01	31 - 4F	EG AR	-15...+15	40
00 03	01	31 - 4F	EG RR	-15...+15	40
00 04	01	00 - 7F	LEVEL SCALING	C-2...G8	40
			BREAK POINT1		
00 05	01	00 - 7F	BREAK POINT2	C-2...G8	40
00 06	01	00 - 7F	BREAK POINT3	C-2...G8	40
00 07	01	00 - 7F	BREAK POINT4	C-2...G8	40
00 08	02	00 - FF	LEVEL SCALING	-128...+127	08 00 (80)
00 09#			OFFSET1	1st b3-0 → b7-4 2nd b3-0 → b3-0	
00 0A	02	00 - FF	OFFSET2	-128...+127	08 00 (80)
00 0B#				1st b3-0 → b7-4 2nd b3-0 → b3-0	
00 0C	02	00 - FF	OFFSET3	-128...+127	08 00 (80)
00 0D#				1st b3-0 → b7-4 2nd b3-0 → b3-0	
00 0E	02	00 - FF	OFFSET4	-128...+127	08 00 (80)
00 0F#				1st b3-0 → b7-4 2nd b3-0 → b3-0	
00 10	01	00 - 0F	PANPOT	9: left : 15: left center 0: center : 7: right	00
00 11	01	00 - 07	LFO SPEED	0...7	04
00 12	01	00 - 7F	LFO DELAY	0...127	00
00 13	01	00 - 7F	don't care	0...127	00
00 14	01	00 - 0F	LFO PITCH MOD DEPTH	0...15	00
00 15	01	00 - 07	LFO AMP MOD DEPTH	0 - 7	00
00 16	01	00 - 01	PITCH LFO WAVE	0: triangle 1: sample & hold	00
00 17	01	00 - 02	P-EG RANGE	0: 1/2 oct 1: 1 oct 2: 2 oct	01
00 18	01	00 - 01	P-EG VELOCITY SWITCH	0: on 1: off	01
00 19	01	00 - 07	P-EG RATE SCALING	0...7	00
00 1A	01	00 - 3F	P-EG R1	0...63	3F
00 1B	01	00 - 3F	P-EG R2	0...63	3F
00 1C	01	00 - 3F	P-EG R3	0...63	3F
00 1D	01	00 - 3F	P-EG RR	0...63	3F
00 1E	01	00 - 7F	P-EG LO	-64...+63	40
00 1F	01	00 - 7F	P-EG L1	-64...+63	40
00 20	01	00 - 7F	P-EG L2	-64...+63	40
00 21	01	00 - 7F	P-EG L3	-64...+63	40
00 22	01	00 - 7F	P-EG RL	-64...+63	40
00 23	01	00 - 07	VELOCITY CURVE	0: curve-1 1: curve-2 2: curve-3 3: curve-4	00

Offset Address (H)	Size (H)	Data (H)	Parameter	Description	Default value (H)
				4: curve-5 5: curve-6 6: curve-7 7: curve-8	
TOTAL SIZE	24				

REMARKS:

The address marked with "#", cannot be used as the "Start address".

In Disk Orchestra mode, the voice velocity curve setting is ignored. It is always set to "curve-8".

The actual address value = the address at the top of each block + the offset address.

1.7 MIDI Parameter Change table (Program change table)

Offset Address (H)	Size (H)	Data (H)	Parameter	Description
00 00	02	00 - FF	SERIAL VOICE# TO	0...191, 255:off voice
00 01#			PC#1	
:			:	
:			:	
01 7E	02	00 - FF	SERIAL VOICE# TO	0...191, 255:off voice
01 7F#			PC#128	
TOTAL SIZE	100			

REMARKS:

The address marked with "#", cannot be used as the "Start address".

The actual address value = the address at the top of each block + the offset address.

1.8 MIDI Parameter Change table (System information)

Address (H)	size (H)	Data (H)	Parameter	Description
24 08 00	10	23	STRING	ASCII '#'
24 08 01#		30	STRING	ASCII '0'
24 08 02#		30	STRING	ASCII '0'
24 08 03#		36	STRING	ASCII '6'
24 08 04#		38	STRING	ASCII '8'
24 08 05#		20	STRING	ASCII ''
24 08 06#		20	STRING	ASCII ''
24 08 07#		56	STRING	ASCII 'V'
24 08 08#		45	STRING	ASCII 'E'
24 08 09#		52	STRING	ASCII 'R'
24 08 0A#		3D	STRING	ASCII '='
24 08 0B#		31	STRING	ASCII '1'
24 08 0C#		2E	STRING	ASCII ''
24 08 0D#		30	STRING	ASCII '0'
24 08 0E#		30	STRING	ASCII '0'
24 08 0F#		20	STRING	ASCII ''
TOTAL SIZE	10			

REMARKS:

The top address must be the same as the "Start address".

Function ...	Transmitted	Recognized	Remarks
Basic Default	: x	: 1 - 16	: memorized
Channel Changed	: x	: 1 - 16	:
Mode Default	: x	: 3	:
Mode Messages	: x	: 3,4(m = 1) *2	:
Mode Altered	: *****	: x	:
Note Number : True voice	: x : *****	: 0 - 127 : 0 - 127	:
Velocity Note ON	: x	: o 9nH, v=1-127	:
Velocity Note OFF	: x	: x	:
After Touch Key's	: x	: x	:
After Touch Ch's	: x	: o	:
Pitch Bender	: x	: o 0-24 semi	: 12bit resolution
Control Change	0,32 : x 1 : x 5 : x 6,38 : x 7 : x 10 : x 11 : x 64 : x 65 : x 91 : x 100,101 : x 120 : x 121 : x	: o MSB only : o : o : o : o *1 : o *1 : o : o : o (Reverb) : o : o : o	: Bank Select : Modulation Wheel : Portamento Time : Data Entry : Volume : Panpot : Expression : Hold 1 : Portamento : Effect Depth 1 : RPN LSB,MSB : All Sound Off : Reset All Cntrls
Prog Change : True #	: x : *****	: o 0-127 *1	:
System Exclusive	: o	*3 : o	*3 :
System : Song Pos.	: x	: x	:
System : Song Sel.	: x	: x	:
Common : Tune	: x	: x	:
System : Clock	: x	: x	:
Real Time : Commands	: x	: x	:
Aux : Local ON/OFF	: x	: x	:
Aux : All Notes OFF	: x	: o (123-127)	:
Mes- : Active Sense	: x	: o	:
sages:Reset	: x	: x	:
Notes: *1	; receive if switch is on.		
*2	; m is always treated as "1" regardless of its value.		
*3	; transmit/receive if exclusive switch is on.		

SERVICE

This product is supported by YAMAHA's worldwide network of factory trained and qualified dealer service personnel. In the event of a problem, contact your nearest YAMAHA dealer.

For details of software, please contact your nearest Yamaha/or the authorized distributor listed below.

Pour plus de détails sur les logiciels, veuillez-vous adresser au concessionnaire/distributeur pris dans la liste suivante le plus proche de chez vous.

Die Einzelheiten zu Software sind bei unseren unten aufgeführten Niederlassungen und Vertragshändlern in den jeweiligen Bestimmungsländern erhältlich.

Para detalles sobre el software, póngase en contacto con nuestra subsidiaria o distribuidor autorizado enumerados a continuación.

NORTH AMERICA

CANADA

Yamaha Canada Music Ltd.
135 Milner Avenue, Scarborough, Ontario,
M1S 3R1, Canada
Tel: 416-298-1311

U.S.A.

Yamaha Corporation of America,
Synthesizer, Guitar, and Drum Division
6600 Orangethorpe Ave., Buena Park, Calif. 90620,
U.S.A.
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Tel: 0222-60203900

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Verkoop Administratie
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Yamaha Scandinavia Filial Danmark
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