

Visit the Tg33 resource center

YAMAHA
TONE GENERATOR

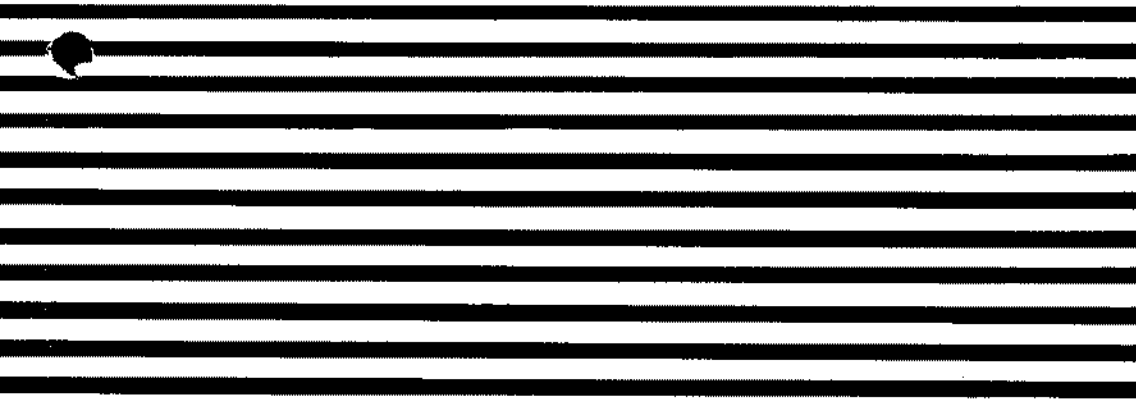
TG33

free manual

YAMAHA

TONE GENERATOR

TG33



OPERATING 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.

If these corrective measures do not produce satisfactory results, please contact the local retailer authorized to distribute this type of product. If you can not locate the appropriate retailer, please contact Yamaha Corporation of America, Electronic Service Division, 6600 Orangethorpe Ave, Buena Park, CA 90620

* This applies only to products distributed by YAMAHA CORPORATION OF AMERICA.

Detle 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 radio-disturbi.

Este producto está de acuerdo con los requisitos sobre interferencias de radio frecuencia fijados por el Consejo Directivo 87/308/CEE.

YAMAHA CORPORATION

CANADA

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.

* This applies only to products distributed by YAMAHA CANADA MUSIC LTD.

Litiumbatteri!
Bör endast bytas av servicepersonal.
Explosionsfara vid felaktig hantering.

VAROITUS!
Lithiumparisto. Räjähdyksvaara.
Pariston saa vaihtaa ainoastaan alan ammattimies.

ADVARSEL!
Lithiumbatteri!
Eksplosionsfare. Udskiftning må kun foretages af en sagkyndig, - og som beskrevet i servicemanualen.

SPECIAL MESSAGE SECTION

This product utilizes batteries or an external power supply (adapter). **DO NOT** connect this product to any power supply or adapter other than one described in the manual, on the name plate, or specifically recommended by Yamaha.

WARNING: Do not place this product in a position where anyone could walk on, trip over, or roll anything over power or connecting cords of any kind. The use of an extension cord is not recommended! If you must use an extension cord, the minimum wire size for a 25' cord (or 1 cm) is 18 AWG. **NOTE:** The smaller the AWG number, the larger the current handling capacity. For longer extension cords, consult a local electrician.

This product should be used only with the components supplied MMM a cart, rack, or stand that is recommended by Yamaha. If a cart, etc., is used, please observe all safety markings and instructions that accompany the accessory product.

SPECIFICATIONS SUBJECT TO CHANGE: The information contained in this manual is believed to be correct at the time of printing. However, Yamaha reserves the right to change or modify any of the specifications without notice or obligation to update existing units.

Do not attempt to service this product beyond that described in the user-maintenance instructions. All other servicing should be referred to qualified service personnel.

This product, either alone or in combination with an amplifier and headphones or speaker/s, may be capable of producing sound levels that could cause permanent hearing loss. **DO NOT** operate for long periods of time at a high volume level or at a level that is uncomfortable. If you experience any hearing loss or ringing in the ears, you should consult an audiologist. **IMPORTANT:** The louder the sound, the shorter the time period before damage occurs.

Some Yamaha products may have benches and/or accessory mounting fixtures that are either supplied with the product or as optional accessories. Some of these items are designed to be dealer assembled or installed. Please make sure that benches are stable and any optional fixtures (where applicable) are well MMM **BEFORE** using. Benches supplied by Yamaha are designed for MMM only. No other uses are recommended.

NOTICE: Service charges incurred due to 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, and are therefore the owners responsibility. Please study this manual carefully and consult your dealer before requesting service.

ENVIRONMENTAL ISSUES: Yamaha strives to produce products that are both user safe and environmentally friendly. We sincerely believe that our products and the production methods used to produce them, meet these goals. In keeping with both the letter and the spirit of the law, we want you to be aware of the following:

Battery Notice: This product **MAY** contain a small non-rechargeable battery which (if applicable) is soldered in place. The average life span of this type of battery is approximately five years. When replacement becomes necessary, contact a qualified service representative to perform the replacement.

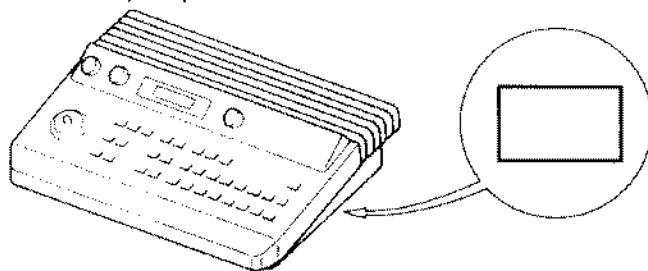
This product may also use "household" type batteries. Some of these may be rechargeable. Make sure that the battery being charged is a rechargeable type and that the charger is intended for the battery being charged.

When installing batteries, do not mix old batteries with new, or with batteries of a different type. Batteries **MUST** be installed correctly. Mismatches or incorrect installation may result in overheating and battery case rupture.

Warning: Do not attempt to disassemble, or incinerate any battery. Keep all batteries away from children. Dispose of used batteries promptly and as regulated by the laws in your area. **Note:** Check with any retailer of household type batteries in your area for battery disposal information.

Disposal Notice: Should this product become damaged beyond repair, or for some reason its useful life is considered to be at an end, please observe all local, state, and federal regulations that relate to the disposal of products that contain lead, batteries, plastics, etc. If your dealer is unable to assist you, please contact Yamaha directly.

NAME PLATE LOCATION: The graphic below indicates the location of the name plate for this model. The model number, serial number, power requirements, etc., are located on this plate. You should record the model number, 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 _____

PLEASE KEEP THIS MANUAL

Congratulations!

You're about to enter an exciting new world of vector synthesis combining Yamaha's advanced AWM sample playback technology with high-performance FM tone generation. Vector synthesis allows you to create and control synthesized sound with unprecedented ease — in a very intimate, "human" way, putting you more closely in touch with your music. The vector control lets you blend sounds manually in real time, and dynamic vectors let you "record" dynamic vector sweeps that will play automatically whenever you play a note.

The TG33 also provides plenty of versatility for even complex sequenced compositions. Its MULTI mode allows up to 16 different "instruments" to be controlled simultaneously on different MIDI channels — with up to 32-note polyphony!

The more you use the TG33, the more you'll find that "vectors" will become an indispensable part of your musical repertoire.

- Yamaha AWM and FM tone generators for superior sound and tonal versatility.
- Fully programmable 16-channel multi-play mode with 32-note polyphony provides extraordinary versatility for sequencer-driven applications.
- 16 memory locations for multi-play setups.
- 2-element or 4-element voice architecture allows AWM and FM waveforms to be used in a single voice.
- Vector control for 2-axis control of element level and detuning.
- Dynamic level and detune vectors can be easily recorded in real time.
- 128 preset AWM waveforms and 256 preset FM waveforms provide an extensive library of sonic "building blocks" from which to create new voices.
- 128 preset voices and 64 user voice memory locations.
- External memory cards provide limitless backup and storage capability.
- Easy-edit features make creating new voices quick and virtually programming-free.
- When necessary, detailed, in-depth programming parameters are available.
- 16 internal digital effects including reverb, delay and distortion.
- Dual stereo outputs.
- Desk-top or rack-mount use — rack-mount adapters provided.

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HOW TO USE THIS OPERATIONAL MANUAL

This operation manual is broadly divided into two main sections — **TUTORIALS** and **REFERENCE**.

What's In the TUTORIALS Section

The **TUTORIALS** section contains five separate tutorials that take you step-by-step through the main procedures you will need to know to become familiar with your TG33:

1. **SETTING UP YOUR SYSTEM** [Page 11]
Basic system connections.
2. **SELECTING AND PLAYING VOICES** [Page 13]
Selecting and playing voices from the **PRESET**, **INTERNAL** and **CARD** voice banks.
3. **VECTORS** [Page 17]
Understanding and using manual and dynamic vectors.
4. **INSTANT VOICE PROGRAMMING** [Page 31]
The fast way to create an unlimited range of new voices for the TG33.
5. **THE MULTI PLAY & EDIT MODES** [Page 33]
How to set up and use the TG33's extensive "MULTI PLAY" capabilities with a sequencer or music computer.

We recommend that you go through the tutorials in sequence, while actually carrying out the procedures on your TG33. Once you've gone through the entire **TUTORIALS** section in this way, you should be familiar enough with the TG33 to need only the **REFERENCE** section in future.

What's In the REFERENCE Section

The **REFERENCE** section is the "nuts and bolts" section of the manual, individually describing each of the TG33's many functions in detail. The **REFERENCE** section is divided into eight sub-sections, each describing the various functions within a particular TG33 edit or utility mode.

1. **VOICE COMMON** [Page 43]
2. **VOICE VECTOR** [Page 51]
3. **ELEMENT TONE** [Page 57]
4. **ELEMENT ENVELOPE** [Page 67]
5. **MULTI** [Page 75]
6. **UTILITY SYSTEM** [Page 83]
7. **UTILITY MIDI** [Page 87]
8. **UTILITY CARD** [Page 93]

Once you have become familiar with the way the TG33 works by going through the **TUTORIALS** section, you should only need to refer to the **REFERENCE** section from time to time to get details on functions you've never used before, or refresh your memory about functions that you don't use very often.

Each sub-section has its own table of contents, so you can locate any particular function quickly and easily. Functions and references can also be located by referring to the **INDEX** at the back of the manual.

PRECAUTIONS

!! PLEASE READ THIS BEFORE PROCEEDING !!

- 1. Avoid Excessive Heat, Humidity, Dust and Vibration**

Keep the unit away from locations where it is likely to be exposed to high temperatures or humidity — such as near radiators, stoves, etc. Also avoid locations which are subject to excessive dust accumulation or vibration which could cause mechanical damage.
- 2. Avoid Physical Shocks**

Strong physical shocks to the unit can cause damage. Handle it with care.
- 3. Do Not Open The Case Or Attempt Repairs Or Modifications Yourself**

This product contains no user-serviceable parts. Refer all maintenance to qualified Yamaha service personnel. Opening the case and/or tampering with the internal circuitry will void the warranty.
- 4. Make Sure Power Is Off Before Making Or Removing Connections**

Always turn the power OFF prior to connecting or disconnecting cables.
- 5. Handle Cables Carefully**

Always plug and unplug cables by gripping the connector, not the cord.
- 6. Clean With a Soft Dry Cloth**

Never use solvents such as benzine or thinner to clean the unit. Wipe clean with a soft, dry cloth.
- 7. Always Use the Correct Power Supply**

Always use the supplied AC Adaptor to power your TG33 or, if the original adaptor is lost or broken, a replacement or equivalent type obtained from your Yamaha dealer. Also, make sure that the adaptor you have is appropriate for the AC mains supply voltage in the area where you intend to use the TG33 (the correct INPUT voltage is marked on the adaptor).
- 8. Electrical Interference**

Since the TG33 contains digital circuitry, it may cause interference and noise if placed too close to TV sets, radios or similar equipment. If such a problem does occur, move the TG33 further away from the affected equipment.
- 9. Memory Backup**

The TG33 contains a special backup battery that retains the contents of the internal RAM memory even when the power is turned off. Under normal conditions, the backup battery should last for approximately 5 years.

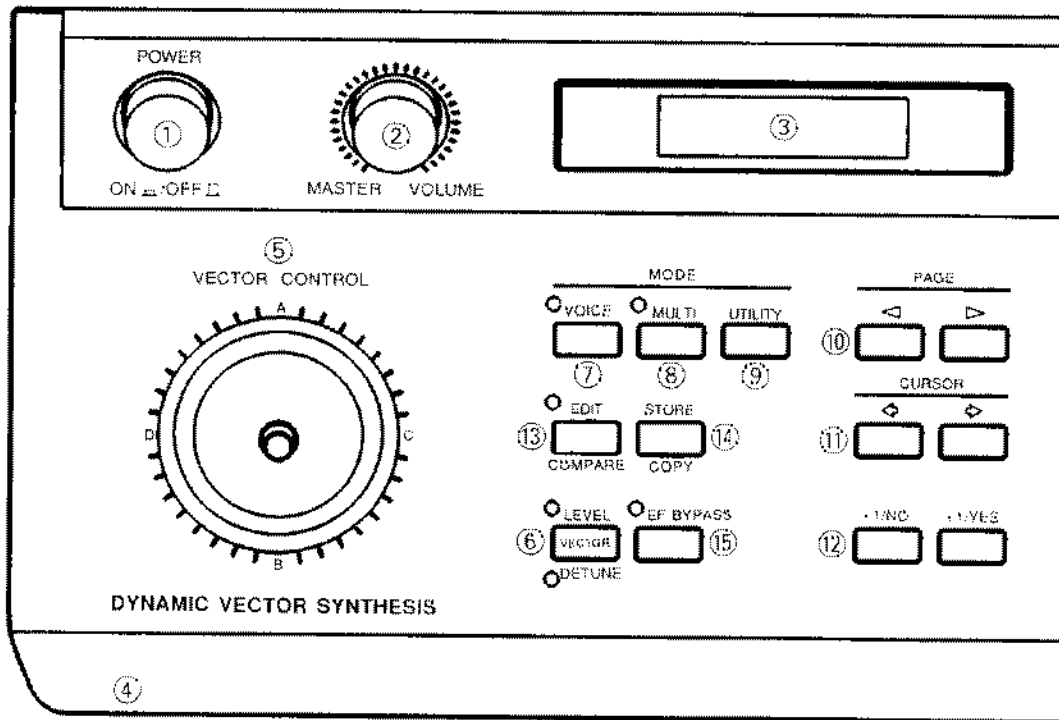
When the backup battery voltage drops below the safe level, the “Change int bat!” display will appear on the TG33 LCD. When this occurs, have the internal battery replaced *by qualified Yamaha service personnel*. Do not attempt to replace the battery yourself, as opening the TG33 cabinet and tampering with the internal circuitry will *void the warranty!*
- 10. Third-party Software**

Yamaha can not take any responsibility for software produced for this product by third-party manufacturers.

Please direct any questions or comments about such software to the manufacturer or their agents.

THE CONTROLS & CONNECTORS

■ FRONT PANEL



① [POWER] Switch

Press to turn the TG33 power ON or OFF.

② [MASTER VOLUME] Control

The [MASTER VOLUME] control adjusts the volume of the sound delivered via the rear-panel OUTPUT 1 jack and the front-panel PHONES jack. The [MASTER VOLUME] control does not affect the output level of the rear-panel OUTPUT 2 jack.

③ Liquid Crystal Display Panel (LCD)

This 16-character × 2-line backlit liquid crystal display panel shows the selected voice or multi-play setup name in the voice or multi-play modes, as well as function names and parameters in the utility and edit modes.

④ PHONES Jack

Accepts a standard pair of stereo headphones (1/4" stereo phone plug) for headphone monitoring of the TG33 sound without the need for external amplification equipment.

⑤ [VECTOR CONTROL]

This is the key to TG33's remarkable vector synthesis system. The [VECTOR CONTROL] allows manual control of level or detune for 2 or 4 voice "elements" simultaneously. It also allows realtime recording of dynamic level and detune vectors.

⑥ [VECTOR] Key & LEVEL/DETUNE Indicators

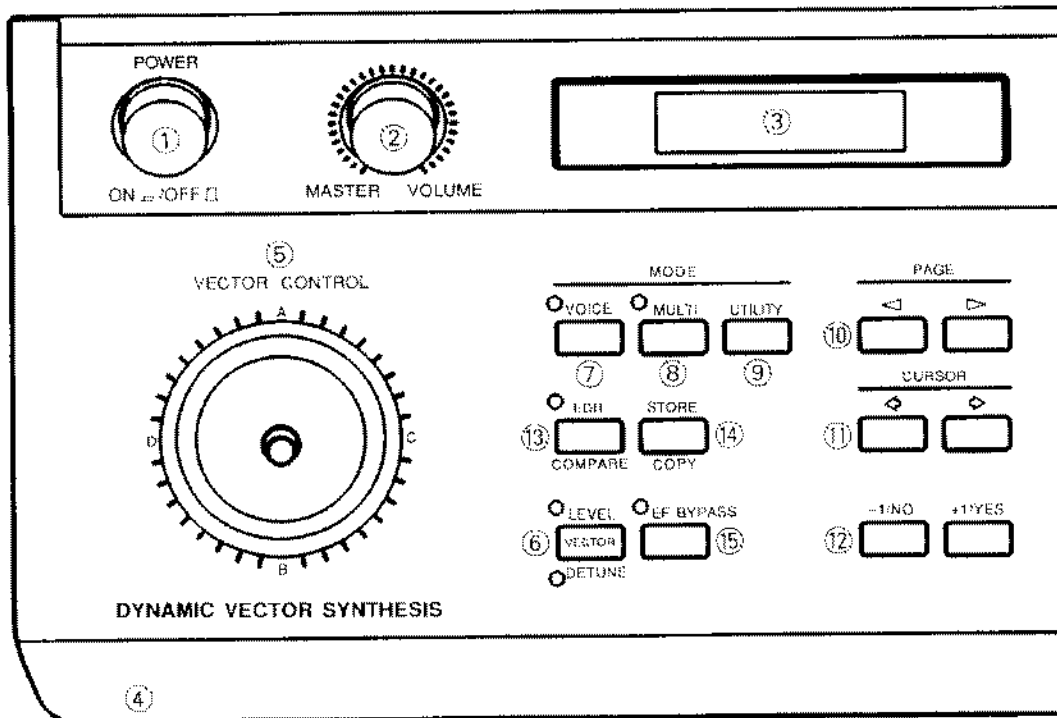
The [VECTOR] key selects level or detune vector control, or turns vector operation off.

⑦ [VOICE] Key & Indicator

Selects the normal voice play mode in which any of the TG33's preset, internal or card voices can be played via a master keyboard or other controller connected to the MIDI IN connector.

⑧ [MULTI] Key & Indicator

Selects the multi-play mode in which up to 16 voices can be played simultaneously via different MIDI channels.



⑨ [UTILITY] Key

Selects the UTILITY mode which provides access to all system, MIDI, and card utility functions.

⑩ PAGE [◀] and [▶] Keys

Select the various functions in the VOICE EDIT, MULTI EDIT or UTILITY modes. The PAGE [▶] key steps forward through the functions while the PAGE [◀] key steps in the reverse direction.

⑪ CURSOR [◀] and [▶] Keys

Moves the screen cursor from parameter to parameter in many of the TG33 editing and utility functions.

⑫ [-1/NO] and [+1/YES] Keys

Can be used to select voices and multi-play setups, and are used in conjunction with the DATA ENTRY control to edit parameter values in any of the TG33 edit modes. Either key can be pressed briefly for single stepping in the specified direction, or held for continuous scrolling. These keys are also used to answer the "Are you sure?" confirmation prompt when saving or initializing data.

⑬ [EDIT/COMPARE] Key & Indicator

Accesses the TG33's VOICE EDIT or MULTI EDIT modes. Also activates the compare function when in any edit mode, allowing quick comparison of the original and edited voice or multi-play setup.

⑭ [STORE/COPY] Key

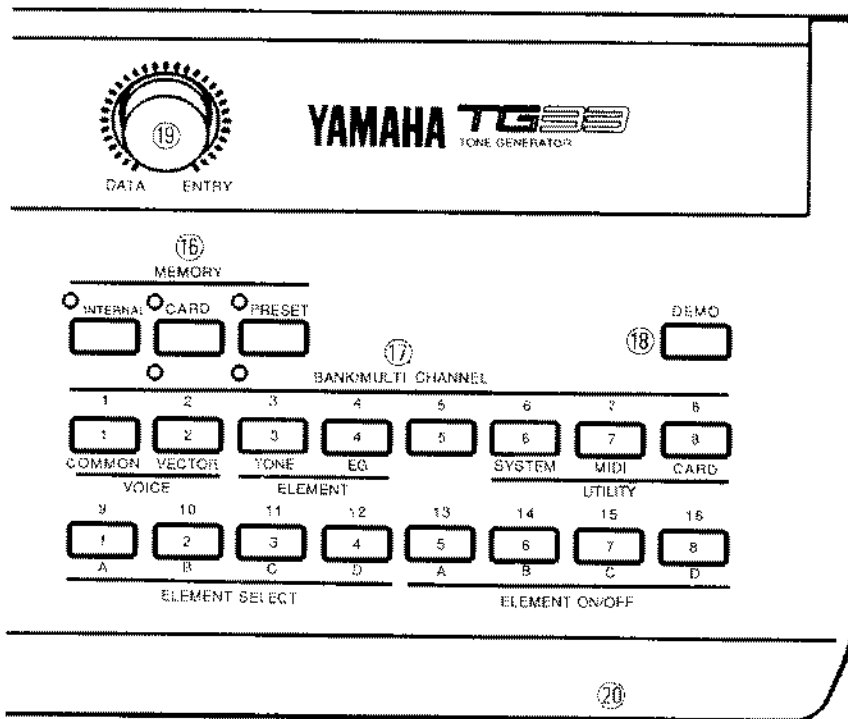
Used to store edited data to an internal or card memory location, and to access a range of useful copy functions in the voice and multi edit modes.

⑮ [EF BYPASS] Key & Indicator

When this key is pressed and its indicator is lit, all internal TG33 effects are bypassed and the direct sound of the voices will be heard. Press again to turn the indicator off and restore normal effect operation.

⑯ [INTERNAL], [CARD], and [PRESET] Keys & Indicators

Select the data bank — preset 1 or 2, internal, or card — from which voices or multi-play setups will be selected.



17 [BANK/MULTI CHANNEL] Select, Edit/Utility Mode Access, and Element Control Keys

In the VOICE PLAY or MULTI PLAY mode, the keys in the top row— [1] through [8] — are used to select the bank of the voice or multi-play setup to be selected, while the bottom-row keys — also [1] through [8] — are used to select the number of the voice or multi-play setup to be selected.

In the VOICE EDIT or UTILITY mode, the keys in the top row are used to select the desired edit or utility function group (refer to the green labels below the keys).

In the ELEMENT TONE or ELEMENT ENVELOPE edit mode the keys in the bottom row are used to select individual elements and turn individual elements on and off for editing (green labels below the keys).

In the MULTI EDIT mode, the small white numbers above the keys [1] through [16] refer to MIDI channel numbers, and the keys are used to select the MIDI channel data to be edited.

18 [DEMO] Key

Activates the TG33 built-in demonstration — a great way to hear what the TG33 can do after you set up your system.

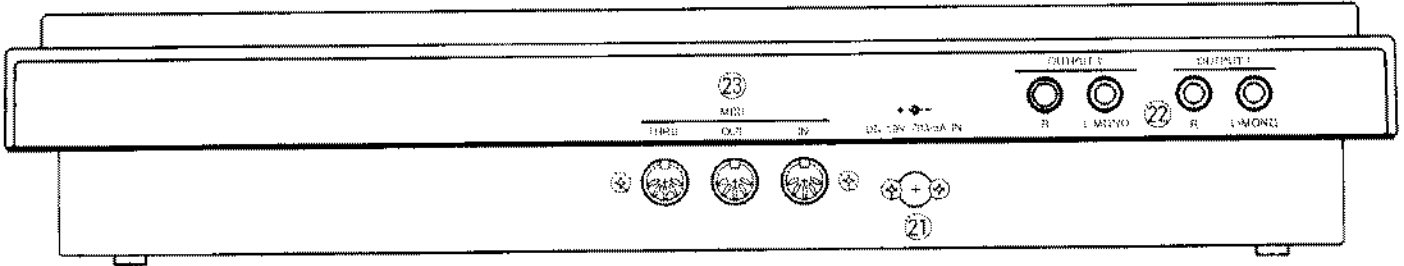
19 [DATA ENTRY] Control

The fast, easy way to make coarse value changes in the VOICE or MULTI EDIT mode, as well as the UTILITY mode. In general, rotating the [DATA ENTRY] control clockwise increases the value of the selected parameter, while counterclockwise rotation decreases the value. Fine single-step adjustments can be carried out using the [-1/NO] and [+1/YES] keys.

20 Card Slot

The Card slot accepts Yamaha MCD64 or MCD32 Memory Cards for storage and retrieval of TG33 voices and multi-play data.

■ REAR PANEL



②① DC 10V 700mA IN Jack

The DC output cable from the supplied AC adaptor should be connected here. When connecting the power supply, make sure that the TG33 POWER switch is in the OFF position (extended), then plug the AC adaptor output cable into the DC 10V 700mA IN jack, and finally the adaptor's AC plug into a convenient AC wall outlet.

CAUTION!

Do not attempt to use a different AC adaptor to power the TG33. The use of an incompatible adaptor may cause irreparable damage to the TG33, and might pose a serious shock hazard!

②② OUTPUT 1 and OUTPUT 2 (R and L/MONO) Jacks

The TG33 has two pairs of stereo outputs — OUTPUT 1 and OUTPUT 2 — to which different voice groups can be assigned in the MULTI EDIT mode. Please note that the TG33 effects are only applied to voices assigned to OUTPUT 1.

If a plug is inserted only into the L/MONO jack of an output pair, the left and right-channel signals are combined and delivered via this jack (for connection to a monaural sound system).

②③ MIDI IN, OUT and THRU Connectors

The MIDI IN connector receives the data from a sequencer or other MIDI controller which is to control the TG33. The MIDI THRU connector simply re-transmits the data received at the MIDI IN connector, allowing convenient chaining of MIDI devices. The MIDI OUT connector transmits data corresponding to all TG33 performance operations, or bulk data when one of the MIDI voice data transmission functions are activated.

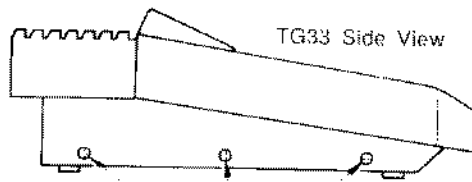
Rack Mounting the TG33

The TG33 is supplied with a pair of rack-mount brackets that can be attached to the sides of the TG33 in a number of ways to provide a choice of mounting positions and angles.

Attach the brackets as required by temporarily removing two of the three bracket-mounting screws provided on each side of the TG33, hold the angles in place, then replace the screws — firmly — as shown in the illustrations below.

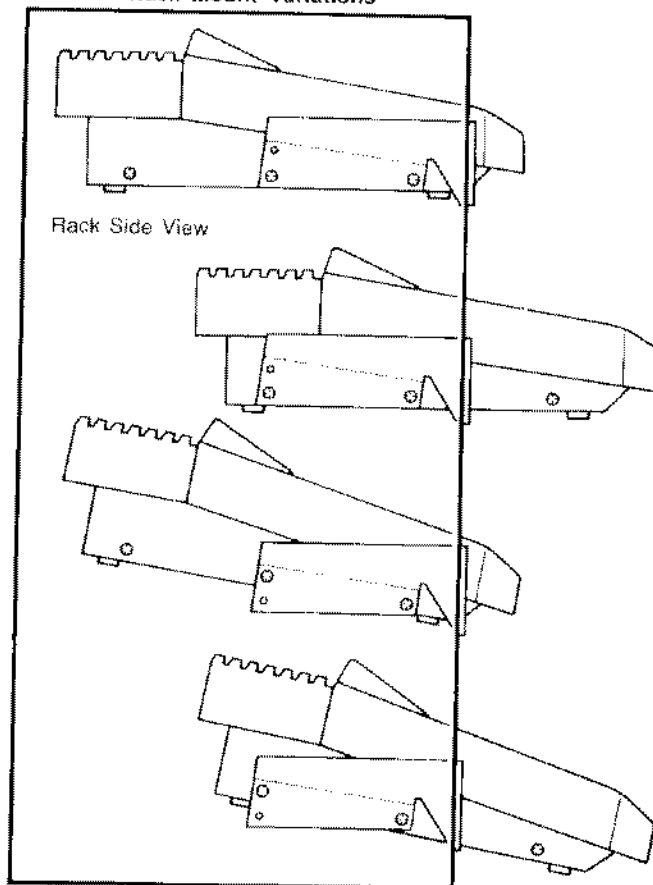
Since each bracket requires two screws and three are provided on either side of the TG33, you have two spares. If you do need extra mounting screws, please contact your Yamaha dealer.

Rack Mount Bracket (1 of 2)



Bracket-mounting Screws

4 Rack Mount Variations



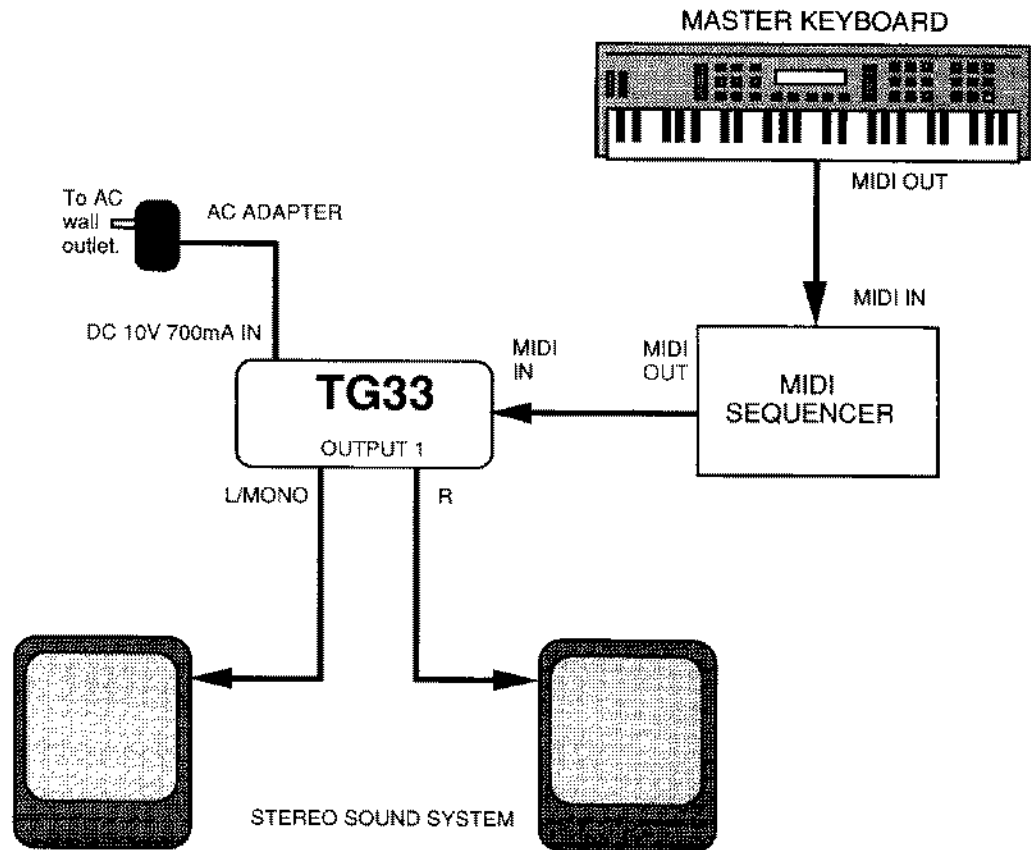
TUTORIALS SECTION

1. SETTING UP YOUR SYSTEM

Connections

The diagram below shows the basic connections in a setup using the TG33, a master keyboard, a MIDI sequencer, and a stereo sound system.

CAUTION!!!: Make sure that both the TG33 and your sound system are turned OFF when making connections.



NOTE: Always use high-quality MIDI cables when making MIDI connections, and avoid using cables longer than about 15 meters since longer cables can pick up noise that might cause data errors.

Power-on Procedure

1. Make sure your sound system's volume control and the TG33 volume control are turned all the way down prior to turning power on.
2. Turn on the master keyboard.
3. Turn on the sequencer.
4. Turn on the TG33.
5. Turn on the sound system.
6. Raise the sound system volume to a reasonable level.
7. Gradually raise the TG33 VOLUME control while playing the keyboard to set the desired listening level.

MIDI Channel Matching

Be sure to refer to your master keyboard and sequencer operation manuals to ensure that they are connected properly and that the MIDI transmit channel of the keyboard is matched to the receive channel of the sequencer. You may also have to make special settings to ensure that the MIDI data received from the keyboard by your sequencer is simultaneously "echoed" to the TG33 via its MIDI OUT connector.

Also make sure that the TG33 is set to receive on the appropriate MIDI channel as follows:

1. Press the [UTILITY] key to select the UTILITY mode.
2. Press the UTILITY MIDI key (BANK/MULTI CHANNEL key [7]) to select the utility MIDI function group.
3. Use the PAGE [▷] and [◁] keys to locate the following display:

```
UM MIDI
Receive Ch= 1
```

4. Use the DATA ENTRY control or [-1/NO] and [+1/YES] keys to set the receive channel number to the channel on which your sequencer is currently transmitting — or select "omni" to allow reception on all 16 MIDI channels.
5. Press the [VOICE] key to return to the VOICE PLAY mode.

Demo

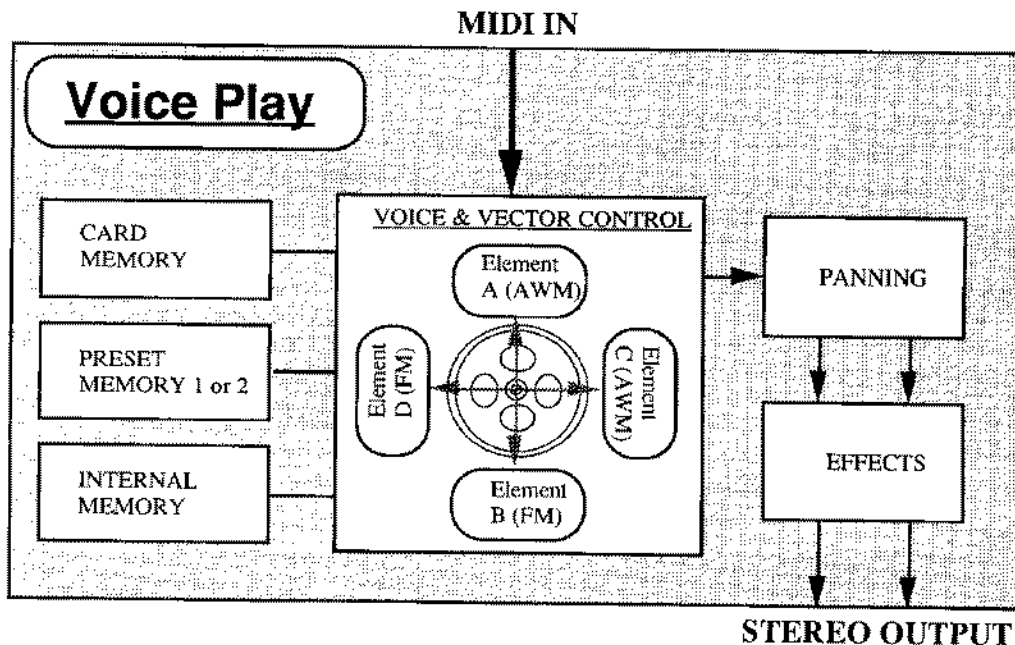
The TG33 is programmed with a demonstration sequence that you might like to listen to after setting up your system. Take a short break and enjoy the demo:

1. Press the [DEMO] key. ""YES" to START" will appear on the LCD display.
2. Press the [+1/YES] key to start demo playback. ""NO" to STOP" will appear on the LCD display.
3. Press the [-1/NO] key when you want to stop demo playback.

2. SELECTING AND PLAYING VOICES

The PRESET, INTERNAL and CARD Voice Memories

Here's an overview of the TG33 VOICE PLAY mode:



Please note that the voices played by the TG33 can come from three different sources: the PRESET voice memory (PRESET 1 or 2), the INTERNAL voice memory, or a CARD voice memory:

PRESET

The PRESET voice memory contains 128 pre-programmed voices in ROM (Read Only Memory) that cannot be overwritten or changed in any way. The PRESET voice memory has two banks — PRESET 1 and PRESET 2 — containing 64 voices each. The PRESET 1 and PRESET 2 banks are represented on the display by letter "P1" and "P2". For easier identification the indicator *above* the [PRESET] key lights when PRESET 1 is selected, and the indicator *below* the [PRESET] key lights when PRESET 2 is selected.

PRESET VOICE LIST

PRESET 1

*EL = No. of elements.

	No.	Voice Name	EL*		No.	Voice Name	EL*		No.	Voice Name	EL*		No.	Voice Name	EL*
1	1.1	SP*Pro33	4	17	3.1	SC*Groov	2	33	5.1	SL*Sync	4	49	7.1	SE*Mount	4
2	1.2	SP*Echo	4	18	3.2	SC*Airy	4	34	5.2	SL*VCO	4	50	7.2	SE*5.PM	4
3	1.3	SP*BelSt	4	19	3.3	SC*Solid	4	35	5.3	SL*Chic	4	51	7.3	SE*FlyBy	4
4	1.4	SP*Full	4	20	3.4	SC*Sweep	4	36	5.4	SL*Mini	2	52	7.4	SE*Fear	4
5	1.5	SP*Ice	4	21	3.5	SC*Drops	4	37	5.5	SL*Wisul	4	53	7.5	SE*Wolvs	2
6	1.6	SP*Dandy	4	22	3.6	SC*Euro	4	38	5.6	SL*Blues	4	54	7.6	SE*Hades	4
7	1.7	SP*Arkle	4	23	3.7	SC*Decay	4	39	5.7	SL*Cosmo	2	55	7.7	SE*Neuro	4
8	1.8	SP*BrVec	4	24	3.8	SC*Steel	2	40	5.8	SL*Super	4	56	7.8	SE*Angel	4
9	2.1	SP*Matrix	4	25	4.1	SC*Rude	4	41	6.1	ME*Vecta	4	57	8.1	SQ*MrSeq	2
10	2.2	SP*Gut	4	26	4.2	SC*Bellz	4	42	6.2	ME*NuAge	4	58	8.2	SQ*It	2
11	2.3	SP*Omni	4	27	4.3	SC*Pluck	4	43	6.3	ME*Hit+	4	59	8.3	SQ*Id	4
12	2.4	SP*Oiled	4	28	4.4	SC*Glass	4	44	6.4	ME*Glace	4	60	8.4	SQ*Wrupa	4
13	2.5	SP*Ace	4	29	4.5	SC*Wood	4	45	6.5	ME*Astro	4	61	8.5	SQ*TG809	4
14	2.6	SP*Quire	4	30	4.6	SC*Wire	4	46	6.6	ME*Vger	4	62	8.6	SQ*Devol	4
15	2.7	SP*Digit	4	31	4.7	SC*Cave	4	47	6.7	ME*Hitch	4	63	8.7	DR*KIT	2
16	2.8	SP*Swell	4	32	4.8	SC*Wispa	4	48	6.8	ME*Indus	4	64	8.8	DR*EFX	4

PRESET 2

*EL = No. of elements.

	No.	Voice Name	EL*		No.	Voice Name	EL*		No.	Voice Name	EL*		No.	Voice Name	EL*
1	1.1	EP*Arlad	4	17	3.1	BA*Slap	4	33	5.1	BR*Power	4	49	7.1	ST*Arco	4
2	1.2	AP:Piano	2	18	3.2	BA*Atack	4	34	5.2	BR*Fanfr	4	50	7.2	ST*Chmbr	2
3	1.3	EP*Malet	4	19	3.3	BA*Seq	4	35	5.3	BR*Class	4	51	7.3	ST*Full	4
4	1.4	AP*ApStr	4	20	3.4	BA*Trad	4	36	5.4	BR*Reeds	4	52	7.4	ST*Pizza	2
5	1.5	EP:Dx6op	2	21	3.5	BA*Pick	2	37	5.5	BR*Chill	4	53	7.5	ST*CelSt	4
6	1.6	EP*Pin	4	22	3.6	BA*Syn	4	38	5.6	BR*Zeus	4	54	7.6	ST*Exel	4
7	1.7	EP*New DX	4	23	3.7	BA*Rezz	2	39	5.7	BR*Moot	4	55	7.7	ST*Synth	4
8	1.8	EP*Fosta	4	24	3.8	BA*Unisn	4	40	5.8	BR*Anlog	4	56	7.8	ST*Eroid	4
9	2.1	OR*Gospl	4	25	4.1	BA*Fingr	2	41	6.1	BR*FrHm	2	57	8.1	CH*Modrn	4
10	2.2	OR*Rock	4	26	4.2	BA*Frls	4	42	6.2	BR*Trmpt	2	58	8.2	CH*Duwop	4
11	2.3	OR*Pipe	4	27	4.3	BA*Wood	2	43	6.3	BR*Tromb	4	59	8.3	CH*Itopy	4
12	2.4	OR*Perc	4	28	4.4	PL*Foksy	4	44	6.4	WN*Sax	4	60	8.4	CH*Astiz	4
13	2.5	KY*Squez	4	29	4.5	PL*12Str	4	45	6.5	WN*Pan	2	61	8.5	PC*Marim	2
14	2.6	KY:Hrpsi	2	30	4.6	PL*Mute	4	46	6.6	WN*Oboe	2	62	8.6	PC*Vibes	2
15	2.7	KY*Celst	4	31	4.7	PL*Nylon	4	47	6.7	WN*Clart	2	63	8.7	PC*Bells	4
16	2.8	KY*Clavi	2	32	4.8	PL*Dist	4	48	6.8	WN*Flute	2	64	8.8	PC*Clang	4

INTERNAL

The INTERNAL voice memory is a RAM (Random Access Memory) area into which you can store up to 64 voices that you create or load from an external memory card. The INTERNAL voice memory is represented on the display by the letter "I".

CARD

The CARD memory bank is a Yamaha MCD64 or MCD32 Memory Card (or pre-programmed voice card) plugged into the TG33 card slot. Memory cards are convenient for external storage and transportation of voices you or others create. You can also store sets of related voices on different memory cards. An MCD32 Memory Card allows storage of up to 64 voices (in addition to 16 MULTI setups — see page 33). An MCD64 Memory Card holds two banks of 64 voices each — for a total of 128 voices per card (REFERENCE SECTION, page 95). The CARD voice banks are represented on the display by "C1" and "C2". For easier identification the indicator *above* the [CARD] key lights when CARD bank 1 is selected, and the indicator *below* the [CARD] key lights when CARD bank 2 is selected.

NOTE: Yamaha SY22 Music Synthesizer voice cards can also be used with the TG33. Since the SY22 does not have Effect Balance and Effect Send level parameters, however, these parameters are automatically set to their default values (Effect Balance = 64; Effect Level = 127) when SY22 voices are used with the TG33 (REFERENCE SECTION, page 45).

Any voice in any of these locations can be selected and played while the TG33 is in the VOICE PLAY mode.

Selecting the VOICE PLAY Mode, a Voice Memory, and Voice

1. If the VOICE PLAY mode is not already selected — as indicated by a lit [VOICE] key LED and "VOICE PLAY" across the top of the LCD — press the [VOICE] key to select it.

```
VOICE PLAY
P11 EP*Pro33
```

2. The [INTERNAL], [CARD], and [PRESET] keys are used to select the desired voice memory.

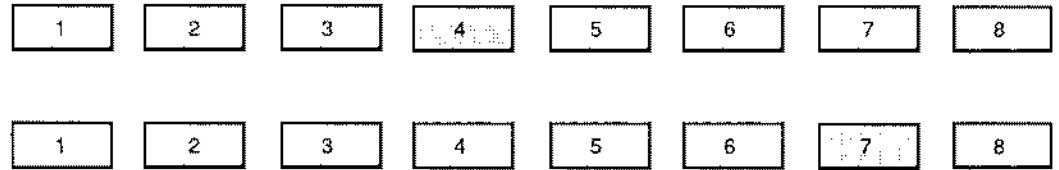
NOTE: The CARD memory cannot be selected if an appropriate memory card is not plugged into the card slot.

3. The 64 voices in each voice memory area are organized into 8 banks of 8 voices each ($8 \times 8 = 64$). Any voice can be selected by specifying its bank using the top row of BANK/MULTI CHANNEL keys, and its number using the bottom row of BANK/MULTI CHANNEL keys.

Voice numbers are displayed on the LCD in the same way. "P₁25," for example, is not preset voice number 25, but rather preset voice bank 2, number 5. The 64th voice in PRESET 1, therefore, is displayed as "P₁88" on the LCD.

To select voice bank 4 number 7, for example, press the top-row BANK/MULTI CHANNEL [4] key and the bottom-row BANK/MULTI CHANNEL [7] key — in any order.

BANK/MULTI CHANNEL



The display should look something like this:

```
VOICE PLAY  
P447 SC*CaVe
```

To select a different number within the same bank it is only necessary to press the appropriate bottom-row key. In the same way, to select the same number in a different bank all you have to do is press the appropriate upper-row key.

The [-1/NO] and [+1/YES] keys can also be used to select a voice in the VOICE PLAY mode. Holding the [-1/NO] or [+1/YES] key causes continuous scrolling in the specified direction.

4. Play the master or other MIDI controller keyboard.

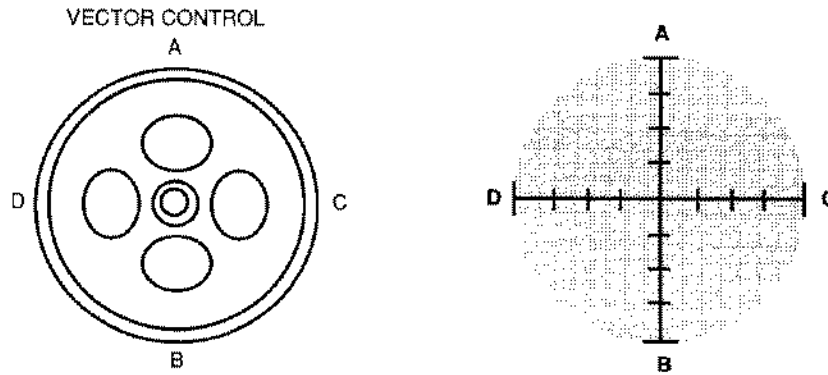
If you don't get any sound at this point:

- Make sure your sound system is turned ON and the volume is turned up to a reasonable level.
- Make sure that the TG33 VOLUME control is turned up to a reasonable level.
- Check all MIDI channel assignments.
- Check all connections carefully.

3. VECTORS

Voice Configurations

TG33 voices can have either a 2-element or 4-element configuration (REFERENCE SECTION, page 45). Each “element” is actually an independent sound or “waveform,” and vector control allows the 2 or 4 different waveforms in a voice to be blended and detuned in a variety of ways — manually or automatically.



For the sake of clarity, we'll represent the TG33 vector control by a simple graph like the one shown to the right for the rest of the tutorial.

The “A,” “B,” “C,” and “D” markings around the [VECTOR CONTROL] correspond to the voice elements. A 2-element voice uses only elements A and B, while a 4-element voice uses all four elements — A, B, C and D.

Elements A and C are *always* AWM elements, while B and D are *always* FM elements. When you start programming your own voices you can assign any of 128 preset AWM waveforms to elements A and C, and any of 256 preset FM waveforms to elements B and D (REFERENCE SECTION, page 60).

AWM & FM: AWM stands for “Advanced Wave Memory,” Yamaha’s sophisticated sampling technology that allows high-fidelity reproduction of digitally recorded “live” sound. FM is Yamaha’s proven Frequency Modulation synthesis technology which is capable of creating extraordinarily warm, vibrant simulations of actual instruments, as well as an infinite variety of original sounds.

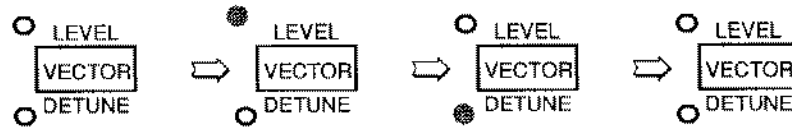
Two Types of Vectors: Manual & Dynamic

Vector control can be accomplished in two ways: manually by operating the [VECTOR CONTROL] while playing, or automatically. Automatic vectors are called “dynamic vectors” in the TG33, and these play automatically whenever you play a note on the keyboard. Dynamic vectors can be recorded in real time via the [VECTOR CONTROL] by using the procedure described in the “Recording an Original Dynamic Vector” section on page 27. Dynamic vectors function whenever the VECTOR PLAY mode is OFF — i.e. when both the VECTOR [LEVEL] and [DETUNE] indicators are out.

Manual vector control is possible whenever the VECTOR mode is ON — i.e. when either the VECTOR [LEVEL] or [DETUNE] indicator is lit.

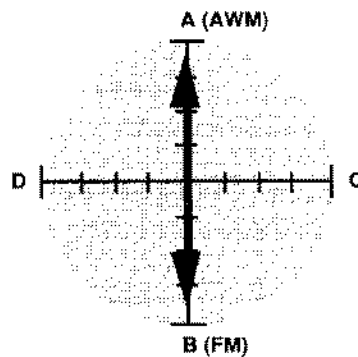
Manual Vector Control

Manual vector control while playing can be accomplished by turning the vector play mode on — press the [VECTOR] key so that either the [LEVEL] or [DETUNE] indicator lights — the [LEVEL] and [DETUNE] indicators light and then go out in sequence each time the [VECTOR] key is pressed.

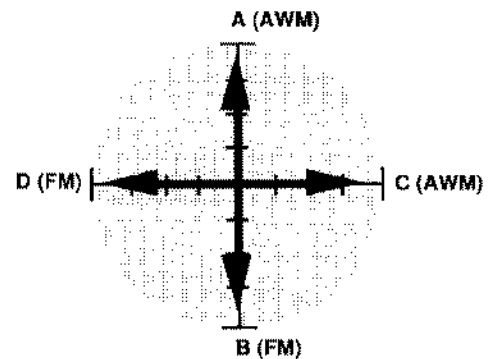


The [VECTOR CONTROL] can then be used to control the selected parameter — level or detune — along the vertical axis only if a 2-element voice is selected, or along both the vertical and horizontal axes if a 4-element voice is selected.

2-ELEMENT VOICE



4-ELEMENT VOICE

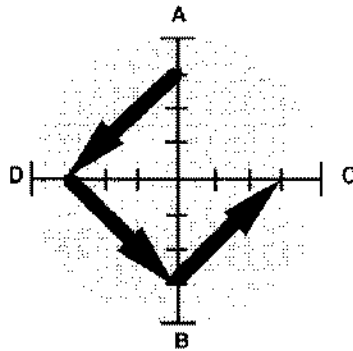


When level vector control is selected, moving the control towards one element (A, B, C or D) increases the level of that element while decreasing the level of the others proportionally. The [VECTOR CONTROL] works in a similar way when detune vector control is selected — moving the control towards one element increases the pitch of that element while decreasing the pitch of the others.

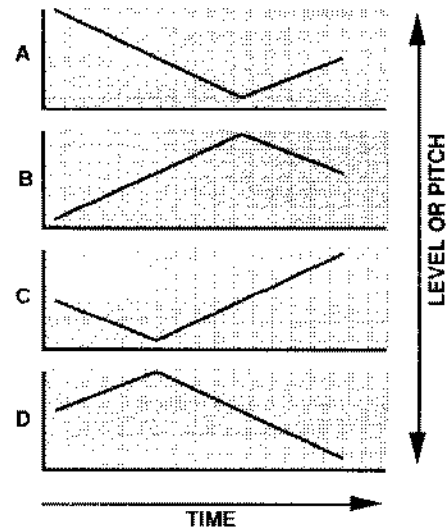
The following diagrams should give you a rough idea of how the level or pitch of each element in a 4-element voice is affected by [VECTOR CONTROL] motion.

NOTE: Manual vector control is automatically turned OFF whenever a new voice is selected.

VECTOR CONTROL MOTION



LEVEL OR PITCH CHANGE



An Exercise

The best way to discover what vector control can do for you is to listen and experiment. Here's a list of the preset voices including the configuration of each (2 or 4-element) and the names of the waveforms assigned to each element.

PRESET VOICE Performance Notes

PRESET 1

No.	Voice Name	EL*	Vector**	Wave	Effect	Comments
1	1.1 SP*Pro33	4	Yes/Yes	083 HornBody 121 Move 4 096 Pad wv 121 Move 4	Rev Hall	Warm sweeping synth voice. Best with long chords
2	1.2 SP*Echo	4	Yes/Yes	021 Steel 073 Vibes 4 044 Itopia 054 Bass 1	Rev Metal	Steel guitar with vector synth harmonics. Play arpeggios with sustained notes — vectors will bring in harmonics for each note.
3	1.3 SP*BelSt	4	Yes/Yes	038 Strings 086 Metal 2 038 Strings 130 Decay 6	Rev Hall	Bells and strings.
4	1.4 SP*Full	4	Yes/Yes	112 Pulse 3 113 Attack 1 104 Saw 3 113 Attack 1	Pan Ref	Jump if you must.
5	1.5 SP*Ice	4	Yes/Yes	043 Choir 121 Move 4 043 Choir 122 Move 5	Rev Metal	Best with long chords.
6	1.6 SP*Dandy	4	No/No	096 Pad wv 156 Saw 2 013 Fr Horn 100 Sus. 3	Rev Room	This voice is simple but heavy with a crisp attack. Great for backing.
7	1.7 SP*Arkle	4	Yes/No	042 Syn Str 069 Str 7 043 Choir 100 Sus. 3	Rev Room	Synth strings with a fast attack. Hold notes to shift to a chorus sound.
8	1.8 SP*BrVec	4	Yes/Yes	056 Harmonic 021 Brass 8 038 Strings 123 Move 6	Pan Ref	Complex vector voices sweeping from brass to strings to bells. features panning, filtering, and more!

*EL = No. of elements.

** = Vector

Yes/Yes

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LEVEL VECTOR DETUNE VECTOR

	No.	Voice Name	EL*	Vector**	Wave	Effect	Comments
9	2.1	SP*Matrx	4	Yes/Yes	039 Vn.Ens. 121 Move 4 038 Strings 12 Move 5	Rev Hall	Big orchestra with sweeping brass.
10	2.2	SP*Gut	4	Yes/Yes	020 Gut 052 Guitar 7 039 Vn.Ens. 068 Str 6	Delay 2	Classic guitar with string ensemble.
11	2.3	SP*Omni	4	No/Yes	085 Str.Body 091 Lead 1 085 Str.Body 091 Lead 1	Rev Room	A rich, moody string ensemble.
12	2.4	SP*Oiled	4	Yes/Yes	043 Choir 125 Decay 1 024 Mute Gtr 050 Guitar 5	Rev Hall	A "square wave" choir.
13	2.5	SP*Ace	4	Yes/Yes	056 Harmonic 073 Vibes 4 044 Itopia 068 Str 6	Rev Metal	A "space vector," just as the name implies.
14	2.6	SP*Quire	4	Yes/Yes	038 Strings 104 Sus. 7 044 Itopia 063 Str 1	Rev Hall	Very expressive pad sound responds well to different playing styles. "Ghosties" in background.
15	2.7	SP*Digit	4	No/Yes	023 E.Gtr 2 065 Str 3 023 E.Gtr 2 065 Str 3	Rev Room	A digital pad with a guitar-like envelope.
16	2.8	SP*Swell	4	Yes/Yes	083 HornBody 061 Bass 8 012 Flugel 121 Move 4	Delay 2	Analog synth pad with "vector filter."
17	3.1	SC:Groov	2	No/Yes	036 SynBass 1 062 Bass 9	Gate Rev	Funky synth pad.
18	3.2	SC*Airy	4	No/Yes	057 Mix 185 Wave5-2 044 Itopia 199 Wave10-1	Rev Hall	A breathy chorus-like voice with considerable "puff" on the attack.
19	3.3	SC*Solid	4	Yes/Yes	113 Pulse 4 014 Brass 1 102 Saw 1 196 Wave9-1	Rev Club	An excellent comping voice with a brassy feel.
20	3.4	SC*Sweep	4	Yes/Yes	112 Pulse 3 113 Attack 1 104 Saw 3 113 Attack 1	Pan Ref	A good example of vectors used to imitate a filter sweep.
21	3.5	SC*Drops	4	No/No	062 Noise 1 050 Guitar 5 090 Ep wv 073 Vibes 4	Rev Hall	Musical water droplets in a resonant cavern.
22	3.6	SC*Euro	4	Yes/Yes	036 SynBass 1 059 Bass 6 038 Strings 103 Sus. 6	Rev Hall	Percussive sound vectoring to string pad.
23	3.7	SC*Decay	4	No/No	042 Syn Str 238 Wave23-1 042 Syn Str 139 Decay 15	Rev Hall	Digital orchestra with a relatively quick decay. Mod wheel vibrato.
24	3.8	SC:Steel	2	No/Yes	021 Steel 001 E.Piano2	Rev Hall	An acoustic guitar type sound that is ideally suited to slow phrases and ballads.
25	4.1	SC*Rude	4	Yes/Yes	036 SynBass 1 094 Lead 4 111 Pulse 2 132 Decay 8	Rev Hall	A raspy digital sound, gradually fading to a harmonic-like tone.

*EL = No. of elements.

** = Vector

Yes/Yes
↑ ↑
LEVEL VECTOR DETUNE VECTOR

No.	Voice Name	EL*	Vector**	Wave	Effect	Comments
26	SC*Bellz	4	No/No	068 Coin 130 Decay 6 068 Coin 130 Decay 6	Rev Hall	"Rude" combination of percussive sounds. Good for metal lead. Mod wheel vibrato & major 2nd pitch bend.
27	SC*Pluck	4	No/Yes	086 AirBlown 098 Sus. 1 086 AirBlown 098 Sus. 1	Rev Room	Space-age harpsichord with a distinct pluck sound. Pluck is more audible in lower register.
28	SC*Glass	4	No/Yes	046 Vibes 188 Wave6-2 046 Vibes 188 Wave6-2	Rev Hall	Musical wine glasses.
29	SC*Wood	4	Yes/Yes	085 Str.Body 118 Move 1 042 Syn.Str 119 Move 2	Pan Ref	"Woody" string pad with percussive attack.
30	SC*Wire	4	Yes/Yes	015 SynBrass 049 Guitar 4 085 Str.Body 100 Sus. 3	Pan Ref	A percussive synth composite.
31	SC*Cave	4	No/No	044 Itopia 155 Saw 1 044 Itopia 151 Sin 8'	Rev Hall	Mysterious cave adventure. Mod wheel adds "warble."
32	SC*Wispa	4	Yes/Yes	059 Bell Mix 047 Guitar 2 070 Bottle 100 Sus. 3	Pan Ref	"Comp" bass parts with the left hand a pad with the right. The "wispa" will appear over right-hand notes.
33	SL*Sync	4	Yes/Yes	036 SynBass 1 058 Bass 5 106 Square 1 093 Lend 3	Pan Ref	Fat analog synth lead voice with aftertouch vibrato.
34	SL*VCO	4	Yes/Yes	042 Syn Str 092 Lead 2 100 Digital 4 097 Lead 7	Delay 2	Powerful synth lead voice with aftertouch vibrato.
35	SL*Chic	4	Yes/Yes	042 Syn Str 017 Brass 4 102 Saw 1 017 Brass 4	Delay 2	Brass with lots of ambience. Good lead voice. Mod wheel vibrato.
36	SL:Mini	2	Yes/Yes	108 Square 3 157 Square	Rev Club	Analog square-wave lead voice with aftertouch vibrato.
37	SL*Wisul	4	No/Yes	116 Tri 144 SFX 2 116 Tri 144 SFX 2	Rev Hall	Bright whistling simulation. Mod wheel vibrato.
38	SL*Blues	4	No/No	097 Digital 171 Digi 11 097 Digital 171 Digi 11	Rev Hall	Blues harp (harmonica).
39	SL:Cosmo	2	No/No	068 Coin 093 Lead 3	Dly&Rev 1	A relatively thick, versatile voice with aftertouch vibrato.
40	SL*Super	4	Yes/Yes	102 Saw 1 061 Bass 8 015 SynBrass 061 Bass 8	Pan Ref	Powerful fat synth pad. Use the VECTOR CONTROL for a wide range of timbres.
41	ME+Vecta	4	Yes/Yes	056 Harmonic 121 Move 4 058 Sync 123 Move 6	Rev Hall	A rich mix of four quite different waveforms. Best with long notes. Try vector control for more variety.
42	ME+NuAge	4	Yes/Yes	070 Bottle 068 Str 6 043 Choir 088 Metal 4	Rev Metal	Spacey "blown bottle" effect. Good new-age flute/lead voice.

*EL = No. of elements.

** = Vector

Yes/Yes

↑ ↑

LEVEL VECTOR DETUNE VECTOR

	No.	Voice Name	EL*	Vector**	Wave	Effect	Comments
43	6.3	PC*Hit+	4	Yes/No	064 Oh Hit 145 SFX 3 049 Timpani 158 LFOnoise	Pan Ref	Play short orchestra type hits in double octaves — hold for the "+".
44	6.4	ME*Glaze	4	Yes/Yes	005 P.Organ 071 Vibes 2 029 Wood B 2 211 Wave14-1	Rev Metal	Here's how vectors can create multiple effects — echo on quarter notes, pan and resolve on longer notes.
45	6.5	ME*Astro	4	Yes/Yes	044 Itopia 147 SFX 5 056 Harmonic 075 Marimba2	Delay 3	Play sustained notes in double octaves. A new-age pad/movie score type effect.
46	6.6	ME*Vger	4	No/No	044 Itopia 106 Sus. 9 059 Bell Mix 056 Bass 3	Rev Plate	Choir with "sizzle." Play long notes.
47	6.7	ME*Hitch	4	No/Yes	055 Hit 141 Decay 17 055 Hit 132 Decay 8	Delay 3	Play staccato for nice bell EP — hold notes for horror-style entry.
48	6.8	ME*Indus	4	Yes/Yes	125 SEQ 7 104 Sus. 7 038 Strings 122 Move 5	Rev Hall	Strings with sequence wave. Best with long chords.
49	7.1	SE*Mount	4	Yes/Yes	067 Stream 143 SFX 1 067 Stream 154 Sin 2'	Rev Metal	This one brings up the image of cool grassy fields in the mountains.
50	7.2	SE*5.PM	4	Yes/No	063 Noise 2 014 Brass 1 053 Whistle 014 Brass 1	Rev Plate	Rush hour in the city.
51	7.3	SE*FlyBy	4	Yes/Yes	000 Piano 211 Wave14-1 039 Vn. Ens 220 Wave17-1	Rev Hall	Hold down C4 and use volume control to bring in "fly in" effect. May take some practice, but can be very effective.
52	7.4	SE*Fear	4	Yes/Yes	062 Noise 1 249 Wave26-3 057 Mix 079 Bells 3	Delay 3	Good Sci-fi type effect. Play slow arpeggio, holding each note.
53	7.5	SE*Wolvs	2	No/No	052 Cuica 193 Wave8-1	Rev Hall	Here come the Baskerville hounds! Play individual notes between C3 and C4.
54	7.6	SE*Hades	4	Yes/Yes	062 Noise 1 144 SFX 2 074 Metal 077 Bells 1	Pan Ref	Hear what it sounds like to fall into a bottomless pit. Play C4 hard for maximum effect.
55	7.7	SE*Neuro	4	No/No	067 Stream 148 SFX 6 055 Hit 160 Noise 2	Rev Metal	Play long notes ... if you dare.
56	7.8	SE*Angel	4	No/Yes	044 Itopia 122 Move 5 044 Itopia 122 Move 5	Pan Ref	Best with long notes. Features LFO pitch bend.
57	8.1	SQ:MrSeq	2	No/No	072 Cracker 064 Str 2	Rev Room	A snappy short-decay voice that lends itself well to sequenced phrases.
58	8.2	SQ:It	2	No/No	109 Square 4 155 Saw 1	Rev Hall	A percussive plucked effect.
59	8.3	SQ*Id	4	No/No	031 E.Bass 2 167 Digi 7 047 Marimba 235 Wave22-1	Gate Rev	An interesting vector blend of percussive waveforms. Mod wheel vibrato.

*EL = No. of elements.

** = Vector

Yes/Yes

↑ ↑
LEVEL VECTOR DETUNE VECTOR

No.	Voice Name	EL*	Vector**	Wave	Effect	Comments
60	SQ*Wrapa	4	No/No	087 Reverse 1 143 SFX 1 088 Reverse 2 143 SFX 1	Early Ref	Rap percussion.
61	SQ*TG809	4	No/No	054 Claps 144 SFX 2 063 Noise 2 144 SFX 2	Gate Rev	Analog drum machine. Lower octaves for kicks and toms. Upper octaves for snares and hand claps.
62	SQ*Devol	4	Yes/No	127 Drum set 160 Noise 2 124 SEQ 6 160 Noise 2	Rev Hall	Rap drums.
63	DR*Kit	2	No/No	127 Drum set 000 E.Piano1	Rev Plate	A fairly orthodox drum and percussion kit.
64	DR*EFX	4	Yes/Yes	127 Drum set 255 Wave30 127 Drum set 160 Noise 2	Dly&Rev 2	90's phased drums. Play hard for full phase effect.

*EL = No. of elements.

** = Vector

Yes/Yes

↑ ↑

LEVEL VECTOR DETUNE VECTOR

PRESET 2

No.	Voice Name	EL*	Vector**	Wave	Effect	Comments
1	EP*Arlad	4	Yes/Yes	000 Piano 079 Bells 3 001 E.Piano 070 Vives 1	Rev Hall	An interesting blend of acoustic and electric piano.
2	AP:Piano	2	Yes/No	000 Piano 002 E.Piano3	Rev Room	Acoustic piano.
3	EP*Malet	4	No/No	001 E.Piano 071 Vibes 2 001 E.Piano 071 Vibes 2	Rev Hall	Electric piano with a sharp attack.
4	AP*ApStr	4	Yes/Yes	000 Piano 002 E.Piano3 039 Vn.Ens. 068 Str 6	Rev Hall	Acoustic piano plus violin section.
5	EP:DX6op	2	No/Yes	004 Celesta 001 E.Piano2	Rev Room	This is a TG33 version of the classic DX7 electric piano.
6	EP*Pin	4	No/Yes	090 Ep wv 188 Wave6-2 000 Piano 005 E.Piano6	Rev Hall	Electric piano with a brilliant attack — similar to "prepared piano."
7	EP*NewDX	4	No/Yes	001 E.Piano 001 E.Piano2 046 Vibes 072 Vibes 3	Rev Hall	A new-age electric piano with a vibes-like feel.
8	EP*Fosta	4	No/Yes	075 Metal 2 001 E.Piano2 000 Piano 005 E.Piano6	Rev Hall	A brilliant combination of acoustic and electric piano.
9	OR*Gospl	4	Yes/Yes	006 E.Organ1 007 E.Organ2 005 P.Organ 013 E.Organ8	Pan Ref	Classic rock/church organ with aftertouch rotary speaker effect.
10	OR*Rock	4	No/Yes	006 E.Organ1 006 E.Organ1 006 E.Organ1 007 E.Organ2	Rev Hall	Rock organ. Mod wheel adds rotary speaker effect.

*EL = No. of elements.

** = Vector

Yes/Yes

↑ ↑

LEVEL VECTOR DETUNE VECTOR

	No.	Voice Name	EL*	Vector* ²	Wave	Effect	Comments
11	2.3	OR*Pipe	4	No/No	005 P.Organ 011 E.Organ6 005 P.Organ 250 Wave27-1	Rev Hall	Big church organ.
12	2.4	OR*Perc	4	Yes/Yes	007 E.Organ2 006 E.Organ1 007 E.Organ2 007 E.Organ2	Rev Hall	Percussive organ. Mod wheel vibrato.
13	2.5	KY*Squeez	4	No/No	008 Reed 166 Digi 6 008 Reed 166 Digi 8	Pan Ref	"Squeeze box" type accordion.
14	2.6	KY:Hrpsi	2	No/Yes	003 Cembalo 048 Guitar 3	Rev Room	Harpsichord.
15	2.7	KY*Celst	4	No/No	004 Celesta 072 Vibes 3 004 Celesta 072 Vibes 3	Rev Plate	The light, sparkling timbre of celeste. Mod wheel vibrato.
16	2.8	KY:Clavi	2	Yes/Yes	002 Clavi 045 Clavi 4	Rev Hall	Two different waveforms vector-combined to create a fast-attack clavi.
17	3.1	BA*Slap	4	No/No	030 E. Bass 1 055 Bass 2 031 E. Bass 2 055 Bass 2	Delay 1	A dynamic fusion-style electric bass.
18	3.2	BA*Atack	4	No/No	001 E. Piano 059 Bass 6 031 E. Bass 2 059 Bass 6	Rev Hall	Somewhere between acoustic and electric bass — with a crisp attack.
19	3.3	BA*Seq	4	Yes/Yes	036 SynBass 1 059 Bass 6 036 SynBass 1 059 Bass 6	Rev Hall	Percussive synth bass.
20	3.4	BA*Trad	4	No/Yes	080 Slam 055 Bass 2 032 E. Bass 3 062 Bass 9	Gate Rev	A super bass sound with mod wheel vibrato and major 2nd pitch bend.
21	3.5	BA:Pick	2	No/No	032 E. Bass 3 055 Bass 2	Early Ref	Mod wheel vibrato.
22	3.6	BA*Syn	4	Yes/Yes	000 Piano 151 Sin 8' 039 Vn. Ens. 152 Sin 4'	Rev Hall	Rich pulse-wave type synthesizer bass.
23	3.7	BA:Rezz	2	No/No	037 SynBass 2 138 Decay 14	Delay 1	Resonant synth bass with pitch modulation on mod wheel.
24	3.8	BA*Unish	4	No/No	036 SynBass 1 059 Bass 6 036 SynBass 1 058 Bass 6	Early Ref	Unison analog synth bass.
25	4.1	BA:Fingr	2	No/No	030 E. Bass 1 055 Bass 2	Rev Plate	Fingered electric bass with mod wheel vibrato and major 2nd pitch bend.
26	4.2	BA*Frtls	4	Yes/Yes	013 Fr Horn 103 Sus. 6 035 Fretles 055 Bass 2	Rev Hall	Fretless bass with aftertouch vibrato.
27	4.3	BA:Wood	2	No/No	028 Wood B 1 055 Bass 2	Rev Room	Wood bass with aftertouch vibrato.
28	4.4	PL*Foksy	4	No/No	021 Steel 206 Wave12-2 021 Steel 206 Wave12-2	Rev Hall	Steel-string folk guitar.
29	4.5	PL*12Str	4	Yes/Yes	021 Steel 044 Clavi 3 021 Steel 196 Wave9-1	Pan Ref	Full 12-string guitar.

*EL = No. of elements.

*² = Vector

Yes/Yes

↑ ↑

LEVEL VECTOR DETUNE VECTOR

No.	Voice Name	EL*	Vector**	Wave	Effect	Comments
30	PL*Mute	4	No/No	021 Steel 049 Guitar 4 024 Mute Gtr 050 Guitar 5	Rev Hall	Light touch for muted, heavy for normal electric guitar. Aftertouch vibrato.
31	PL*Nylon	4	No/No	020 Gut 049 Guitar 4 023 E.Gtr 2 045 Clavi 4	Delay 3	Classic nylon folk guitar sound with aftertouch vibrato.
32	PL*Dist	4	Yes/No	022 E.Gtr 1 157 Square 098 Digital 2 193 Wave8-1	Dist&Rev	Heavy guitar with slow fade to feedback. Vector level control can be used for manual feedback.
33	BR*Power	4	No/Yes	102 Saw 1 091 Lead 1 102 Saw 1 091 Lead 1	Rev Hall	Powerful synth brass. Mod wheel vibrato-detune.
34	BR*Fanfr	4	No/Yes	082 Tb.Body 016 Brass 3 011 Trombone 017 Brass 4	Rev Hall	Classical brass section with aftertouch vibrato.
35	BR*Class	4	Yes/Yes	019 Sax 217 Wave16-1 009 Trumpet 217 Wave16-1	Rev Hall	Classical brass section.
36	BR*Reeds	4	Yes/Yes	086 AirBlown 041 Reed 6 019 Sax 037 Reed 2	Rev Room	Big band sax section. Play octaves or chords for best effect.
37	BR*Chill	4	Yes/Yes	019 Sax 038 Reed 3 014 BrasAtak 016 Brass 3	Early Ref	Big band brass section with mod wheel vibrato.
38	BR*Zeus	4	No/Yes	104 Saw 3 091 Lead 1 104 Saw 3 091 Lead 1	Rev Hall	Fanfare-like brass in the high register, rumbling power brass in the low range. Mod wheel vibrato.
39	BR*Moot	4	No/No	010 Mute Trp 206 Wave12-2 081 Tp.Body 242 Wave24-2	Rev Hall	Muted jazz trumpet with aftertouch and mod wheel vibrato.
40	BR*Anlog	4	No/Yes	015 SynBrass 019 Brass 6 015 SynBrass 027 Brass 14	Pan Ref	Classic analog brass sound. Also useful for lead.
41	BR:FrHrn	2	No/No	013 Fr Horn 236 Wave22-2	Rev Hall	French horn ensemble with aftertouch vibrato.
42	BR:Trmpt	2	No/No	009 Trumpet 017 Brass 4	Rev Hall	Solo trumpet with aftertouch vibrato.
43	BR*Tromb	4	Yes/Yes	011 Trombone 017 Brass 4 011 Trombone 024 Brass 11	Rev Room	Solo trombone with aftertouch vibrato.
44	WN*Sax	4	Yes/No	019 Sax 040 Reed 5 018 Oboe 196 Wave9-1	Rev Hall	Hard sax with aftertouch vibrato.
45	WN:Pan	2	No/Yes	070 Bottle 034 Wood 7	Delay 2	Pan flute.
46	WN:Oboe	2	No/Yes	018 Oboe 036 Reed 1	Rev Hall	Solo oboe with aftertouch vibrato.
47	WN:Clart	2	No/Yes	017 Clarinet 157 Square	Rev Hall	Clarinet
48	WN:Flute	2	Yes/No	016 Flute 039 Reed 4	Rev Hall	Solo flute.

*EL = No. of elements.

** = Vector

Yes/Yes

↑ ↑

LEVEL VECTOR DETUNE VECTOR

	No.	Voice Name	EL*	Vector**	Wave	Effect	Comments
49	7.1	ST*Arco	4	No/Yes	039 Vn.Ens. 068 Str 6 038 Strings 064 Str 2	Pan Ref	Arco strings with a realistic "edge."
50	7.2	ST*Chmbr	2	Yes/Yes	039 Vn.Ens. 063 Str 1	Rev Room	"Arco" type string sound. Best played with quick attack.
51	7.3	ST*Full	4	No/Yes	038 Strings 155 Saw 1 038 Strings 155 Saw 1	Rev Hall	Very useful full string sound can be used as pad or moving strings.
52	7.4	ST*Pizza	2	No/Yes	041 Pizz. 052 Gultar 7	Rev Hall	Pizzicato strings. Best played around C2 or higher with very short notes.
53	7.5	ST*CelSt	4	No/No	040 Cello 067 Str 5 085 Str.Body 091 Lead 1	Pan Ref	Cello section or solo cello.
54	7.6	ST*Exel	4	Yes/Yes	038 Strings 155 Saw 1 039 Vn.Ens. 156 Saw 2	Rev Hall	"Sophisticated" classical strings.
55	7.7	ST*Synth	4	No/Yes	042 SynStr 063 Str 1 042 SynStr 063 Str 1	Rev Hall	Classic synth strings.
56	7.8	ST*Eroid	4	Yes/Yes	038 Strings 104 Sus. 7 044 Itopia 104 Sus. 7	Rev Hall	Airy chorus plus strings. A great mood-setter.
57	8.1	CH*Modrn	4	Yes/Yes	043 Choir 122 Move 5 044 Itopia 247 Wave26-1	Rev Plate	'90s pop/synth choir sound.
58	8.2	CH*Duwop	4	No/Yes	043 Choir 036 Reed 1 043 Choir 036 Reed 1	Rev Club	"doo-wop" chorus.
59	8.3	CH*Itopy	4	Yes/Yes	044 Itopia 103 Sus. 6 044 Itopia 233 Wave21-2	Rev Hall	Breathy choir with aftertouch volume control.
60	8.4	CH*Astiz	4	No/Yes	044 Itopia 132 Decay 8 044 Itopia 132 Decay 8	Pan Ref	Clock chime choir.
61	8.5	PC:Marim	2	No/No	079 Bamboo 150 Sin 16'	Rev Hall	A fairly orthodox marimba sound.
62	8.6	PC:Vibes	2	Yes/Yes	046 Vibes 082 Bells 6	Rev Plate	Classic vibes.
63	8.7	PC+Bells	4	No/No	118 Sin 8'+4' 077 Bells 1 118 Sin 8'+4' 077 Bells 1	Rev Hall	Tubular bells in the lower range, almost celeste-like on the high-notes.
64	8.8	PC*Clang	4	No/No	048 Bells 078 Bells 2 068 Coin 071 Vibes 2	Pan Ref	Quickly hit notes for bell → echoes sound. Hold notes for clock tower strikes.

*EL = No. of elements.

** = Vector

Yes/Yes
 ↑ ↑
 LEVEL VECTOR DETUNE VECTOR

Voice number P₁₈₇ provides a complete drum kit plus a range of valuable percussion sounds. The voice is set up so that each note produces a different drum sound, as shown in the list below. The DR:Kit voice can be used on its own, or as a source of drums and percussion in a multi-play setup (TUTORIALS section, page 33; REFERENCE section, page 77).

Voice Number P₁₈₇ DR:Kit: Drum-set Voice

Key	Wave Name
C1	BD 1
C#1	Triangle closed
D1	SD 1
D#1	Triangle open
E1	E.Tom 1
F1	E.Tom 2
F#1	E.Tom 3
G1	E.Tom 4
G#1	BD 2
A1	BD 3
A#1	Cross Sticks
B1	Tom 1
C2	Tom 2
C#2	SD 2
D2	Tom 3
D#2	Rim
E2	SD 3
F2	Tom 4
F#2	Claps
G2	Cowbell 1
G#2	Shaker
A2	HH closed
A#2	Crash 1
B2	HH open

Key	Wave Name
C3	Crash 2
C#3	Splash
D3	Cup
D#3	Ride
E3	Low Conga
F3	High Conga
F#3	Mute Conga
G3	DigiAttack
G#3	Ooof
A3	Low Timbales
A#3	High Timbales
B3	Tambourine
C4	Finger snaps
C#4	Claves
D4	Low Agogo
D#4	High Agogo
E4	Low Cuica
F4	High Cuica
F#4	Low Whistle
G4	High Whistle
G#4	Bamboo
A4	Bottle
A#4	Cowbell 2
B4	Crash

Key	Wave Name
C5	SD 4
C#5	Low Scratch
D5	SD 5
D#5	High Scratch
E5	Reverse Cymbal
F5	Slam 1
F#5	Coin
G5	Slam 2
G#5	Water Drop
A5	Low Timpani
A#5	Cracker
B5	High Timpani
C6	Metal Hit

Select the ME*Vecta voice, turn the VECTOR mode ON, select level control, and use the [VECTOR CONTROL] to listen carefully to the sound of the various elements and how they interact when the [VECTOR CONTROL] is moved. Repeat this process with a number of different voices and you'll quickly begin to hear how powerful and versatile vector synthesis can be.

Recording an Original Dynamic Vector

Before you begin recording your own dynamic vector, select the "ME*Vecta" voice (P₁₆₁), make sure the manual VECTOR mode is turned OFF (neither the [LEVEL] or [DETUNE] indicators should be lit), and play a nice long note or chord. Notice how the various elements are gradually brought in and blended automatically — this is the result of a dynamic vector. Now press the [VECTOR] key to select LEVEL control. Now set the [VECTOR CONTROL] to center position and play another note or chord. You should hear all 4 elements at the same time, in approximately equal proportions. Play with the [VECTOR CONTROL] a bit to get a feel for this particular combination of elements.

Now we'll go ahead and record an original dynamic level vector for the "ME*Vecta" voice ...

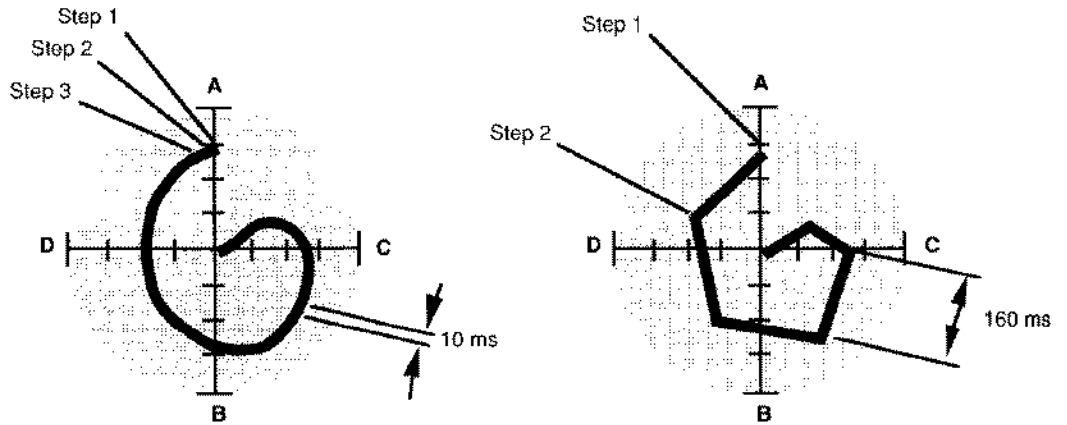
1. The first step is to enter the VOICE VECTOR edit mode, which we do by pressing the [EDIT] key and then the [VOICE VECTOR] key while in the VOICE PLAY mode (REFERENCE SECTION, page 52).



2. If the LEVEL SPEED function does not appear immediately when you enter the VOICE VECTOR edit mode, press the [VOICE VECTOR] key a few times until it does appear, or use the PAGE [<] and [>] keys to locate it (REFERENCE SECTION, page 53).

```
UU LEVEL SPEED
Vector Rate 10ms
```

Vectors are recorded by “sampling” the position of the [VECTOR CONTROL] at evenly-spaced steps. This function allows you to set the time between each sample step — i.e. the “Vector rate”. Quite logically, short vector rates are best for quick control movements while longer vector rates are better for slow control movements. If you set the vector rate to too long a value for a rapid control movement, you may end up with a “jerky” sounding vector. The diagrams below show the same control movement recorded at 10-millisecond and 160-millisecond vector rates.



Use the [DATA ENTRY] control or [-1/NO] and [+1/YES] keys to set the vector rate parameter to “30ms.” This is a fairly “average” vector rate, and is a good place to start experimenting with dynamic vectors.

```
UU LEVEL SPEED
Vector Rate 30ms
```

3. Press the [VOICE VECTOR] key or PAGE [>] key once to move ahead to the LEVEL REC display (REFERENCE SECTION, page 53).

```
UU LEVEL REC
STBY REC PLAY
```

Use the CURSOR [◀] and [▶] keys to move the cursor to the STBY (standby) parameter. At this point the [VECTOR CONTROL] will be active in the level control mode, and you can rehearse the level vector you are about to record.

4. Move the cursor to the REC parameter. Vector recording will begin the instant you play a note. A rectangular block will flash at the cursor position while recording. Recording will end automatically when the maximum of 50 sampling steps has been reached — how long this takes depends both on the vector rate setting and how fast you move the [VECTOR CONTROL]. When recording finishes, the cursor will move automatically to the PLAY parameter position. At the same time the VECTOR mode will automatically be turned OFF so that the dynamic vector just recorded is active. Now you can play on the master keyboard to hear how your dynamic level vector turned out. If you don't like the results, simply move the cursor back to REC and record again.

Detune Vectors: Although you've just recorded a dynamic level vector, dynamic detune vectors can be recorded in exactly the same way using the DETUNE SPEED and DETUNE REC functions which are also accessible in the VOICE VECTOR edit mode (REFERENCE SECTION, page 55).

5. When you're satisfied with your first vector masterpiece, you can return to the VOICE PLAY mode by pressing the [VOICE] key and then store the voice you have just edited into one of the TG33's INTERNAL memory locations.

Storing Edited Voice Data to the INTERNAL Memory

When you return to the VOICE PLAY mode after editing a voice in the VOICE EDIT mode, you'll see a reverse letter "E" (white on a black background) following the voice number on the display.

```
VOICE PLAY
  484E 50*UraPa
```

This indicates that the voice has been edited. If you want to keep the edited voice, it must be stored either to an internal or card memory location *before* you select another voice, or all your editing work will be lost.

To store your creation to an internal memory location:

1. Press the [STORE/COPY] key from the VOICE PLAY mode.

```
STORE VOICE
  484 → 184 →
```

The number of the voice you edited will be shown to the left of the lower display line, and the cursor will be placed under the equivalent INTERNAL voice number to the right of the arrow. The arrow to the far right of the screen indicates that other parameters can be accessed by pressing the CURSOR [▶] key.

2. Select the memory location to which you want to store the new voice using the standard voice selection procedure, the [DATA ENTRY] control, or the [-1/NO] and [+1/YES] keys. For the sake of example, if you choose to store your voice in INTERNAL memory bank 1 number 1, then the display will look something like this:

```
STORE VOICE
P:04 → I11 →
```

NOTE: It is also possible select CARD bank 1 or 2 for voice storage by pressing the [CARD] key, if a properly formatted memory card has been inserted into the TG33 card slot (REFERENCE section, page 96).

3. When the target memory location has been selected, press the CURSOR [>] key. "Are you sure?" will appear on the display.

```
STORE VOICE
+ Are you sure?
```

4. Confirm your intention to store the new voice by pressing the [+1/YES] key, and the store operation will begin. ">>Completed!!<<" will appear on the display briefly when the store operation is finished, and the TG33 will return to the VOICE PLAY mode.

```
STORE VOICE
>>Completed!!<<
```

NOTE: You can exit the STORE mode and return to the VOICE PLAY mode at any time simply by pressing the [VOICE] key.

Conclusion

You now have an edited version of "ME*Vecta" featuring your own original dynamic level vector. You could use the VOICE COMMON edit mode NAME function (REFERENCE SECTION, page 48) to give the voice a new name — "Vecta2" for example. Using the same procedure you could create an infinite range of variations on the preset voices.

The method of dynamic vector recording just described is quick and easy — all you have to do is operate the [VECTOR CONTROL] and use your ears. This quick-and-easy method is recommended for most applications. If you want really fine control, however, the TG33 offers a number of level and detune vector editing functions that allow the position and length of each vector step to be precisely programmed as required. See pages 51 through 56 of the REFERENCE SECTION for details.

4. INSTANT VOICE PROGRAMMING

Although the TG33 allows you to program voices in considerable detail, in this section we'll present a simple way to create an unlimited range of new and useful voices.

Detailed parameters for programming individual elements are available in the ELEMENT TONE and ELEMENT ENVELOPE edit modes described in the REFERENCE SECTION, beginning on pages 57 and 67, respectively. Everything we need to have loads of fun — and to create some very serious voices — is available in the VOICE COMMON edit mode.

1. Select any preset voice while in the VOICE PLAY mode to serve as a “platform” for your new voice. “ME*Vecta” (P161) is a good choice to start with.
2. Enter the VOICE COMMON edit mode by pressing the [EDIT] key and then the [VOICE COMMON] key while in the VOICE PLAY mode (REFERENCE SECTION, page 44).



The [VOICE] and [EDIT] keys do not need to be pressed if both their LEDs are ON.

The VOICE COMMON edit mode provides access to the following functions, of which we're going to use just one!

CONFIGURATION

EFFECT (Type, Balance & Send Level)

PITCH BEND

WHEEL (Amplitude & Pitch Modulation)

AFTER TOUCH (Amplitude & Pitch Modulation, Pitch & Level Control)

ENVELOPE (Attack & Release Rates)

RANDOM (Element, Level Vectors & Detune Vectors)

NAME

VOICE INITIALIZE

VOICE RECALL

3. Press the [VOICE COMMON] key a few times or use the PAGE [◀] and [▶] keys to locate the “VC RANDOM” function (REFERENCE SECTION, page 48).

```
VC RANDOM
ELEMENT  V/N?
```

4. If it is not already selected, select “ELEMENT” using the [-1/NO] and/or [+1/YES] keys (the other RANDOM options are LEVEL VEC and DETUNE VEC).

5. Press the CURSOR [▷] key once so that the cursor appears as a flashing block to the right of the "Y/N?" parameter.

```
UC RANDOM
ELEMENT Y/N■
```

6. Now, each time you press the [+1/YES] key the TG33 will randomly assign different waveforms to the four elements in what used to be the ME*Vecta voice. An asterisk (*) will appear in place of the flashing block cursor briefly while the waveforms are being assigned.

Try it a few times: press [+1/YES] then play a few notes via your master keyboard to hear a totally new voice. Since the element combinations are generated randomly, some are not particularly useful ... but others will surprise you. Every few tries you'll probably come up with a combination which, if not ready to use without further modification, can be turned into a very fine voice with a little "brushing up" in the various TG33 editing modes.

Please note that the RANDOM ELEMENT function *only* replaces the element waveforms in the voice you started with, so, unless you go into further programming, the voice you choose as your platform will determine how controllers like the pitch and modulation wheels function (REFERENCE SECTION, page 46), the shape of the amplitude envelopes used for each element (REFERENCE SECTION, page 69), the type of effect (reverb, delay, etc.) applied to the voice (REFERENCE SECTION, page 45), and more.

7. While trying out the new voices you create, you can turn the VECTOR PLAY mode ON and experiment manually with different vectors. You can also enter the VOICE VECTOR mode by pressing the [VOICE VECTOR] key and record a dynamic vector as described in the previous section.
8. If you come up with something you want to keep, use the same voice store procedure as described on page 29 after returning to the the VOICE PLAY mode.

Conclusion

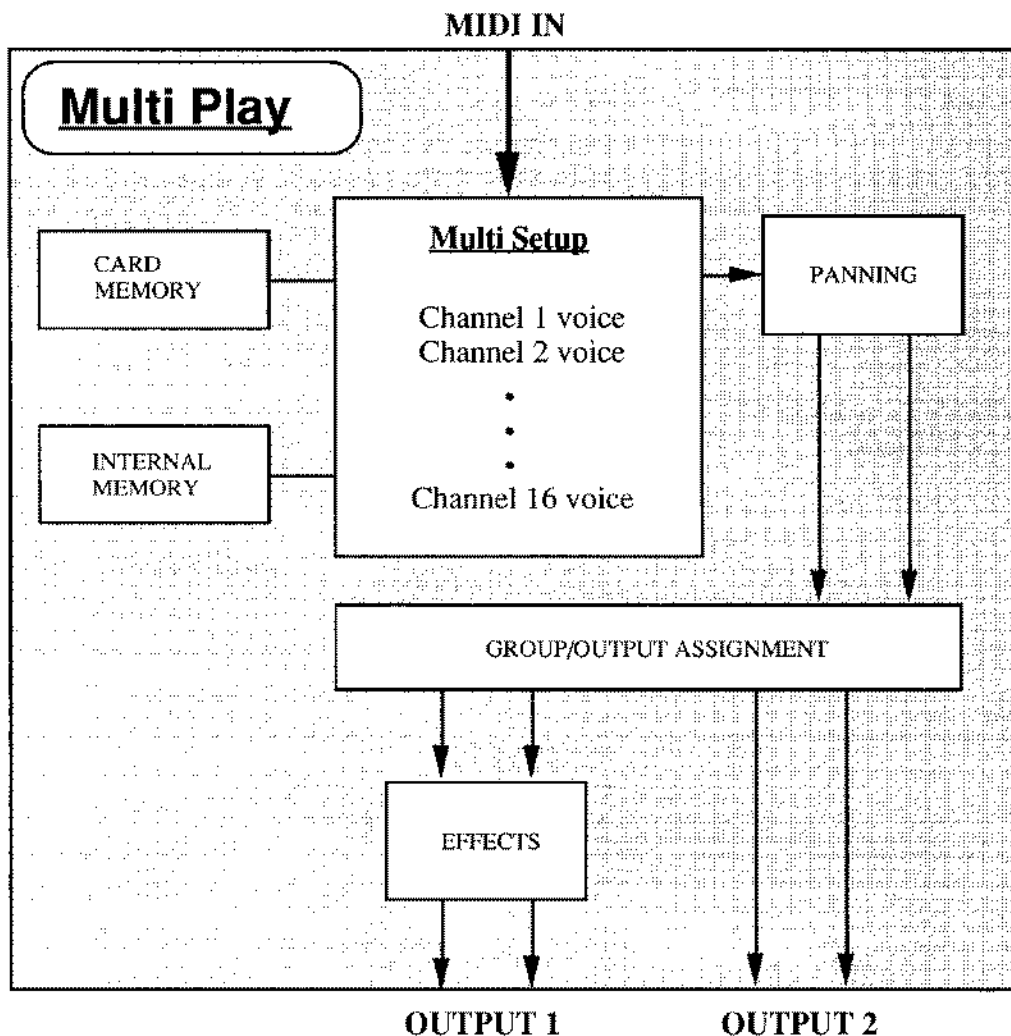
You're now equipped to create a world of vibrant and very useful new voices with very little actual programming indeed. If you do want to get deep into the details and fine tune your voices until they are perfect, please take the time to read through the REFERENCE SECTION of this manual. In it, each editing function is described individually, often with a few helpful hints that will help you use it most effectively.

5. THE MULTI PLAY & EDIT MODES

If you've been going through the tutorials section in sequence as we recommended, you've only used the VOICE PLAY and VOICE EDIT modes thus far. If, however, your intention is to use the TG33 with a sequencer to play a number of different voices simultaneously, the modes you'll use most frequently are the MULTI PLAY and MULTI EDIT modes.

The TG33 provides 16 INTERNAL memory locations for complete "MULTI PLAY" setups. This allows you to create up to 16 original "orchestras" with different combinations of voices that can be recalled whenever needed. MULTI PLAY setups can also be stored on external memory cards in the same way as ordinary voices.

Here's an overview of the TG33 MULTI PLAY mode:



Note that TG33 MULTI PLAY setups can come from two different sources: the INTERNAL memory, or CARD memory (CARD bank 1 or 2):

INTERNAL

The INTERNAL MULTI memory is a RAM (Random Access Memory) area into which you can store up to 16 MULTI PLAY setups that you create or load from an external memory card. The INTERNAL MULTI memory is represented on the display by the letter "I".

INTERNAL memory locations I11 through I18 are initially programmed with a range of multi-play setups designed for different types of music. Locations I21 through I28 contain "initial" data.

I11	Popular
I12	Modern
I13	Funky
I14	Ballad
I15	Jazz
I16	Big Band
I17	Symphony
I18	WindEns.
I21 ... I28	Initial

CARD

The CARD memory bank is a Yamaha MCD64 or MCD32 Memory Card plugged into the TG33 card slot. An MCD32 Memory Card allows storage of up to 16 MULTI PLAY setups in addition to 64 voices. An MCD64 Memory Card holds two banks of 16 MULTI PLAY setups each — in addition to 64 voices in each bank (REFERENCE SECTION, page 96). The CARD voice banks are represented on the display by "C1" and "C2". For easier identification the indicator *above* the [CARD] key lights when CARD bank 1 is selected, and the indicator *below* the [CARD] key lights when CARD bank 2 is selected.

What's In a MULTI PLAY Setup?

A single MULTI PLAY setup can consist of up to 16 different voices assigned to different MIDI channels. These voices can then be controlled independently from a sequencer, music computer, or other controller transmitting on the appropriate channels.

Each voice also has several settings that can be individually adjusted in the MULTI EDIT mode:

- Voice number
- Volume
- Detune
- Note shift
- Pan
- Send group select

There are also several settings that affect the entire setup:

- Assign mode select
- Output select
- Effect type, balance, and send level for each group
- Name

MULTI PLAY Polyphony & Dynamic Voice Allocation

Since the TG33 can produce a maximum of 32 notes at the same time (32-note polyphony), the number of simultaneous notes that each voice in a MULTI PLAY setup can produce depends on the number of voices being played at the time. If all 16 voices are played at once, each can produce a maximum of two notes. On the other hand, if only one voice is being played the TG33's "Dynamic Voice Allocation" feature allows 32 notes to be played simultaneously by that one voice even if 16 voices are assigned.*

The only thing you have to be concerned about in programming sequences to drive the TG33, is that the maximum polyphony of 32 notes is never exceeded.

* 4-element voices reduce the total number of notes available.

Selecting a MULTI PLAY Setup

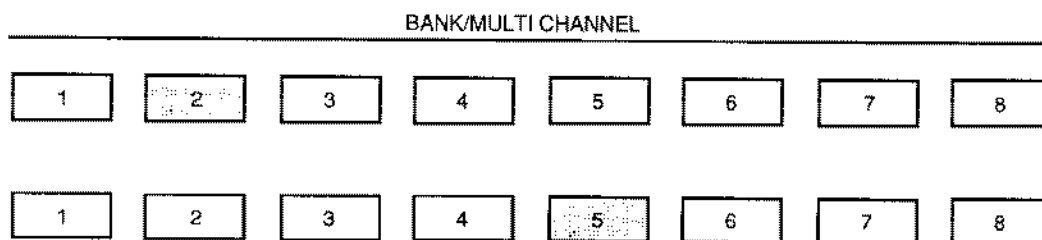
MULTI PLAY setups are selected in essentially the same way as voices.

1. If the MULTI PLAY mode is not already selected — as indicated by a lit [MULTI] key LED and "MULTI PLAY" across the top of the LCD — press the [MULTI] key to select it.

```
MULTI PLAY
I11 Popular
```

2. The [INTERNAL] and [CARD] keys are used to select the desired MULTI memory. The CARD memory cannot be selected if an appropriate memory card is not plugged into the card slot.
3. The 16 MULTI PLAY setups in each memory area are organized into 2 banks of 8 setups each ($2 \times 8 = 16$). Any MULTI PLAY setup can be selected by specifying its bank using the top-row BANK/MULTI CHANNEL keys [1] or [2], and its number using the bottom-row BANK/MULTI CHANNEL keys [1] through [8].

To select MULTI PLAY bank 2 number 5, for example, press the top-row BANK/MULTI CHANNEL [2] key and the bottom-row BANK/MULTI CHANNEL [5] key — in any order.



The display should look something like this:

```
MULTI PLAY
I25 Initial
```

To select a different number within the same bank it is only necessary to press the appropriate bottom-row key. In the same way, to select the same number in a different bank all you have to do is press the appropriate upper-row key.

The [-1/NO] and [+1/YES] keys can also be used to select a MULTI PLAY setup in the MULTI PLAY mode. Holding the [-1/NO] or [+1/YES] key causes continuous scrolling in the specified direction.

Creating a Simple 4-voice MULTI PLAY Setup

To familiarize you with the process of creating MULTI PLAY setups, here's how you would program a simple four-voice setup that we'll call, reasonably enough, "Quartet."

The Quartet setup will basically be something like this:

MIDI Channel	Required Voice Type	TG33 Voice
1	Piano	P ₂ 12 AP:Piano
2	Sax	P ₂ 64 WN*Sax
3	Bass	P ₂ 43 BA:Wood
4	Drums	P ₁ 87 DR:Kit*

* See page 27 of the TUTORIALS section for the DR:Kit note assignments.

1. After selecting the MULTI PLAY setup you want to program, as described in the preceding section, press the [EDIT] key to enter the MULTI EDIT mode.



The [MULTI] key does not need to be pressed if its LED is ON.

2. We'll begin by "initializing" the selected MULTI PLAY setup to ensure that all parameters are set to their default parameters. You don't always have to do this — but it's handy to know how.

Press the PAGE [▷] key as many times as necessary until the "INIT MULTT" function appears (you can also hold the PAGE [▷] for continuous scrolling). "Are you sure?" should be showing on the bottom line of the display.

```

MU INIT MULTT
Are you sure?
  
```

Press the [+1/YES] key and wait for the ">>Completed!!<<" display to disappear. The MULTI PLAY setup parameters have now been initialized to their default values (see "MULTI INITIALIZE" on page 81 of the REFERENCE section for a full list of the initialized parameters).

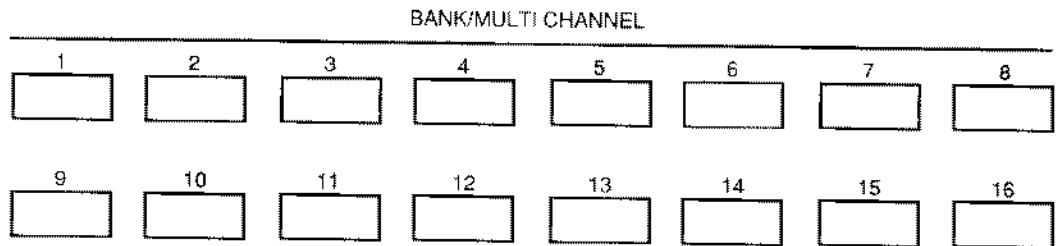
- Use the PAGE [◀] key to scroll back to the first function in the MULTI EDIT mode function list — VOICE NO (hold the PAGE [◀] key for continuous scrolling).

```

MU VOICE NO CH 1
P11 SP*Pro33
  
```

This function allows you to assign different voices to as many as 16 different MIDI channels. The channel number in the upper right-hand corner of the display (CH 1) is the currently selected MIDI channel number.

- The small white numbers above the BANK/MULTI CHANNEL keys correspond to the 16 available MIDI channels. Pressing any of these while in the MULTI EDIT mode selects the corresponding channel for programming.



If a channel number other than “CH 1” is showing in the upper right-hand corner of the display, press the BANK/MULTI CHANNEL [1] key to select channel 1.

- At this point the underline cursor should be located below the memory area indicator, so you can use the [DATA ENTRY] control or [-1/NO] and [+1/YES] keys to select any of the available memory areas — I, P₁, P₂, C₁, or C₂ (the latter two only if an appropriate memory card is present in the card slot). Since the voice we want to assign to channel 1 is “P₂12 AP:Piano,” make sure that “P₂” is selected.

Next move the cursor one step to the right (below the voice bank) by pressing the CURSOR [▶] key once, and use the [DATA ENTRY] control or [-1/NO] and [+1/YES] keys to make sure that bank 1 is selected.

Move the cursor one more step to the right (to below the voice number), and use the [DATA ENTRY] control or [-1/NO] and [+1/YES] keys to select number 2. The “AP:Piano” voice name should appear to the right of the voice number.

```

MU VOICE NO CH 1
P212 AP:Piano
  
```

- You can now press the BANK/MULTI CHANNEL [2] key to select MIDI channel 2, and select the “P₂64 WN*Sax” voice as described in the previous step.

```

MU VOICE NO CH 2
P264 WN*Sax
  
```

7. Go ahead and select the next two channels — 3 and 4 — and assign the required voices to each:

```
MU VOICE NO CH 3
P43 BA:Wood
```

```
MU VOICE NO CH 4
P48Z DR:Kit
```

That completes the basic voice assignments for "Quartet." For a bit more experience, let's go on and set the PAN positions for each voice, and give our MULTI PLAY setup its rightful name.

8. Press the PAGE [D] key four times to reach the PAN function, bypassing the VOLUME, DETUNE, and NOTE SHIFT functions on the way.

```
MU PAN CH 1
L--I--R
```

You can now select each of the four channels we've used by pressing the corresponding BANK/MULTI CHANNEL keys, and set an appropriate PAN position for each by using either the [DATA ENTRY] control or the [-/NO] and [+I/YES] keys. PAN can be set to five different positions from left (L) to right (R), indicated by the position marker in the pan display on the bottom line of the LCD. If you move the marker "past" the rightmost position, the word "voice" will appear, indicating that the PAN position specified in the VOICE ELEMENT TONE EDIT mode will be retained.

Our suggestions for the "Quartet" setup"

Channel 1 (AP:Piano)

```
MU PAN CH 1
LI----R
```

Channel 2 (WN*Sax)

```
MU PAN CH 2
L----IR
```

Channel 3 (BA:Wood)

```
MU PAN CH 3
L-I----R
```

Channel 4 (DR:Kit)

```
MU PAN CH 4
L---I-R
```

- Finally, skip ahead to the NAME function (press the PAGE [▷] key six times) and enter the name "Quartet." This is done simply by using the CURSOR [◀] and [▷] keys to move the underline cursor to the appropriate character position, and then using the [DATA ENTRY] control or [-1/NO] and [+1/YES] keys to select the desired character.

```

MU NAME
  I11 Quartet
  
```

Here's a list of the available characters:

```

(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 { | } ~ +
  
```

- When you're satisfied with your MULTI PLAY setup, you can return to the MULTI PLAY mode by pressing the [MULTI] key and then store the setup you have just edited into one of the TG33's INTERNAL MULTI memory locations.

NOTE: The [VECTOR CONTROL] can be used to control any voice in a MULTI PLAY setup — set the UTILITY mode VECTOR CHANNEL parameter to the channel number of the voice you wish to control (REFERENCE SECTION, page 89). Also note that manual vector control is automatically turned OFF whenever a new MULTI PLAY setup is selected.

Storing Edited MULTI PLAY Setup Data to the INTERNAL Memory

When you return to the MULTI PLAY mode after editing in the MULTI EDIT mode, you'll see a reverse letter "E" (white on a black background) following the MULTI PLAY number on the display.

```

MULTI PLAY
  I11E Quartet
  
```

This indicates that the setup has been edited. If you want to keep the edited setup, it must be stored either to an internal or card memory location *before* you select another setup, or all your editing work will be lost.

To store your creation to an internal memory location:

- Press the [STORE/COPY] key from the MULTI PLAY mode.

```

STORE MULTI
  I11 ÷ I11      ÷
  
```

The number of the voice you edited will be shown to the left of the lower display line, and the cursor will be placed under the equivalent INTERNAL voice number to the right of the arrow. The arrow to the far right of the screen indicates that other parameters can be accessed by pressing the CURSOR [▷] key.

2. Select the memory location to which you want to store the new MULTI PLAY setup using the BANK/MULTI CHANNEL keys, the [DATA ENTRY] control, or the [-1/NO] and [+1/YES] keys.

NOTE: It is also possible to select CARD bank 1 or 2 for MULTI PLAY setup storage by pressing the [CARD] key, if a properly formatted memory card has been inserted into the TG33 card slot (REFERENCE section, page 96).

3. When the target memory location has been selected, press the CURSOR [▷] key. "Are you sure?" will appear on the display.

```
STORE MULTI
← Are you sure?
```

4. Confirm your intention to store the new setup by pressing the [+1/YES] key, and the store operation will begin. ">>Completed!!<<" will appear on the display briefly when the store operation is finished, and the TG33 will return to the MULTI PLAY mode.

```
STORE MULTI
>>Completed!!<<
```

NOTE: You can exit the STORE mode and return to the MULTI PLAY mode at any time simply by pressing the [MULTI] key.

Conclusion

Now that you've created and stored your first, albeit simple, MULTI PLAY setup, you should be able to create more complex setups customized to suit your own musical needs by referring to the MULTI EDIT mode function descriptions between pages 75 and 82 of the REFERENCE section. Pay particular attention to the SEND GROUP SELECT, OUTPUT SELECT and ASSIGN MODE functions, as these allow you to divide the MULTI PLAY setup voices into two groups which can independently be assigned to the TG33's two pairs of stereo outputs — OUTPUT 1 and OUTPUT 2.

REFERENCE SECTION

VOICE COMMON

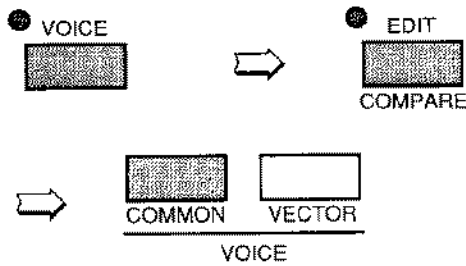
VOICE COMMON

The VOICE COMMON mode provides access to a range of parameters that affect the selected voice as a whole. Detailed programming of individual elements is provided by the ELEMENT TONE and ELEMENT ENVELOPE edit modes.

CONFIGURATION	45
EFFECT (Type, Balance & Send Level)	45
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WHEEL (Amplitude & Pitch Modulation)	46
AFTER TOUCH (Amplitude & Pitch Modulation, Pitch & Level Control)	46
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RANDOM (Element, Level Vectors & Detune Vectors)	48
NAME	48
VOICE INITIALIZE	49
VOICE RECALL	50

VOICE COMMON

Selecting the VOICE COMMON Edit Mode



From another VOICE EDIT mode simply press [VOICE COMMON].

Selecting the VOICE COMMON Edit Mode Functions

The various VOICE COMMON edit mode functions can be selected in sequence by pressing the [VOICE COMMON] key, or by using the PAGE [◀] and [▶] keys.

The COMPARE Function

While in any VOICE EDIT mode, you can compare the sound of the edited voice with the sound of the voice before it was edited by pressing the [EDIT/COMPARE] key to activate the COMPARE function. The [EDIT/COMPARE] key indicator will flash while the COMPARE function is active, and the sound of the voice prior to editing will be heard when you play the master keyboard or controller. Press the [EDIT/COMPARE] key again to return to the edit mode.

CONFIGURATION

VC CONFIGURATION A-B-C-D

Summary: Selects the two-element (A-B) or four-element (A-B-C-D) voice configuration.

Settings: A-B, A-B-C-D

Procedure: Use the [DATA ENTRY] control or [-1/NO] and [+1/YES] keys to select the desired configuration.

Details: In the 2-element "A-B" configuration, element A is AWM and element B is FM. In the 4-element "A-B-C-D" configuration elements A and B are the same as in the "A-B" configuration, while element C is AWM and element D is FM.

A-B: A = AWM, B = FM.

A-B-C-D: A = AWM, B = FM, C = AWM, D = FM.

Refer to: page 60.

EFFECT (Type, Balance & Send Level)

VC VOICE EFFECT Type=Rev Hall →

Summary: Selects one of sixteen digital effects, and sets the balance and send level of the selected effect for the current voice.

Settings: Effect type:

Rev Hall	(Reverb Hall)
Rev Room	(Reverb Room)
Rev Plate	(Reverb Plate)
Rev Club	(Reverb Club)
Rev Metal	(Reverb Metal)
Delay 1	(Short Single Delay)
Delay 2	(Long Delay)
Delay 3	(Long Delay)
Doubler	(Doubler)
Ping-Pong	(Ping Pong Delay)
Par Ref	(Panned Reflections)
Early Ref	(Early Reflections)
Gate Rev	(Gated Reverb)
Dly&Rev 1	(Delay & Reverb 1)
Dly&Rev 2	(Delay & Reverb 2)
Dist&Rev	(Distortion & Reverb)

Balance (Bal): 0 ... 127

Send Level (Snd): 0 ... 127

Procedure: Use the CURSOR [◀] and [▶] keys to place the underline cursor under the effect type, balance, or send level parameter. Use the [DATA ENTRY] control or [-1/NO] and [+1/YES] keys to select the desired effect, balance, or send level.

Details: The balance parameter determines the balance between the "dry" sound of the voice and the effect sound. A setting of "0" produces only the voice with no effect, while the maximum setting of "127" produces only the effect sound. The send level parameter determines the level of the signal sent to the effect processor. A setting of "0" means that the voice signal is not sent to the effect processor, while the maximum setting of "127" sends full effect level to the effect processor.

No sound will be produced if the send parameter is set to "0" and the balance parameter is set to "127".

Refer to: page 62, 78, 79.

NOTE: Some voice waveforms may exhibit a drop in level when distortion is applied. This is due to internal data overflow, and can be compensated for by reducing the effect send level or effect balance setting.

PITCH BEND

```
UC PITCH BEND
Range= 2
```

Summary: Sets the available pitch bend range.

Settings: 0 ... 12 max.*

Procedure: Use the [DATA ENTRY] control or [-1/NO] and [+1/YES] keys to select the desired pitch bend range.

Details: Each increment from "0" to "12" represents a semitone. A setting of "0" produces no pitch bend. A setting of "12" allows a maximum pitch bend of plus or minus one octave, while a setting of "4" allows a maximum pitch bend of plus or minus a major third.

* This range may be more limited in some cases. An exclamation mark (!) will appear after the range value when the limit is reached.

WHEEL (Amplitude & Pitch Modulation)

```
UC WHEEL
AM=on PM=on
```

Summary: Assigns modulation wheel control to amplitude and/or pitch modulation.

Settings: AM (Amplitude Modulation): off, on
PM (Pitch Modulation): off, on

Procedure: Use the CURSOR [◀] and [▶] cursor keys to place the underline cursor under the AM or PM parameter. Use the [DATA ENTRY] control or [-1/NO] and [+1/YES] keys to turn the selected parameter on or off.

Details: Amplitude modulation produces a *tremolo* effect while pitch modulation produced a *vibrato* effect. This function allows a modulation wheel to be assigned to produce either or both. This is only an "off/on" switch, however, and the maximum depth of modulation to be applied must be set using the LFO AM Depth and PM Depth parameters in the ELEMENT TONE edit mode.

Refer to: page 64.

NOTE: Deep pitch modulation settings may produce noise with some voices. If this happens, reduce the modulation depth until the noise disappears.

AFTER TOUCH (Amplitude & Pitch Modulation, Pitch & Level Control)

```
UC AFTER TOUCH
AM=on PM=on Pit Lev →
```

Summary: Assigns keyboard after-touch control to amplitude modulation, pitch modulation, pitch control, or level control — or any combination of the above.

Settings: AM (Amplitude Modulation): off, on
PM (Pitch Modulation): off, on
Pit (Pitch Control): -12 ... 0 ... +12 max.*
Lev (Level Control): off, on

Procedure: Use the CURSOR [◀] and [▶] keys to place the underline cursor under the AM, PM, Pit, or Lev parameter. The arrows at either end of the display mean that more parameters can be accessed by scrolling in the indicated direction. Use the [DATA ENTRY] control or [-1/NO] and [+1/YES] keys to turn the AM, PM, and/or Lev parameter on or off, or to select the desired Pit control range.

Details: As with modulation wheel control, amplitude modulation produces a *tremolo* effect while pitch modulation produced a *vibrato* effect. The harder you press a key on the master keyboard, the deeper the modulation. This is only an "off/on" switch, however, and the maximum depth of modulation to be applied must be set using the LFO AM Depth and PM Depth parameters in the ELEMENT TONE edit mode. The Pit parameter allows keyboard after-touch to be used for note bending. The greater the key pressure the greater the amount of pitch bend. Positive values produce an upward bend when key pressure is applied, and minus values produce a downward bend. Each increment from represents a semitone. A setting of "0" produces no pitch bend. A setting of "12" allows a

maximum upward pitch bend of one octave, while a setting of "-4" allows a maximum downward pitch bend of a major third.

When the Lev parameter is turned on it becomes possible to control the level of the sound over a limited range by keyboard after-touch. The amount and direction (i.e. an increase or decrease) of level change depends on the setting of the AFTER TOUCH SENSITIVITY parameter in the ELEMENT TONE edit mode.

Refer to: page 63, 64.

* This range may be more limited in some cases. An exclamation mark (!) will appear after the range value when the limit is reached.

ENVELOPE (Attack & Release Rates)

VC ENVELOPE
AR=+ 0 RR=+ 0

Summary: Sets the overall attack and release rates for the current voice.

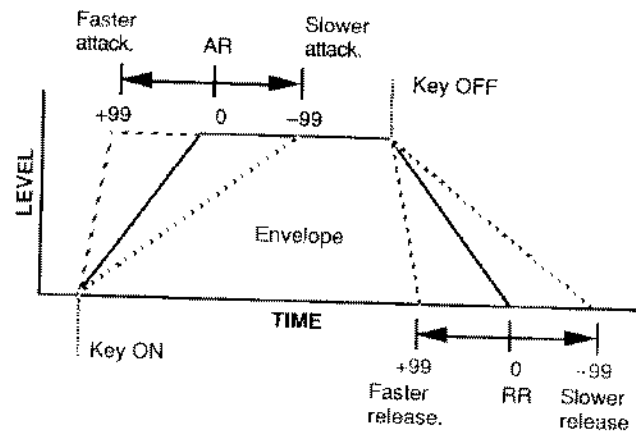
Settings: AR (Attack Rate): -99 ... +0 ... +99 max.*

RR (Release Rate): -99 ... +0 ... +99 max.*

Procedure: Use the [◀] and [▶] cursor keys to place the underline cursor under the AR or RR parameter. Use the [DATA ENTRY] control or [-I/NO] and [+I/YES] keys to set the selected parameter as required.

Details: Although much more detailed envelope programming capability is available for individual elements (see the ELEMENT ENVELOPE edit mode), these functions provide an easy way to adjust the most important envelope parameters for the overall voice. Positive values produce a faster attack or release time, while negative values produce a slower attack or release time. You might want to lengthen the release time of a voice, for example, to produce a lingering sustain effect after you release the keys.

Please note that the AR parameter will have no effect on elements in which the INITIAL LEVEL parameter (page 70) is set to 99.



Refer to: page 69 ... 73.

* This range may be more limited in some cases. An exclamation mark (!) will appear after the range value when the limit is reached.

NOTE: The effect of the AR parameter may be more or less pronounced depending on the settings of the ELEMENT EG edit mode INITIAL LEVEL and ATTACK LEVEL parameters.

RANDOM (Element, Level Vectors & Detune Vectors)

```

UC RANDOM
▶ELEMENT      Y/N?
```

Summary: Automatically produces random combinations of elements, level vectors, or detune vectors.

Settings: None.

Procedure: Use the CURSOR [◀] and [▶] keys to place the cursor to the left of the leftmost parameter on the lower display line, then use the [-1/NO] and [+1/YES] keys to select ELEMENT, LEVEL VEC or DETUNE VEC. Press the [▶] key to move the cursor to "Y/N," then press the [+1/YES] key to generate random values of the select type. A new set of random values is generated each time the [+1/YES] key is pressed while the cursor is in this position. Pressing the [-1/NO] returns the cursor to the left parameter.

Details: This function is actually a very useful programming aid. It allows you try out a virtually unlimited variety of element combinations or level/detune vectors by simply pressing a single key. The random element combinations, in particular, can produce some very surprising and often pleasant results.

When the "A-B" voice configuration is selected (see CONFIGURATION on page 45), random element combinations will always consist of only two elements. When the "A-B-C-D" voice configuration is selected, random element generation will produce combinations of four elements.

Refer to: page 53 ... 56.

NAME

```

UC VOICE NAME
F11 SP*Pro33
```

Summary: Assigns a name of up to 8 characters to the current voice.

Settings: The following characters are available for use in voice names:

(Space) !"#%&'()*+,-./0123456789:;<=>?@
 ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^_`
 abcdefghijklmnopqrstuvwxyz{|}~+

Procedure: Use the CURSOR [◀] and [▶] keys to place the underline cursor under the character to be changed. Use the [DATA ENTRY] control or [-1/NO] and [+1/YES] keys to select the desired character. Continue until the entire voice name has been programmed.

Details: It's a good idea to give your voices names that make them easily identifiable. If you've created a new voice that combines piano and organ elements, for example, you could call it something like "PianOrg".

VOICE INITIALIZE

UC INIT VOICE
Are you sure?

Summary: Initializes all parameters of the current voice.

Settings: None.

Procedure: When the "INIT. VOICE" display is selected, "Are you sure?" will appear on the lower line. Press the [+1/YES] to initialize. ">>Completed!!<<" will appear briefly when the initialization is finished.

Details: When Voice Initialize is executed, the voice parameters are initialized to the following values:

	A	B	C	D
COMMON				
VOICE NAME	Initial			
CONFIGURATION	A-B-C-D			
EFFECT	Rev. Hall			
Balance	64			
Send Lvl	127			
PITCH BEND	2			
WHEEL	AM			
	PM			
AFTER TOUCH	AM			
	PM			
	Pit			
	Lvl			
ENVELOPE	AR			
	RR			
	0			
	0			
	0			
VECTOR				
VECTOR LEVEL SPEED	30 ms			
STEP/X/Y/TIME	1 0 0 End) 50 STEP		
	2			
	:			
	50			
VECTOR DETUNE SPEED	30 ms			
STEP/X/Y/TIME	1 0 0 End) 50 STEP		
	2			
	:			
	50			
ELEMENT TONE				
WAVE	000:PIANO:PIANO	151:OSC1:sin8'	039:Str:Vn.Ens	152:OSC1:sin4'
FREQ. shift	0	0	0	0
VOLUME	99	99	99	99
PAN	L- E -R	L- E -R	L- E -R	L- E -R
VELOCITY Sense	2	2	2	2
AFTER Sense	0	0	0	0
TONE Level	—	92	—	92
TONE FB	—	0	—	0
LFO AM	0	0	0	0
LFO PM	16	16	16	16
LFO TYPE	∧∧	∧∧	∧∧	∧∧
LFO Delay	0	0	0	0
LFO Rate	99	99	99	99
LFO Speed	20	20	20	20

VOICE COMMON

	A	B	C	D
ELEMENT ENV				
TYPE	PRESET	PRESET	PRESET	PRESET
DELAY Rate	99	99	99	99
DELAY on/off	off	off	off	off
INITIAL Level	67	0	90	0
ATTACK AL	99	92	97	92
ATTACK AR	99	99	64	99
DECAY1 D1L	99	92	95	92
DECAY1 D1R	0	0	32	0
DECAY2 D2L	0	92	95	92
DECAY2 D2R	26	0	0	0
RELEASE Rate	60	76	52	76
SCALING Lvl Type	2	1	4	1
Rate Type	3	1	2	1

The voice initialize function is useful if you want to begin programming a voice "from scratch."

VOICE RECALL

```
VC RECALL VOICE
Are you sure?
```

Summary: Recalls the last voice edited from the TG33 edit buffer memory.

Settings: None

Procedure: When the "RECALL VOICE" function is selected, "Are you sure?" appears on the lower display line. Press the [+1/YES] key to recall.

">>Completed!!<<" will appear briefly when the recall operation is finished.

Details: Even if you've exited the edit mode and called a different voice, this function will recall the last voice edited with all parameters as they were at the time the edit mode was exited. A handy "safety net" to help you recover accidentally lost data.

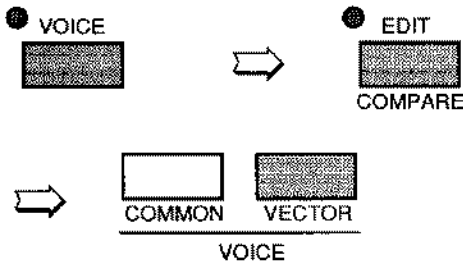
VOICE VECTOR

The VOICE VECTOR edit mode allows recording and fine editing of dynamic level and detune vectors.

LEVEL SPEED (Vector Rate)	53
LEVEL RECORD	53
LEVEL EDIT (Step, X-axis, Y-axis & Time)	53
DETUNE SPEED (Vector Rate)	55
DETUNE RECORD	55
DETUNE EDIT (Step, X-axis, Y-axis & Time)	55

VOICE VECTOR

Selecting the VOICE VECTOR Edit Mode



From another VOICE EDIT mode simply press [VOICE VECTOR].

Selecting the VOICE VECTOR Edit Mode Functions

The various VOICE VECTOR edit mode functions can be selected in sequence by pressing the [VOICE VECTOR] key, or by using the PAGE [◀] and [▶] keys.

The COMPARE Function

While in any VOICE EDIT mode, you can compare the sound of the edited voice with the sound of the voice before it was edited by pressing the [EDIT/COMPARE] key to activate the COMPARE function. The [EDIT/COMPARE] key indicator will flash while the COMPARE function is active, and the sound of the voice prior to editing will be heard when you play the master keyboard or controller. Press the [EDIT/COMPARE] key again to return to the edit mode.

LEVEL SPEED (Vector Rate)

```
UV LEVEL SPEED
Vector Rate 30ms
```

Summary: Sets the time between level vector steps.

Settings: 10 ... 160 milliseconds (in 10-millisecond steps)

Procedure: Use the [DATA ENTRY] control or [-1/NO] and [+1/YES] keys to select the desired vector rate.

Details: Each dynamic vector is composed of up to 50 "steps" corresponding to points along the path followed by the vector control. This function sets the initial time between each step. The Time parameter in the LEVEL EDIT function, described later, allows the length of individual steps to be edited. The vector rate parameter can be changed even after recording a vector, producing a corresponding change in the spacing between the steps.

Refer to: page 28.

LEVEL RECORD

```
UV LEVEL REC
STBY REC PLAY
```

Summary: Allows recording of a dynamic level vector.

Settings: STBY, REC, PLAY

Procedure: Use the CURSOR [◀] and [▶] keys to place the cursor to the left of STBY. The vector control LEVEL mode will be automatically selected and you can rehearse the vector sweep you wish to record.

Move the cursor to REC. Recording will actually begin as soon as you play a note. When you release the note or when 50 steps have been recorded (See "LEVEL SPEED" above), recording will end and the cursor will move to the PLAY position. You can now play the keyboard to hear how the vector sweep you just recorded sounds.

Details: The amount of time available for recording depends both on the vector rate setting and how much the vector control is moved.

Refer to: page 28, 29.

LEVEL EDIT (Step, X-axis, Y-axis & Time)

• Step

```
UV L. ED A B C D
1 X+ 0 Y+ 0 End
```

Summary: Selects any of the 50 steps in a recorded level vector for editing.

Settings: 1 ... 50

Procedure: Use the [◀] and [▶] cursor keys to place the underline cursor under the leftmost value on the lower display line (Step). Use the [-1/NO] and [+1/YES] keys to select the step to be edited.

Details: Step 1 is the first step recorded and step 50 is the last. Experience will give you a feel for relating specific points in a dynamic vector to the corresponding steps.

VOICE VECTOR

● X-axis & Y-axis

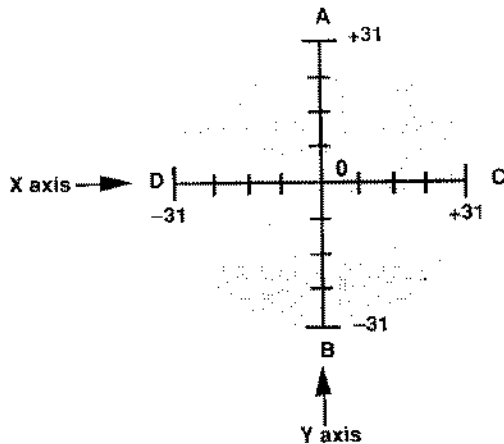
```
UV L.ED A B C D
1 X+ 0 Y+ 0 End
```

Summary: These parameters define the position of the currently selected step on the X and Y axes of the level vector control range.

Settings: -31 ... +0 ... +31

Procedure: After selecting the step to be recorded as described in the previous function, use the CURSOR [◀] and [▶] keys to place the underline cursor under the X or Y parameter. Use the [DATA ENTRY] control or [-1/NO] and [+1/YES] keys to set the value as required.

Details: On the X (D-C) axis, a setting of -31 places the step as far as possible toward the D element while a setting of +31 places it as far as possible toward the C element. The Y (A-B) axis values work in the same way: a setting of -31 places the step as far as possible toward the B element while a setting of +31 places it as far as possible toward the A element. In both axes a setting of +0 places the step at center position.



● Time

```
UV L.ED A B C D
1 X+ 0 Y+ 0 End
```

Summary: Multiplies the vector rate setting of the current level vector step only. Also allows vectors to be looped or ended at the current step.

Settings: 1 ... 254, Repeat, End

Procedure: Use the CURSOR [◀] and [▶] keys to place the underline cursor under the rightmost value on the lower display line (Time). Use the [DATA ENTRY] control or [-1/NO] and [+1/YES] keys to select the required time value, repeat, or end.

Details: Time values multiply the vector rate setting for the current step. If the vector rate parameter is set to 30ms, for example, setting the time parameter to 2 results in a step length of 60ms, setting it to 3 results in a step length of 90ms, and so on. Since the maximum time value is 254, extremely long steps can be created. If you select the "End" setting, the vector will end at the current step. The "Repeat" setting causes the vector to loop back to the first step from the current step, repeating continuously.

NOTE: Extreme LEVEL EDIT settings that are beyond a reasonable range for the current vector may not produce the expected results.

DETUNE SPEED (Vector Rate)

```
UV DETUNE SPEED
Vector Rate 30ms
```

Summary: Sets the time between detune vector steps.

Settings: 10 ... 160 milliseconds

Procedure: Use the [DATA ENTRY] control or [-1/NO] and [+1/YES] keys to select the desired vector rate.

Details: Each automatic vector sweep is composed of up to 50 "steps," corresponding to equally-spaced points along the path followed by the vector control. This function sets the initial time between each step.

Refer to: page 28.

DETUNE RECORD

```
UV DETUNE REC
STBY REC PLAY
```

Summary: Allows recording of a dynamic detune vector.

Settings: STBY, REC, PLAY

Procedure: Use the CURSOR [◀] and [▶] keys to place the cursor to the left of STBY. The vector control DETUNE mode will be automatically selected and you can rehearse the vector sweep you wish to record.

Move the cursor to REC. Recording will actually begin as soon as you play a note. When you release the note or when all 50 steps have been recorded (See "DETUNE SPEED" above), recording will end and the cursor will move to the PLAY position. You can now play the keyboard to hear how the vector sweep you just recorded sounds.

Details: The amount of time available for recording depends both on the vector rate setting and how much the vector control is moved.

Refer to: page 28, 29.

DETUNE EDIT (Step, X-axis, Y-axis & Time)

• Step

```
UV D. ED A B C D
1 X+ 0 Y+ 0 End
```

Summary: Selects any of the 50 steps in a recorded detune vector for editing.

Settings: 1 ... 50

Procedure: Use the CURSOR [◀] and [▶] keys to place the underline cursor under the leftmost value on the lower display line (Step). Use the [DATA ENTRY] control or [-1/NO] and [+1/YES] keys to select the step to be edited.

Details: Step 1 is the first step recorded and step 50 is the last. Experience will give you a feel for relating specific points in a dynamic vector to the corresponding steps.

VOICE VECTOR

● X-axis & Y-axis

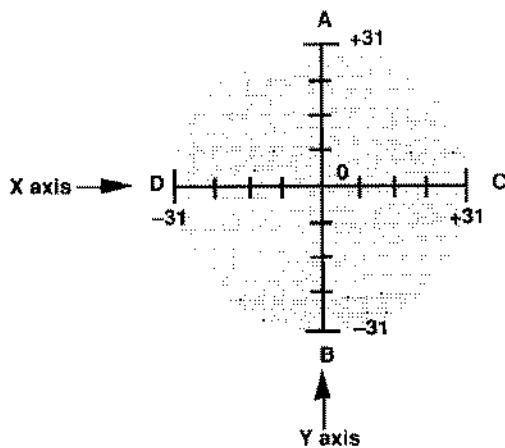
```
UV D.ED A B C D
 1 X+ 0 Y+ 0 End
```

Summary: These parameters define the position of the currently selected step on the X and Y axes of the detune vector control range.

Settings: -31 ... +0 ... +31

Procedure: Use the CURSOR [◀] and [▶] keys to place the underline cursor under the X or Y parameter. Use the [DATA ENTRY] control or [-1/NO] and [+1/YES] keys to set the value as required.

Details: On the X (D-C) axis, a setting of -31 places the step as far as possible toward the D element while a setting of +31 places it as far as possible toward the C element. The Y (A-B) axis values work in the same way: a setting of -31 places the step as far as possible toward the B element while a setting of +31 places it as far as possible toward the A element. In both axes a setting of +0 places the step at center position.



● Time

```
UV D.ED A B C D
 1 X+ 0 Y+ 0 End
```

Summary: Multiplies the vector rate setting of the current detune vector step only. Also allows vectors to be looped or ended at the current step.

Settings: 1 ... 254, Repeat, End

Procedure: Use the CURSOR [◀] and [▶] keys to place the underline cursor under the rightmost value on the lower display line (Time). Use the [DATA ENTRY] control or [-1/NO] and [+1/YES] keys to select the required time value.

Details: Time values multiply the vector rate setting for the current step. If the vector rate parameter is set to 30ms, for example, setting the time parameter to 2 results in a step length of 60ms, setting it to 3 results in a step length of 90ms, and so on. Since the maximum time value is 254, extremely long steps can be created. If you select the "End" setting, the vector will end at the current step. The "Repeat" setting causes the vector to loop back to the first step from the current step, repeating continuously.

NOTE: Extreme DETUNE EDIT settings that are beyond a reasonable range for the current vector may not produce the expected results.

ELEMENT TONE

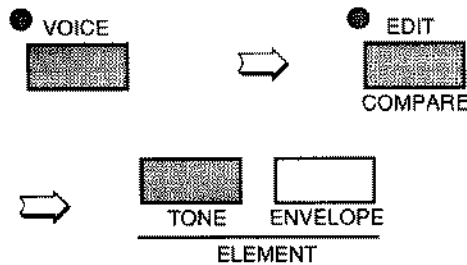
The ELEMENT TONE edit mode allows editing many of the most important sound-determining parameters of each individual element — A and B in a 2-element voice; A, B, C and D in a 4-element voice.

WAVE TYPE	60
FREQUENCY SHIFT	62*
VOLUME	62
PAN	62*
VELOCITY SENSITIVITY	63
AFTER TOUCH SENSITIVITY	63
TONE (Level & Feedback: FM Elements B and D Only).....	64*
<i>LFO (Low Frequency Oscillator) AM Depth,</i>	
PM Depth, Type, Delay, Rate & Speed.....	64*

* These four parameters are not available for an AWM element in which wave number 127 (Drum Set) is selected — “Cannot edit” display appears.

ELEMENT TONE

Selecting the ELEMENT TONE Edit Mode



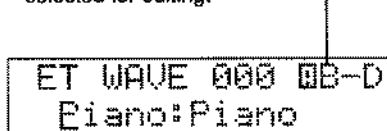
From another VOICE EDIT mode simply press [ELEMENT TONE].

Selecting Elements for Editing

Different elements can be selected for editing by pressing the appropriate [ELEMENT SELECT] key — [A], [B], [C] or [D]. If a 2-element voice is being edited, only elements A and B can be selected. The currently selected element is shown in the upper right-hand corner of the LCD as a reversed (white on black) character.

Any of the available elements can also be turned on or off by pressing the appropriate [ELEMENT ON/OFF] key. Each key alternately turns the associated element on and off, and the on/off status of the elements is shown to the right of the upper LCD line. If the element character is showing, the associated element is ON, if a dash appears in place of the element character, that element is OFF. The ability to turn elements on or off while editing makes it easier to hear the effect of parameter changes on a single element.

In this example elements A, B and D are ON, while element C is OFF. Element A is currently selected for editing.



Selecting the ELEMENT TONE Edit Mode Functions

The various ELEMENT TONE edit mode functions can be selected in sequence by pressing the [ELEMENT TONE] key, or by using the PAGE [◀] and [▶] keys.

The ELEMENT COPY Function

This function facilitates editing by copying all element parameters from an element of the same type (AWM or FM) in another voice to the current element of the current voice.

1. To call the ELEMENT COPY function, press the [STORE/COPY] key while in the ELEMENT TONE edit mode.

```
ET COPYfrom 0B-D
  11 SP*Pro33 A→
```

In the ELEMENT COPY display, the source, bank and number parameters are shown in the standard TG33 voice number format. "P₁₂," for example, is preset 1, bank 1, number 2; "T35" is internal bank 3, number 5, etc.

Data can only be copied between elements of the same type. If the element currently being edited is an AWM element (A or C), only element A or C of the source voice can be copied from. The same applies to FM elements.

The data for all parameters contained in the ELEMENT TONE mode will be copied.

2. Use the CURSOR [◀] and [▶] keys to move the cursor to the source, bank, or number of the source voice (the voice from which the element parameters are to be copied) to the left of the lower display line. Use the [DATA ENTRY] control or [-1/NO] and [+1/YES] keys to set the selected parameter as necessary.
3. Next move the cursor to the element type parameter to the right of the lower display line, and select the element from which the data is to be copied using the [DATA ENTRY] control or [-1/NO] and [+1/YES] keys.
4. Press the [▶] cursor key one more time and the "Are you sure?" display will appear. Press [+1/YES] to execute the element copy operation or [-1/NO] to cancel. ">>Completed!!<<" will appear briefly when the copy operation has finished.
5. Press the ELEMENT [TONE] key to return to the ELEMENT TONE edit mode.

The COMPARE Function

While in any VOICE EDIT mode, you can compare the sound of the edited voice with the sound of the voice before it was edited by pressing the [EDIT/COMPARE] key to activate the COMPARE function. The [EDIT/COMPARE] key indicator will flash while the COMPARE

function is active, and the sound of the voice prior to editing will be heard when you play the master keyboard or controller. Press the [EDIT/COMPARE] key again to return to the edit mode.

WAVE TYPE

```
ET WAVE 000 QBCD
Piano:Piano
```

Summary: Assigns a preset wave to the selected element.

Settings: Elements A and C (AWM): 0 ... 127
 Elements B and D (FM): 0 ... 255

Procedure: Use the CURSOR [] and [] keys to place the underline cursor under the left parameter on the lower display line to directly select the

different wave categories, or under the right parameter to select individual waves. Use the [DATA ENTRY] control or [-1/NO] and [+1/YES] keys to select the desired wave (refer to the wave list, below).

Details: The number of waves available depends on whether the currently selected element is an AWM element (A or C) or an FM element (B or D). The TG33 has 128 preset AWM waves (0 ... 127) and 256 preset FM waves (0 ... 255).

AWM WAVEFORM LIST

Category	No.	Name	Category	No.	Name	Category	No.	Name	Category	No.	Name
Piano	0	Plano	Bass	32	E.Bass 3	Synth	64	Oh Hit	OSC	96	Pad wv
	1	E.piano		33	E.Bass 4	SFX	65	Water 1		97	Digital1
	2	Clavi		34	Slap		66	Water 2		98	Digital2
	3	Cembalo		35	Fretless		67	Stream		99	Digital3
4	Celesta	36		SynBass1	68		Coin	100		Digital4	
Organ	5	P.organ		37	SynBass2		69	Crash		101	Digital5
	6	E.organ1		Str.	38		Strings	70		Bottle	102
	7	E.organ2	39		Vn.Ens.		71	Tear		103	Saw 2
	8	Reed	40		Cello	72	Cracker	104		Saw 3	
Brass	9	Trumpet	41		Pizz.	73	Scratch	105		Saw 4	
	10	Mute Trp	42	Syn Str	Hits	74	Metal 1	106		Square 1	
	11	Trombone	Vocal	43		Choir	75	Metal 2		107	Square 2
	12	Flugel		44		Itopia	76	Metal 3		108	Square 3
	13	Fr Horn		45		Ooo!	77	Metal 4		109	Square 4
	14	BrasAtak	Perc.	46	Vibes	78	Wood	110		Pulse 1	
	15	SynBrass		47	Marimba	79	Bamboo	111		Pulse 2	
Wood	16	Flute		48	Bells	80	Slam	112		Pulse 3	
	17	Clarinet		49	Timpani	Tran.	81	Tp. Body		113	Pulse 4
	18	Oboe	50	Tom	82		Tb. Body	114	Pulse 5		
	19	Sax	51	E. Tom	83		HornBody	115	Pulse 6		
Gtr	20	Gut	52	Cuica	84		Fl. Body	116	Tri		
	21	Steel	53	Whistle	85		Str.Body	117	Sin8'		
	22	E.Gtr 1	54	Claps	86		AirBlown	118	Sin8'+4'		
	23	E.Gtr 2	Synth	55	Hit		87	Reverse1	SEQ	119	SEQ 1
	24	Mute Gtr		56	Harmonic	88	Reverse2	120		SEQ 2	
	25	Sitar		57	Mix	89	Reverse3	121		SEQ 3	
	26	Pluck 1		58	Sync	OSC	90	EP wv		122	SEQ 4
	27	Pluck 2		59	Bell Mix		91	Organ wv		123	SEQ 5
Bass	28	Wood B 1		60	Styroll		92	M.Tp wv		124	SEQ 6
	29	Wood B 2		61	DigiAtak		93	Gtr wv		125	SEQ 7
	30	E.Bass 1	62	Noise 1	94		Str wv 1	126		SEQ 8	
	31	E.Bass 2	63	Noise 2	95		Str wv 2	Drum	127	Drum set	

AWM Waveform Category Descriptions

Piano	Piano, clavi, and other decay-type keyboard sounds.	Synth	A range of synth sounds (including noise).
Organ	Pipe, electric and reed organs.	SFX	Special effects - water, bottles, etc.
Brass	Acoustic and synthesized brass sounds.	Hits	Struck metal and woods.
Wood	Flute, sax and other woodwind sounds.	Tran.	Transient attack waves and some reverse sounds.
Gtr	Acoustic and electric guitars.	OSC	Standard synth waveforms and the basic waveforms from some actual instruments.
Bass	Acoustic, electric, and synth bass.	SEQ	Sequences of sampled sounds.
Str.	Violin ensemble and other strings.	Drum	Drum set waves.
Vocal	Choir and other vocal-type sounds.		
Perc.	Vibes, tympani, etc.		

FM VOICE LIST

Category	No.	Name	Category	No.	Name	Category	No.	Name	Category	No.	Name	
Piano	0	E.Piano1	Pluck	49	Guitar 4	Syn.S	98	Sus. 1	SFX	147	SFX 5	
	1	E.Piano2		50	Guitar 5		99	Sus. 2		148	SFX 6	
	2	E.Piano3		51	Guitar 6		100	Sus. 3		149	SFX 7	
	3	E.Piano4		52	Guitar 7		101	Sus. 4		OSC 1	150	Sin 16'
	4	E.Piano5		53	Guitar 8		102	Sus. 5			151	Sin 8'
5	E.Piano6	Bass	54	Bass 1	103	Sus. 6	152	Sin 4'				
Organ	6		E.organ1	55	Bass 2	104	Sus. 7	153	Sin2 2/3			
	7		E.organ2	56	Bass 3	105	Sus. 8	154	Sin 2'			
	8		E.organ3	57	Bass 4	106	Sus. 9	155	Saw 1			
	9		E.organ4	58	Bass 5	107	Sus. 10	156	Saw 2			
	10	E.organ5	59	Bass 6	108	Sus. 11	157	Square				
	11	E.organ6	60	Bass 7	109	Sus. 12	158	LFOnoise				
	12	E.organ7	61	Bass 8	110	Sus. 13	159	Noise 1				
	13	E.organ8	62	Bass 9	111	Sus. 14	160	Noise 2				
Brass	14	Brass 1	Str.	63	Str 1	Syn.M	112	Sus. 15	OSC 2	161	Digi 1	
	15	Brass 2		64	Str 2		113	Attack 1		162	Digi 2	
	16	Brass 3		65	Str 3		114	Attack 2		163	Digi 3	
	17	Brass 4		66	Str 4		115	Attack 3		164	Digi 4	
	18	Brass 5		67	Str 5		116	Attack 4		165	Digi 5	
	19	Brass 6		68	Str 6		117	Attack 5		166	Digi 6	
	20	Brass 7		69	Str 7		118	Move 1		167	Digi 7	
	21	Brass 8	Perc.	70	Vibes 1	119	Move 2	168		Digi 8		
	22	Brass 9		71	Vibes 2	120	Move 3	169		Digi 9		
	23	Brass 10		72	Vibes 3	121	Move 4	170		Digi 10		
	24	Brass 11		73	Vibes 4	122	Move 5	171		Digi 11		
	25	Brass 12		74	Marimba1	123	Move 6	OSC 3	172	wave1-1		
	26	Brass 13		75	Marimba2	124	Move 7		173	wave1-2		
	27	Brass 14		76	Marimba3	Syn.D	125		Decay 1	174	wave1-3	
Wood	28	Wood 1	77	Bells 1	126		Decay 2		175	wave2-1		
	29	Wood 2	78	Bells 2	127		Decay 3		176	wave2-2		
	30	Wood 3	79	Bells 3	128		Decay 4	177	wave2-3			
	31	Wood 4	80	Bells 4	129		Decay 5	:	:			
	32	Wood 5	81	Bells 5	130		Decay 6	:	:			
	33	Wood 6	82	Bells 6	131		Decay 7	220	wave17-1			
	34	Wood 7	83	Bells 7	132		Decay 8	221	wave17-2			
	35	Wood 8	84	Bells 8	133	Decay 9	222	wave17-3				
Reed	36	Reed 1	85	Metal 1	134	Decay 10	OSC 3	223	wave18-1			
	37	Reed 2	86	Metal 2	135	Decay 11		224	wave18-2			
	38	Reed 3	87	Metal 3	136	Decay 12		225	wave18-3			
	39	Reed 4	88	Metal 4	137	Decay 13		:	:			
	40	Reed 5	89	Metal 5	138	Decay 14		:	:			
	41	Reed 6	90	Metal 6	139	Decay 15		250	wave27-1			
Pluck	42	Clavi 1	Syn.S	91	Lead 1	140	Decay 16	251	wave27-2			
	43	Clavi 2		92	Lead 2	141	Decay 17	252	wave27-3			
	44	Clavi 3		93	Lead 3	142	Decay 18	253	wave28			
	45	Clavi 4		SFX	94	Lead 4	143	SFX 1	254	wave29		
	46	Guitar 1			95	Lead 5	144	SFX 2	255	wave30		
	47	Guitar 2			96	Lead 6	145	SFX 3				
	48	Guitar 3			97	Lead 7	146	SFX 4				

FM Voice Category Descriptions

Piano	Electric pianos.	Perc.	Vibes, marimba, bells and other percussion sounds.
Organ	Electric organs.	Syn.S	Sustained lead synth sounds.
Brass	A variety of brass sounds.	Syn.M	Synth sounds that vary with time.
Wood	Woodwind instrument sounds.	Syn.D	Decay-type synth sounds.
Reed	Sax, oboe and other reed instruments.	SFX	A range of sound-effect type synth sounds.
Pluck	Guitar, clavi, and other plucked instrument sounds.	OSC1	Sine, sawtooth, and other standard synth waveforms.
Bass	Bass sounds.	OSC2	Basic FM timbres, group 1.
Str.	Strings.	OSC3	Basic FM timbres, group 2.

If the TYPE parameter in the ELEMENT ENVELOPE edit mode (page 69) is set to PRESET, selecting a WAVE TYPE also selects the corresponding preset envelope. If a different

envelope type is selected, the preset envelope is *not* selected together with the wave.

Refer to: page 19 ... 27, 45.

FREQUENCY SHIFT

```
ET FREQ.   [BCD]
Shift=+ 0
```

Summary: Shifts the frequency (pitch) of the selected element up or down in semitone steps.

Settings: -12 ... +0 ... +12.

Procedure: Use the [DATA ENTRY] control or [-1/NO] and [+1/YES] keys to select the desired amount of frequency shift.

Details: A setting of “-12,” for example, shifts the pitch of the selected element down by one octave; a setting of “+4” shifts the pitch up by a major third.

The Frequency Shift function can be used to transpose an element to its most useful range, or to create harmony (intervals) between different elements.

VOLUME

```
ET VOLUME  [BCD]
Level= 0
```

Summary: Adjusts the volume of the selected element.

Settings: 0 ... 99

Procedure: Use the [DATA ENTRY] control or [-1/NO] and [+1/YES] keys to select the desired volume level.

Details: A setting of “0” produces no sound while a setting of “99” produces maximum volume.

The ability to independently adjust the volume of each element makes it simple to set up the optimum balance or “mix” between elements.

PAN

```
ET PAN     [BCD]
L--I--R
```

Summary: Determines the position in the stereo sound field in which the sound from selected element will be heard (left to right).

Settings: Graphic Display: L--I--R, 5 positions from left to right

Procedure: Use the [DATA ENTRY] control or [-1/NO] and [+1/YES] keys to select the desired pan position.

Details: The lower line of the display shows a graphic representation of the stereo sound field

with “L” representing “left” and “R” representing “right.” As you edit the pan parameter the position indicator will appear at the corresponding position on the graphic display. A total of five different positions are available, corresponding to left, left-center, center, right-center, and right.

Interesting stereo effects can be produced by placing the output from different elements at different locations in the stereo sound field.

Please note that when the EFFECT Balance parameter is set to or close to its maximum value (127), the PAN setting has no effect.

Refer to: page 45, 78 ... 80.

VELOCITY SENSITIVITY

ET VELOCITY BCD
Type= +0 ---

Summary: Determines how the output level of the selected element changes in response to velocity changes (keyboard initial touch response).

Settings: -5 ... +0 ... +5

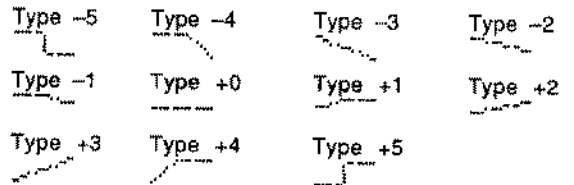
Procedure: Use the [DATA ENTRY] control or [-1/NO] and [+1/YES] keys to select the desired velocity sensitivity.

Details: Plus "+" settings produce higher output level in response to higher velocity values — i.e. the harder a key is played, the louder the sound. Minus "-" settings produce the opposite effect: lower level in response to higher velocity. A setting of "0" results in no level variation.

- +0 No response.
- +1 Narrow change between medium-hard and hard velocity.

- +2 Broader change between medium and hard velocity.
- +3 Smooth change all the way from soft to hard velocity.
- +4 Large change over small velocity range.
- +5 Sudden change from no sound to maximum level at about medium velocity.

"..." Settings have the same effect, but the sound level decreases rather than increasing with increased key velocity. A graphic display to the right of the sensitivity value provides a visual clue as to the type of change produced by each setting.



AFTER TOUCH SENSITIVITY

ET A. TOUCH BCD
Type= +0 ---

Summary: Determines how the output level of the selected element changes in response to after-touch pressure changes when the Lev (Level) parameter of the AFTER TOUCH function in the VOICE COMMON mode is set to "on" (see page 46).

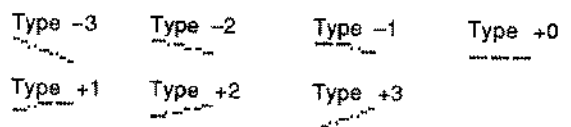
Settings: -3 ... +0 ... +3

Procedure: Use the [DATA ENTRY] control or [-1/NO] and [+1/YES] keys to select the desired after touch sensitivity.

Details: Plus "+" settings produce higher output level in response to higher after touch pressure. Minus "-" settings produce the opposite effect: lower level in response to higher pressure. A setting of "0" results in no level variation.

- +0 No response.
- +1 Narrow change between medium-high and high pressure.
- +2 Broader change between medium and high pressure.
- +3 Smooth change all the way from low to high pressure.

"-" Settings have the same effect, but the sound level decreases rather than increasing with increased after touch pressure. A graphic display to the right of the sensitivity value provides a visual clue as to the type of change produced by each setting.



Refer to: page 46.

TONE (Level & Feedback: FM Elements B and D Only)

```
ET TONE      ABCD
Lev= 0      FB=0
```

Summary: Adjusts the tone of the selected FM element — B or D.

Settings: Lev (Level): 0 ... 99
FB (Feedback): 0 ... 7

Procedure: Use the CURSOR [◀] and [▶] keys to place the underline cursor under the Lev or FB parameter. Use the [DATA ENTRY] control or [-1/NO] and [+1/YES] keys to set the level or feedback as required.

Details: The Lev parameter adjusts the modulation level of the select FM element, so higher values produce a brighter, sharper tone while lower values produce a rounder, more mellow tone. The effect of the feedback parameter varies from element to element, but in general higher values make the sound more brassy or noisy, while lower values make the sound smoother.

Refer to: page 45.

LFO (Low Frequency Oscillator) AM Depth, PM Depth, Type, Delay, Rate & Speed

● AM (Amplitude Modulation Depth)

```
ET LFO      ABCD
AM= 0      PM= 0  NNN→
```

Summary: Determines the maximum amount of amplitude modulation that can be applied to the selected element by a modulation wheel or keyboard after touch.

Settings: 0 ... 15

Procedure: Use the CURSOR [◀] and [▶] keys to select the AM parameter. Use the [DATA ENTRY] control or [-1/NO] and [+1/YES] keys to set the desired degree of amplitude modulation.

Details: A “0” setting produces no modulation while a setting of “15” produces maximum modulation. Amplitude modulation produces a periodic variation in the volume of the sound, thus creating a tremolo effect.

Please note that the AM parameter of the WHEEL and/or AFTER TOUCH function in the VOICE COMMON edit mode must be set to “on” before amplitude modulation can be applied manually (see page 46). Amplitude modulation is applied automatically when these parameters are off.

Refer to: page 46, 47.

● PM (Pitch Modulation Depth)

```
ET LFO      ABCD
AM= 0      PM= 0  NNN→
```

Summary: Determines the maximum amount of pitch modulation that can be applied to the selected element by a modulation wheel or keyboard after touch.

Settings: 0 ... 31

Procedure: Use the CURSOR [\leftarrow] and [\rightarrow] keys to select the PM parameter. Use the [DATA ENTRY] control or [-1/NO] and [+1/YES] keys to set the desired degree of pitch modulation.






Details: A "0" setting produces no modulation while a setting of "31" produces maximum modulation. Pitch modulation produces a periodic pitch variation, thereby creating a vibrato effect. Please note that the PM parameter of the WHEEL and/or AFTER TOUCH function in the VOICE COMMON edit mode must be set to "on" before pitch modulation can be applied manually (see page 46). Pitch modulation is applied automatically when these parameters are off.

● Type

```
ET LFO      BCD
AM= 0 PM= 0  NNN
```






Summary: Determines the waveform of the LFO for the selected element.

Settings:

SAW UP 	SAW DOWN 	TRIANGLE 
SQUARE 	SAMPLE&HOLD 	

Procedure: Use the CURSOR [\leftarrow] and [\rightarrow] keys to select the waveform parameter. Use the [DATA ENTRY] control or [-1/NO] and [+1/YES] keys to select the desired LFO waveform.

Details:

	= Upward sawtooth.
	= Downward sawtooth.
	= Triangle.
	= Square.
	= Sample and hold.

● Dly (Delay)

```
ET LFO      BCD
+Dly= 0 Rate= 0
```

Summary: Sets the delay time between the beginning of a note and the beginning of LFO operation for the selected element.

Settings: 0 ... 99

Procedure: Use the CURSOR [\leftarrow] and [\rightarrow] keys to select the Dly parameter. Use the [DATA ENTRY] control or [-1/NO] and [+1/YES] keys to set the desired LFO delay.

Details: The minimum setting "0" results in no delay, while the maximum setting of "99" produces maximum delay before the LFO begins operation.

Refer to: page 46, 47.

● Rate

```
ET LFO      BCD
+Dly= 0 Rate= 0
```

Summary: Sets the rate of LFO "fade in" for the selected element.

Settings: 0 ... 99

Procedure: Use the CURSOR [\leftarrow] and [\rightarrow] keys to select the Rate parameter. Use the [DATA ENTRY] control or [-1/NO] and [+1/YES] keys to set the desired LFO fade-in rate.

Details: "99" is the fastest rate, causing the LFO to start operation at full depth immediately. A setting of 0 produces the longest LFO fade in.

Refer to: page 46, 47.

ELEMENT TONE

● *Spd (Speed)*

```
ET LFO      BCD
←Speed= 0
```

Summary: Sets the speed of the LFO for the selected element.

Settings: 0 ... 31

Procedure: Use the CURSOR [◀] and [▶] keys to select the Speed parameter. Use the [DATA ENTRY] control or [-1/NO] and [+1/YES] keys to set the desired LFO speed.

Details: "0" is slowest LFO speed setting; "31" is the fastest.
The speed parameter can not be edited when the sample-and-hold (S&H) LFO TYPE is selected.

ELEMENT ENVELOPE

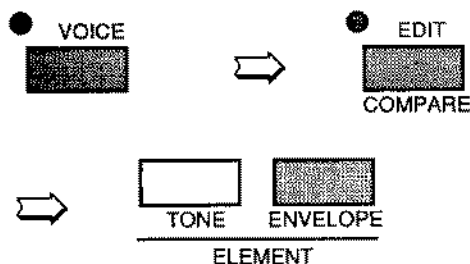
The ELEMENT ENVELOPE edit mode allows detailed programming of the amplitude envelopes for each element in the selected voice.

TYPE.....	69
DELAY (Delay Rate & ON/OFF).....	70
INITIAL LEVEL.....	70
ATTACK (Level & Rate).....	70
DECAY 1 (Level & Rate)	71
DECAY 2 (Level & Rate)	71
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RATE SCALING.....	72

NOTE: The ELEMENT ENVELOPE parameters are not available for AWM elements in which wave number 127 (Drum Set) is selected (the "Cannot edit" display will appear).

ELEMENT ENVELOPE

Selecting the ELEMENT ENVELOPE Edit Mode



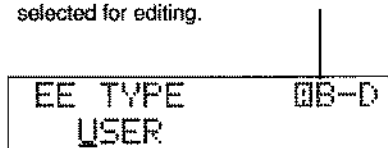
From another VOICE EDIT mode simply press [ELEMENT ENVELOPE].

Selecting Elements for Editing

Different elements can be selected for editing by pressing the appropriate [ELEMENT SELECT] key — [A], [B], [C] or [D]. If a 2-element voice is being edited, only elements A and B can be selected. The currently selected element is shown in the upper right-hand corner of the LCD as a reversed (white on black) character.

Any of the available elements can also be turned on or off by pressing the appropriate [ELEMENT ON/OFF] key. Each key alternately turns the associated element on and off, and the on/off status of the elements is shown to the right of the upper LCD line. If the element character is showing, the associated element is ON, if a dash appears in place of the element character, that element is OFF. The ability to turn elements on or off while editing makes it easier to hear the effect of parameter changes on a single element.

In this example elements A, B and D are ON, while element C is OFF. Element A is currently selected for editing.



Selecting the ELEMENT ENVELOPE Edit Mode Functions

The various ELEMENT ENVELOPE edit mode functions can be selected in sequence by pressing the [ELEMENT ENVELOPE] key, or by using the PAGE [◀] and [▶] keys.

The ENVELOPE COPY Function

This function facilitates editing by copying envelope parameters from a selected element to the current element. ENVELOPE COPY can save a lot of programming time by allowing easy copying of complex USER type envelope data between elements.

1. To call the ENVELOPE COPY function, press the [STORE/COPY] while in the ELEMENT ENVELOPE edit mode.

```
EE COPYfrom 0BCD
from 0      +
```

2. Use the CURSOR [◀] and [▶] keys to move the cursor to the "from" element parameter. Use the [DATA ENTRY] control or [-1/NO] and [+1/YES] keys to select the element from which the envelope data is to be copied.
3. Press the CURSOR [▶] key one more time and the "Are you sure?" display will appear. Press [+1/YES] to execute the copy operation or [-1/NO] to cancel. ">>Completed!!<<" will appear briefly when the copy operation has finished.
4. Press the ELEMENT [EG] key to return to the ELEMENT EG edit mode.

The COMPARE Function

While in any VOICE EDIT mode, you can compare the sound of the edited voice with the sound of the voice before it was edited by pressing the [EDIT/COMPARE] key to activate the COMPARE function. The [EDIT/COMPARE] key indicator will flash while the COMPARE function is active, and the sound of the voice prior to editing will be heard when you play the master keyboard or controller. Press the [EDIT/COMPARE] key again to return to the edit mode.

TYPE

EE TYPE BCD
 USER

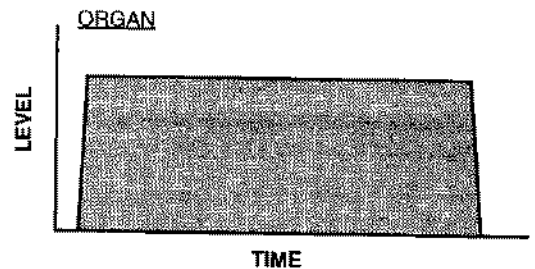
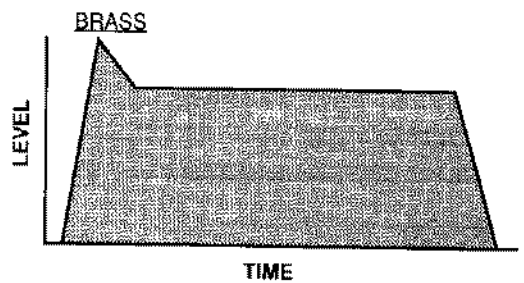
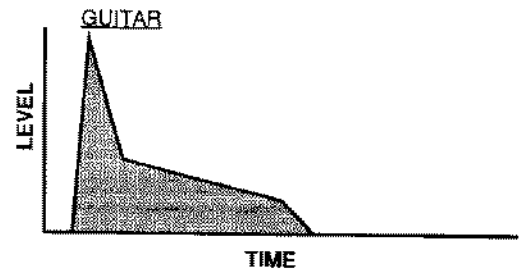
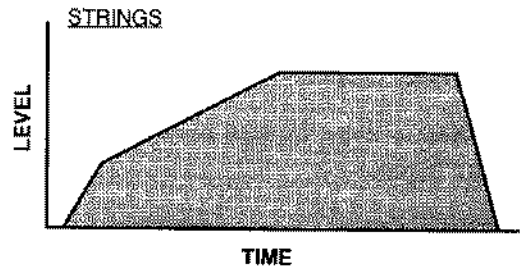
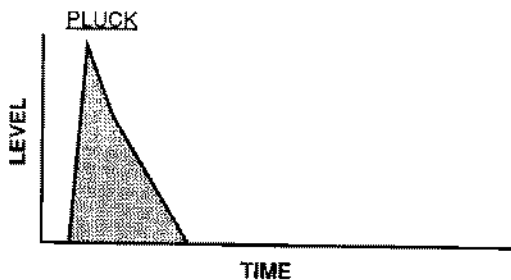
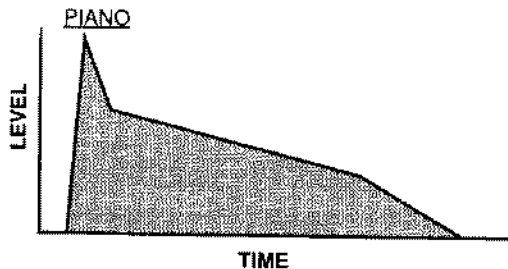
Summary: Selects a user or preset amplitude envelope for the selected element.

Settings: PRESET, PIANO, GUITAR, PLUCK, BRASS, STRINGS, ORGAN, USER

Procedure: Use the [DATA ENTRY] control or [-1/NO] and [+1/YES] keys to select the desired envelope.

Details: When "PRESET" is selected, the original envelope of the wave selected for the current element is used. For example, if the current element uses a guitar wave the corresponding guitar envelope will be selected.

When "PIANO," "GUITAR," "PLUCK," "BRASS," "STRINGS," or "ORGAN" is selected, a generic envelope of the appropriate type is used. The envelopes are roughly as shown below:



When "USER" is selected, an original envelope can be programmed using the attack, decay, and release parameters described on pages 70, 71 and 72.

Refer to: page 47.

DELAY (Delay Rate & ON/OFF)

```
EE DELAY  BCD
Rate= 0  off
```

Summary: Sets a delay before the envelopes of all elements begin.

Settings: Delay: 0 ... 99
Mode: on/off

Procedure: Use the CURSOR [◀] and [▶] keys to move the cursor to the "Rate" parameter. Use the [DATA ENTRY] control or [-1/NO] and [+1/YES] keys to select the desired delay rate.

Press the [▶] cursor key one more time to move to the on/off mode parameter, and use the [DATA ENTRY] control or [-1/NO] and [+1/YES] keys to set as required.

Details: The envelope delay rate parameter affects all envelopes simultaneously. A setting of "99" produces almost no delay while a setting of "0" produces maximum delay.

Refer to: page 47.

INITIAL LEVEL

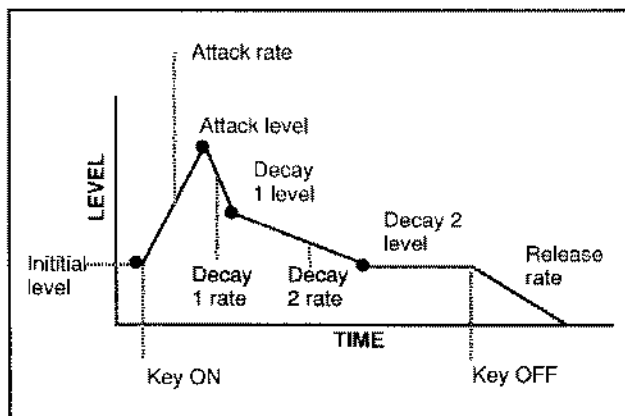
```
EE INITIAL BCD
Level= 0
```

Summary: Sets the starting level of the amplitude envelope for the current element.

Settings: 0 ... 99

Procedure: Use the [DATA ENTRY] control or [-1/NO] and [+1/YES] keys to set the initial level.

Details: A setting of "0" means that the envelope will begin from zero (minimum) level, while a setting of "99" causes the envelope to begin immediately from maximum level. The highest setting produces the sharpest attack.



Refer to: page 47.

ATTACK (Level & Rate)

```
EE ATTACK  BCD
AL= 0  AR= 0
```

Summary: Sets the rate and peak level of the attack of the amplitude envelope for the current element.

Settings: AL (Attack Level): 0 ... 99
AR (Attack Rate): 0 ... 99

Procedure: Use the CURSOR [◀] and [▶] keys to move the cursor to the "AL" or "AR" parameter. Use the [DATA ENTRY] control or [-1/NO] and [+1/YES] keys to set the selected level or rate parameter.

Details: Refer to the INITIAL LEVEL function for a complete envelope diagram.

A rate setting of "0" produces the slowest attack, and a setting of "99" produces the fastest attack.

A level setting of "0" produces the lowest attack level, while a setting of "99" produces the highest level.

Refer to: page 47.

DECAY 1 (Level & Rate)

```
EE DECAY1  BBCD
D1L= 0 D1R= 0
```

Summary: Sets the rate and final level of the first decay of the amplitude envelope for the current element.

Settings: D1L (Decay 1 Level): 0 ... 99
D1R (Decay 1 Rate): 0 ... 99

Procedure: Use the CURSOR [◀] and [▶] keys to move the cursor to the "D1L" or "D1R" parameter. Use the [DATA ENTRY] control or [-1/NO] and [+1/YES] keys to set the selected level or rate parameter.

Details: Refer to the INITIAL LEVEL function for a complete envelope diagram.

A rate setting of "0" produces the slowest decay, and a setting of "99" produces the fastest decay.

A level setting of "0" produces the lowest decay level, while a setting of "99" produces the highest level.

Refer to: page 47.

DECAY 2 (Level & Rate)

```
EE DECAY2  BBCD
D2L= 0 D2R= 0
```

Summary: Sets the rate and final level of the second decay of the amplitude envelope for the current element.

Settings: D2L (Decay 2 Level): 0 ... 99
D2R (Decay 2 Rate): 0 ... 99

Procedure: Use the CURSOR [◀] and [▶] keys to move the cursor to the "D2L" or "D2R" parameter. Use the [DATA ENTRY] control or [-1/NO] and [+1/YES] keys to set the selected level or rate parameter.

Details: Refer to the INITIAL LEVEL function for a complete envelope diagram.

A rate setting of "0" produces the slowest decay, and a setting of "99" produces the fastest decay.

A level setting of "0" produces the lowest decay level, while a setting of "99" produces the highest level.

The decay 2 level parameter also sets the hold level at which the note is sustained until released.

Refer to: page 47.

RELEASE RATE

```
EE RELEASE  [BCD]
Rate= 0
```

Summary: Sets the release rate of the amplitude envelope for the current element.

Settings: 0 ... 99

Procedure: Use the [DATA ENTRY] control or [-1/NO] and [+1/YES] keys to set the release rate.

Details: Refer to the INITIAL LEVEL function for a complete envelope diagram.

A release rate setting of "0" produces the slowest release, and a setting of "99" produces the fastest release.

Refer to: page 47.

LEVEL SCALING

```
EE SCALING  [BCD]
Lev Type= 1 ---
```

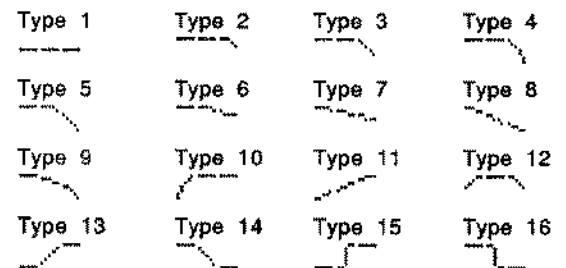
Summary: Determines how the level of the current element changes across the range of the keyboard.

Settings: 1 ... 16

Procedure: Use the [DATA ENTRY] control or [-1/NO] and [+1/YES] keys to set the desired level scaling curve.

Details: Most acoustic instruments do not produce a uniform sound level throughout their pitch range. This results in a level curve that can be simulated by appropriate settings of the level scaling parameter. Often, for example, the level decreases slightly as the pitch increases.

Each of the 16 available level scaling curves is shown in graphic form on the LCD when selected, making it easy to locate and select the optimum curve for each application.



Refer to: page 47.

RATE SCALING

```
EE SCALING  [BCD]
Rate Type= 1 ---
```

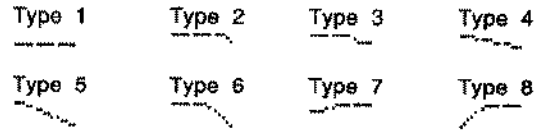
Summary: Determines how the overall rate of the amplitude envelope for the current element changes across the range of the keyboard.

Settings: 1 ... 8

Procedure: Use the [DATA ENTRY] control or [-1/NO] and [+1/YES] keys to set the desired rate scaling curve.

ELEMENT ENVELOPE

Details: Many acoustic instruments do not produce uniform note length throughout their pitch range. This results in a rate curve that can be simulated by appropriate settings of the rate scaling parameter. Often, for example, the overall note length decreases slightly as the pitch increases. Each of the 8 available rate scaling curves is shown in graphic form on the LCD when selected, making it easy to locate and select the optimum curve for each application.



Refer to: page 47.

ELEMENT ENVELOPE

MULTI

The MULTI edit mode allows 16 different voices to be assigned to different MIDI channels, and a range of parameters including volume, detuning, pan position, and others, to be set for each voice. The assigned voices can then be individually controlled over the appropriate channels from an external MIDI sequence recorder or other controller. Refer to "5. THE MULTI PLAY & EDIT MODES" beginning on page 33 of the TUTORIALS section for more details.

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MULTI

Selecting the MULTI Edit Mode



Selecting Different MULTI Channels for Editing

The small white numbers above the BANK/MULTI CHANNEL keys correspond to the 16 available MIDI channels. Pressing any of these while in the MULTI EDIT mode selects the corresponding channel for programming.

BANK/MULTI CHANNEL							
1	2	3	4	5	6	7	8
9	10	11	12	13	14	15	16

The currently selected channel number is shown in the upper right-hand corner of the display — e.g. “CH 1” is channel 1, “CH 2” is channel 2, etc.

Selecting the MULTI Edit Mode Functions

The various MULTI edit mode functions can be selected by using the PAGE [◀] and [▶] keys.

The CHANNEL COPY Function

This function facilitates MULTI PLAY setup editing by copying parameters from a selected channel to the current channel.

1. To call the CHANNEL COPY function, press the [STORE/COPY] while in the MULTI EDIT mode.

```
MU COPY from CH 1
Channel 2 +
```

2. Use the CURSOR [◀] and [▶] keys to move the cursor to the “Channel” element parameter. Use the [-1/NO] and [+1/YES] keys to select the channel from which the data is to be copied.
3. Press the CURSOR [▶] key one more time and the “Are you sure?” display will appear. Press [+1/YES] to execute the copy operation or [-1/NO] to cancel. “>>Completed!!<<” will appear briefly when the copy operation has finished.
4. Press the [EDIT] key to return to the MULTI edit mode.

The COMPARE Function

While in the MULTI EDIT mode, you can compare the sound of the edited MULTI PLAY setup with the sound of the setup before it was edited by pressing the [EDIT/COMPARE] key to activate the COMPARE function. The [EDIT/COMPARE] key indicator will flash while the COMPARE function is active, and the sound of the setup prior to editing will be heard when you play the master keyboard or controller. Press the [EDIT/COMPARE] key again to return to the edit mode.

VOICE NUMBER

```

MU VOICE NO CH 1
511 SP*Pro33
  
```

Summary: Assigns a preset, card or internal voice to the selected multi-play part.

Settings: Source: 1, C₁, C₂, P₁, P₂
 Bank: 1 ... 8
 Number: 1 ... 8

Procedure: Press the [BANK/MULTI CHANNEL] key corresponding to the desired MULTI channel.

Use the CURSOR [◀] and [▶] keys to move the cursor to the source, bank, or number parameter. Use the [DATA ENTRY] control or [-1/NO] and [+1/YES] keys to set the selected parameter as necessary.

The number parameter can be decrement below "1" (by pressing the [-1/NO] key while "1" is showing, for example) to turn the selected channel "off."

Details: In this display the source, bank and number parameters are shown in the standard TG33 voice number format. "P₁12," for example, is preset 1, bank 1, number 2; "I35" is internal bank 3, number 5, etc.

Please note that although preset voices can be assigned to any multi-play setup, internal voices can only be assigned to internal multi-play setups and card voices can only be assigned to multi-play setups in card memory, as follows:

```

MULTI VOICE
1 ..... I, P1, P2
C1 ..... C1, P1, P2
C2 ..... C2, P1, P2
  
```

Refer to: page 13.

VOLUME

```

MU VOLUME CH 1
Level= 0
  
```

Summary: Adjusts the volume of the selected MULTI channel.

Settings: 0 ... 99

Procedure: Press the [BANK/MULTI CHANNEL] key corresponding to the desired MULTI channel.

Use the [DATA ENTRY] control or [-1/NO] and [+1/YES] keys to select the desired volume level.

Details: A setting of "0" produces no sound while a setting of "99" produces maximum volume. The ability to independently adjust the volume of each MULTI channel makes it simple to set up the optimum balance or "mix" between parts.

DETUNE

```

MU DETUNE CH 1
+ 0cent
  
```

Summary: Allows slight upward or downward pitch adjustment of the selected MULTI channel.

Settings: -50 ... +0 ... +50

MULTI

Procedure: Press the [BANK/MULTI CHANNEL] key corresponding to the desired MULTI channel.

Use the [DATA ENTRY] control or [-1/NO] and [+1/YES] keys to select the desired amount of detuning.

Details: The Detune function allows different parts in a MULTI PLAY setup to be slightly detuned in relation to each other, thereby "thickening" the overall sound.

Detuning occurs in 3 or 4-cent steps. Since 100 cents equals one semitone, the overall detune range is approximately one semitone. Plus settings tune upward from normal pitch, and minus settings tune downward. A setting of "+0" produces normal pitch.

NOTE SHIFT

```
MU NOTE SFT CH 1
+ 0
```

Summary: Shifts the pitch of the selected MULTI channel up or down in semitone steps.

Settings: -24 ... +0 ... +24.

Procedure: Press the [BANK/MULTI CHANNEL] key corresponding to the desired MULTI channel.

Use the [DATA ENTRY] control or [-1/NO] and [+1/YES] keys to select the desired degree of note shift.

Details: A setting of "-12," for example, shifts the pitch of the selected voice down by one octave; a setting of "+4" shifts the pitch up by a major third. The maximum range is plus or minus two octaves.

The Note Shift function can be used to transpose a voice to its most useful range, or to create harmony (intervals) between different channels in a MULTI PLAY setup.

PAN

```
MU PAN CH 1
L--I--R
```

Summary: Determines the position in the stereo sound field in which the sound from selected MULTI channel will be heard (left to right).

Settings: Graphic Display: L--I--R, 5 positions from left to right; voice

Procedure: Press the [BANK/MULTI CHANNEL] key corresponding to the desired MULTI channel.

Use the [DATA ENTRY] control or [-1/NO] and [+1/YES] keys to select the desired pan position.

If you pan past the "R" end of the graphic pan display, the word "voice" will appear. In this case the original PAN position of the voice as determined by the VOICE ELEMENT TONE edit mode PAN function will be retained.

Details: The lower line of the display shows a graphic representation of the stereo sound field with "L" representing "left" and "R" representing "right." As you edit the pan parameter the position indicator will appear at the corresponding position on the graphic display. A total of five different positions are available, corresponding to left, left-center, center, right-center, and right. The PAN function will *not* affect the stereo position of drum voice instruments.

Interesting stereo effects can be produced by placing the output from different channels at different locations in the stereo sound field.

Please note that when the EFFECT Balance parameter is set to or close to its maximum value (127), the PAN setting has no effect.

Refer to: page 45, 79, 80.

ASSIGN MODE

```

MU ASSIGN MODE
G1/G2=32/0
  
```

Summary: Determines how the TG33 DVA (Dynamic Voice Allocation) system will distribute notes to the two output groups (see SEND GROUP SELECT, below).

Settings: 32/0, 24/8, 16/16

Procedure: Use the [DATA ENTRY] control or [-1/NO] and [+1/YES] keys to select the desired note distribution.

Details: The ASSIGN MODE settings work as follows:

G1/G2=32/0 32 notes to group 1, none to group 2.

G1/G2=24/8 24 notes to group 1, 8 to group 2.
G1/G2=16/16 16 notes each to group 1 and group 2.

NOTE: 4-element voices reduce the total number of available notes.

Always make sure this function is set so that a sufficient number of notes is available for the voices assigned to each group.

When the ASSIGN MODE setting is "32/0" no notes are assigned to group 2, therefore other MULTI EDIT mode parameters related to group 2 — i.e. those in the OUTPUT GROUP SELECT and OUTPUT SELECT functions — will not be available.

Refer to: page 80.

SEND GROUP SELECT

```

MU SEND      CH 1
GROUP=1
  
```

Summary: Determines whether the current MULTI channel is assigned to output group 1 or 2. This function is only available if the ASSIGN MODE function (above) is set to *other than* "32/0."

Settings: Group: 1, 2

Procedure: Press the [BANK/MULTI CHANNEL] key corresponding to the desired MULTI channel. Use the [DATA ENTRY] control or [-1/NO] and [+1/YES] keys to select the desired group.

Details: The two groups to which each channel can be assigned using this function can further be assigned to either the OUTPUT 1 or OUTPUT 2 stereo outputs using the OUTPUT SELECT function described on page 80. The ASSIGN MODE function, described above, determines how the polyphonic output of a MULTI PLAY setup is distributed to the two groups.

The parameter will appear as "*" on the display if the ASSIGN MODE parameter (above) is set to "32/0".

Refer to: page 80.

OUTPUT SELECT

```
MU OUTPUT SELECT
G1=out1 G2=out2
```

Summary: Determines to which of the TG33's two pairs of stereo outputs — OUTPUT 1 and OUTPUT 2 — the voices assigned to output group 1 and output group 2 (see SEND GROUP SELECT, page 79) will be sent.

Settings: Group 1 (G1): out1, out2
Group 2 (G2): out1, out2

Procedure: Use the CURSOR [▷] key to move the cursor to the G1 or G2 parameter. Use the [DATA ENTRY] control or [-1/NO] and [+1/YES] keys to assign the selected group to the desired output pair.

Details: The TG33's group assignment ability can be used in conjunction with the PAN function to assign individual voices to specific outputs for processing via an external mixing console or other equipment. Or you could simply feed separate stereo signals to two stereo sound systems. When making output assignments, keep in mind the fact that effects will only apply to OUTPUT 1.

Group 2 can only be assigned using this function if the ASSIGN MODE function, described next, is set to a value *other than* "32/0." If ASSIGN MODE is set to "32/0," the G2 parameter will appear as "****" on the display.

Refer to: page 79.

EFFECT (Type, Balance & G1/G2 Send Levels)

```
MU EFFECT
Type=Rev Hall →
```

Summary: Selects one of sixteen digital effects, and sets the balance and group 1 and group 2 send levels of the selected effect for the current MULTI channel.

Settings: Effect type:

Rev Hall	(Reverb Hall)
Rev Room	(Reverb Room)
Rev Plate	(Reverb Plate)
Rev Club	(Reverb Club)
Rev Metal	(Reverb Metal)
Delay 1	(Short Single Delay)
Delay 2	(Long Delay)
Delay 3	(Long Delay)
Doubler	(Doubler)
Ping-Pong	(Ping Pong Delay)
Pan Ref	(Panned Reflections)
Early Ref	(Early Reflections)
Gate Rev	(Gated Reverb)
Dly&Rev 1	(Delay & Reverb 1)
Dly&Rev 2	(Delay & Reverb 2)
Dist&Rev	(Distortion & Reverb)

Balance (Bal): 0 ... 127

Group 1 Send Level (G1): 0 ... 127

Group 2 Send Level (G2): 0 ... 127

Procedure: Press the [BANK/MULTI CHANNEL] key corresponding to the desired MULTI channel. Use the CURSOR [◀] and [▶] keys to place the underline cursor under the effect type, balance, or G1 or G2 send level parameter. Use the [DATA ENTRY] control or [-1/NO] and [+1/YES] keys to select the desired effect, balance, or send level.

Details: The balance parameter determines the balance between the "dry" sound of the voice and the effect sound. A setting of "0" produces only the voice with no effect, while the maximum setting of "127" produces only the effect sound. The send level parameter determines the level of the signal sent via the effect processor to the corresponding output group. A setting of "0" means that the voice signal is not sent to the effect processor, while the maximum setting of "127" sends full effect level to the effect processor.

NOTE: Some voice waveforms may exhibit a drop in level when distortion is applied. This is due to internal data overflow, and can be compensated for by reducing the effect send level or effect balance setting.

Please note that effects *only* apply to OUTPUT1, so if a group is assigned to OUTPUT2 (out2) using the OUTPUT SELECT function, described above, its level send parameter will not be available and will be shown on the display as "****". The G2 send level parameter will also not be available if the ASSIGN MODE function described on page 79 is set to 32/0.

Refer to: page 45, 79.

NAME

```

MU NAME
I11  Quartet
    
```

Summary: Assigns a name of up to 8 characters to the current MULTI PLAY setup.

Settings: The following characters are available for use in multi-play names:

```

(Space) !"#%&'< >+,-./0123456789:;=<=>?@
ABCDEFGHIJKLMNPOQRSTUVWXYZ[*]^_`
abcdefghijklmnopqrstuvwxyz( )+*
    
```

Procedure: Use the CURSOR [◀] and [▶] keys to place the underline cursor under the character to be changed. Use the [DATA ENTRY] control or [-1/NO] and [+1/YES] keys to select the desired character. Continue until the entire name has been programmed.

Details: It's a good idea to give your multi-play setups names that make them easily identifiable. If you've created a new setup using three voices intended for rock music, you could call it something like "RockTrio".

MULTI INITIALIZE

```

MU INIT MULTI
Are you sure?
    
```

Summary: Initializes all parameters of the current MULTI PLAY setup.

Settings: None.

Procedure: When the "INIT MULTI" display is selected "Are you sure?" will appear on the lower line. Press the [+1/YES] to initialize. ">>Completed!!<<" will appear briefly when the initialization is finished.

Details: When multi-play Initialize is executed, the multi-play setup parameters are initialized to the following values:

TG33 MULTI INITIAL

MULTI NAME	Initial
ASSIGN MODE	32poly
OUTPUT SELECT G1	out1
(OUTPUT SELECT G2	out1)
EFFECT	Rev.Hall
Balance	64
Send 1	127
(Send 2	127)

	Channel 1 Channel 16
VOICE NUMBER	P1 11
VOLUME	99
DETUNE	+0
NOTE SHIFT	+0
PAN	L--E--R
(SEND GROUP	1)

MULTI

TG33 System Parameter

SET UP	
MASTER TUNE	+0
TRANPOSE	+0
CONTROLLER RESET	hold
MIDI	
VOICE RECEIVE CH	omni
VECTOR CHANNEL	1
PROG.CHANGE	on
EXCLUSIVE	off
DEVICE NUMBER	all

The multi initialize function is useful if you want to begin programming a setup "from scratch."

MULTI RECALL

```
MU RECALL MULTI
Are you sure?
```

Summary: Recalls the last MULTI PLAY setup edited from the TG33 edit buffer memory.

Settings: None

Procedure: When the "RECALL MULTI" function is selected "Are you sure?" appears on the lower display line. Press the [+1/YES] key to recall.

">>Completed!!<<" will appear briefly when the initialization is finished.

Details: Even if you've exited the edit mode and called a different MULTI PLAY setup, this function will recall the last setup edited with all parameters as they were at the time the edit mode was exited.

UTILITY SYSTEM

The UTILITY SYSTEM mode provides access to the TG33 MASTER TUNE, TRANSPOSE, and CONTROLLER RESET functions.

MASTER TUNE.....	85
TRANSPOSE.....	85
CONTROLLER RESET.....	85

UTILITY SYSTEM

Selecting the UTILITY SYSTEM Mode



From another UTILITY mode simply press [UTILITY SYSTEM].

Selecting the UTILITY SETUP Mode Functions

The various UTILITY SETUP mode functions can be selected in sequence by pressing the [UTILITY SYSTEM] key, or by using the PAGE [<] and [>] keys.

MASTER TUNE

```
US MASTER TUNE
+ 0cent
```

Summary: Tunes the overall pitch of the TG33 over approximately a 100-cent range.

Settings: -50 ... +0 ... +50

Procedure: Use the [DATA ENTRY] control or [-1/NO] and [+1/YES] keys to set the desired degree of tuning.

Details: Tuning occurs in 3 or 4-cent steps. Since 100 cents equals one semitone, the overall tuning range is approximately one semitone — i.e. plus or minus a quarter tone. Plus settings tune upward from normal pitch, and minus settings tune downward. A setting of “+0” produces normal pitch.

TRANSPOSE

```
US TRANSPOSE
+ 0
```

Summary: Transposes the overall pitch of the TG33 up or down in semitone steps.

Settings: -12 ... +0 ... +12

Procedure: Use the [DATA ENTRY] control or [-1/NO] and [+1/YES] keys to set the desired degree of transposition.

Details: A setting of “-12,” for example, transposes down by one octave; a setting of “+4” transposes up by a major third.

CONTROLLER RESET

```
US CONT RESET
hold
```

Summary: Determines whether controller settings (modulation wheel, pitch bend, breath controller, foot controller, etc.) are held or reset when voices or multi-play setups are switched.

Settings: hold, reset

Procedure: Use the [DATA ENTRY] control or [-1/NO] and [+1/YES] keys to select the desired controller mode.

Details: If this function is set to “hold,” then if, for example, you have applied modulation to a voice via the modulation wheel and switch to a new voice while maintaining the same modulation wheel position, then the same amount of modulation will be applied to the new voice. If “reset” is selected, then all controller values are reset when a new voice or multi-play setup is selected.

UTILITY SYSTEM

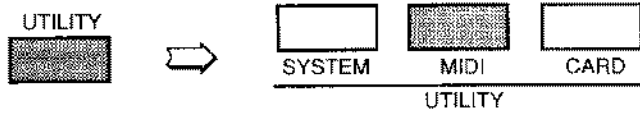
UTILITY MIDI

The UTILITY MIDI mode provides access to all of the TG33's MIDI control functions.

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BULK TRANSMIT	91

UTILITY MIDI

Selecting the UTILITY MIDI Mode



From another UTILITY mode simply press [UTILITY MIDI].

Selecting the UTILITY MIDI Mode Functions

The various UTILITY MIDI mode functions can be selected in sequence by pressing the [UTILITY MIDI] key, or by using the PAGE [◀] and [▶] keys.

VOICE RECEIVE CHANNEL

UM MIDI
Receive Ch= 1

Summary: Sets the TG33 MIDI VOICE MODE receive channel to any channel between 1 and 16, or the "omni" mode for reception on all channels.

Settings: 1 ... 16, omni

Procedure: The [DATA ENTRY] control or [-1/NO] and [+1/YES] keys are used to select the desired MIDI channel or the omni mode.

Details: When the TG33 is operating in the VOICE PLAY mode and is to receive data from an external MIDI device such as a sequencer, make sure that the TG33 MIDI voice receive channel is either set to the channel that the external device is transmitting on, or the omni mode.

Refer to: page 12.

VECTOR CHANNEL

UM MIDI
Vector Ch= 1

Summary: Sets the MIDI channel on which data relating to VECTOR CONTROL operation will be transmitted or received.

Settings: 1 ... 16.

Procedure: Use the [DATA ENTRY] control or [-1/NO] and [+1/YES] keys to select the desired MIDI transmit channel number.

Details: This function allows the TG33 VECTOR CONTROL to control other compatible devices such as a second TG33 or an SY22 synthesizer, or vice versa. Make sure that both the TG33 and external device VECTOR CHANNEL numbers are set to the same number. Further, if an external device is to control level or detune vectors, use the TG33 [VECTOR] button to turn the corresponding vector control function ON — LEVEL or DETUNE. When receiving LEVEL VECTOR information, internal dynamic detune vectors will still play automatically, and vice versa.

Refer to: page 12.

MIDI PROGRAM CHANGE

UM MIDI
Prog Change=qff

Summary: Determines how the TG33 will respond to MIDI program change messages for remote voice/multi selection.

Settings: off, on

Procedure: The [DATA ENTRY] control or [-1/NO] and [+1/YES] keys are used to select the desired MIDI program change mode.

UTILITY CARD

Details: The "off" setting turns MIDI program change reception off, so MIDI program change messages received from external equipment will not cause the corresponding TG33 voice to be selected.

When MIDI PROGRAM CHANGE is turned "on," program change data received by the TG33 has the following effects in the VOICE PLAY, MULTI PLAY, and MULTI EDIT modes:

VOICE PLAY Program change numbers 0 through 63 received from external equipment will select TG33 voices 1.1 through 8.8 in the currently selected memory area. All other program change numbers will be ignored.

MULTI PLAY Program change numbers 0 through 63 received from external equipment will select TG33 voices 1.1 through 8.8 for the corresponding MIDI channel, and program change numbers 64 through 79 received on the VOICE RECEIVE CHANNEL select multi-play setups 1.1 through 2.8. The card, internal or preset voice banks cannot be selected via MIDI control.

MULTI EDIT Operation is basically the same as in the MULTI PLAY mode except that program change numbers 64 through 79 will be ignored

ALL MODES For more detailed technical information on Bank Select operation, refer to "2.2.2 Control Change" in the "MIDI DATA FORMAT" section, page 104.

Bank Data	Select Value	Mode & Memory
2*	0~63	VOICE PLAY/PRESET 1
0*	0~63	VOICE PLAY/INTERNAL
1*	0~63	VOICE PLAY/CARD 1
5*	0~63	VOICE PLAY/PRESET 2
4*	0~63	VOICE PLAY/CARD 2
16*	64~79	MULTI PLAY setup/INTERNAL
17*	64~79	MULTI PLAY setup/CARD 1
20*	64~79	MULTI PLAY setup/CARD 2
34**	0~63	MULTI PLAY voice/PRESET 1
32**	0~63	MULTI PLAY voice/INTERNAL (or CARD 1/2 if currently selected)
33**	0~63	MULTI PLAY voice/CARD 1 or 2 (or INTERNAL if currently selected)
37**	0~63	MULTI PLAY voice/PRESET 2

* Must be received on the VOICE RECEIVE CHANNEL.

** If 32, 33, 34, or 37 are received in the VOICE PLAY mode, they will be interpreted as 0, 1, 2, and 5, respectively.

If the above bank select data are immediately followed by a program change number (0 — 79), the corresponding voice or multi-play setup can be selected.

Bank select numbers *other than* 16, 17, and 20 can only be followed by program change numbers 0 through 63.

Bank select numbers 16, 17, and 20 can only be followed by program change numbers 64 through 79.

Refer to: page 12.

EXCLUSIVE ON/OFF & DEVICE NUMBER

```
UM MIDI BULK
  off Device#=all
```

Summary: Turns transmission/reception of MIDI system exclusive data (including bulk data) on or off, and sets the DEVICE NUMBER for exclusive data transfer.

Settings: Exclusive ON/OFF: on, off.
Device #: 1 ... 16, all.

Procedure: When the underline cursor is under the left parameter, use the [DATA ENTRY] control or [-1/NO] and [+1/YES] keys to turn exclusive data transmission/reception "on" or "off." Use the CURSOR [▷] key to move the underline cursor to the DEVICE # parameter, and use the [DATA ENTRY] control or [-1/NO] and [+1/YES] keys to set the device number.

Details: MIDI system exclusive data is transmitted by the TG33 when one of the BULK TRANSMIT functions described below is used. The same type of data will also be automatically loaded into the TG33 memory when received from a second TG33 or other MIDI device, thus erasing previous data. This function can be turned "off" to prevent accidental erasure of the internal memory, or the memory of external equipment, do to mistaken exclusive data reception or transmission.

The device number makes it possible to limit the devices in a MIDI system between which exclusive can be exchanged. Exclusive data can only be received by the TG33 if it is set to the same

device number as the transmitting device. If the device number is set to "all," exclusive data can be received from any transmitting device.

NOTE: The TG33 will recognize and receive "1 Voice" and "Voice & Multi" bulk data from a Yamaha SY22 Music Synthesizer. Since the SY22 do not have Effect Balance and Effect Send level parameters, however, these parameters are automatically set to their default values (Effect Balance = 64; Effect Level = 127) when SY22 voices are used with the TG33. When "Voice & Multi" data is received from an SY22, only the voice data will be recognized. The SY22 MULTI data will be ignored.

BULK TRANSMIT

UM MIDI BULK
Trans=Multi 112→

Summary: Initiates MIDI bulk transmission of the selected voice, multi-play, and/or system data.

Settings: Voice, Multi, 16mlt, 64vce, V & M, Sys, All.

Procedure: Use the [DATA ENTRY] control or [-1/NO] and [+1/YES] keys to select the data to be transmitted.

If you select "16mlt", "64vce", "V & M", "Sys", or "ALL", press the CURSOR [▷] key to move the cursor to the "Are you sure?" display. Press the [+1/YES] key to begin transmission, or the [-1/NO] key to cancel. "Now Transmitting" will appear on the display during transmission.

If you select "Voice", move the cursor to the media, bank, and number parameters at the right of the display and select the voice you wish to send before moving to the "Are you sure?" display and starting the transmission. Transmission procedure is the same as above.

If you select "Multi", move the cursor to the bank and number parameters at the right of the display and select the multi-play setup you wish to send before moving to the "Are you sure?" display and starting the transmission. Transmission procedure is the same as above.

Details: The data corresponding to the various data group settings provided by this function are as follows:

Voice	A single voice from I, P ₁ , or P ₂ .
Multi	A single multi-play setup from I only.
16mlt	All 16 multi-play setups.
64vce	All 64 internal voices.
V & M	All 64 internal voices and 16 multi-play setups.
Sys	Basic system setup data.
All	All data — 64 voices, 16 multi-play setups, and system data.

This function is useful for transferring voice, multi-play, and/or system data from one TG33 to another. If the MIDI OUT of the transmitting TG33 is connected to the MIDI IN of the receiving TG33 via a MIDI cable, the receiving unit will automatically receive and load the data as long as its EXCLUSIVE ON/OFF function is turned "on" and it is set to the same device number as the transmitting TG33. Another possibility is to transfer the data to a MIDI bulk data storage device for long-term storage.

UTILITY MIDI

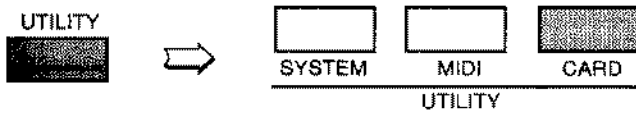
UTILITY CARD

The UTILITY CARD mode provides access to all functions necessary for saving and loading memory card data.

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UTILITY CARD

Selecting the UTILITY CARD Mode



From another UTILITY mode simply press [UTILITY CARD].

Selecting the UTILITY CARD Mode Functions

The various UTILITY CARD mode functions can be selected in sequence by pressing the [UTILITY CARD] key, or by using the PAGE [◀] and [▶] keys.

SAVE TO CARD

```
UC CARD
SAVE TO CARD?
```

Summary: Saves all voice, multi-play, and system data to a memory card.

Settings: None

Procedure: When this function is selected the "SAVE TO CARD?" display will appear. Press the [+ / YES] key to start the save operation. "****SAVE NOW****" will appear on the display while the operation is in progress, and ">>Completed!!<<" will appear briefly when the save operation has finished.

Details: The SAVE operation can only be executed if the WRITE PROTECT switch of the MCD32 or MCD64 Memory Card loaded in into the card slot is turned "off."

When an MCD64 Memory Card is used, the bank to which the data is to be saved can be selected using the CARD BANK SELECT function described on page 96.

Exercise caution when saving data to a memory card — the previous card data will be erased and completely replaced by the saved data.

If an error is encountered, one of the following displays may appear:

Card not ready!	No card in card slot.
Card protected!	Card protect switch is ON.
Card not format!	Card not formatted for use with TG33.
Change card bat!	Card battery is low and must be replaced.

Refer to: page 13 ... 15, 33, 34.

LOAD DATA SELECT & LOAD FROM CARD

```
UC CARD
LOAD=>011 →
```

Summary: Loads voice, voice & multi-play, system, or all data from a memory card into the TG33 internal memory.

Settings: All, Vce&Multi, System, SY22Voice.

Procedure: Use the [DATA ENTRY] control or [-1/NO] and [+1/YES] keys to select the data group to be loaded, then press the CURSOR [▷] key to move to the "LOAD FROM CARD?" display. Press the [+ / YES] key to start the load operation, or the [-1/NO] key to cancel. "****LOAD NOW****" will appear on the display while the operation is in progress, and ">>Completed!!<<" will appear briefly when the load operation has finished.

Details: When an MCD64 Memory Card is used, the bank from which the data is to be loaded can be selected using the CARD BANK SELECT function described on page 96.

Exercise caution when loading data from a memory card — the corresponding internal TG33 data will be erased and completely replaced by the loaded data.

If an error is encountered, one of the following displays may appear:

Card not ready!	No card in card slot.
Card not format!	Card not formatted for use with TG33.

Refer to: page 13 ... 15, 33, 34.

NOTE: Voices from Yamaha SY22 Music Synthesizer voice cards can also be loaded into the TG33. Since the SY22 does not have Effect Balance and Effect Send level parameters, however, these parameters are automatically set to their default values (Effect Balance = 64; Effect Level = 127) when SY22 voices are used with the TG33. The TG33 will load only voice data from an SY22 card. Other SY22 data (MULTI, etc.) will be ignored.

CARD FORMAT

UC CARD
FORMAT ?

Summary: Formats an MCD32 memory card or the currently selected BANK of a MCD64 memory card so that it can be used by the TG33 to save and load voice and multi-play data.

Settings: None

Procedure: When this function is selected the "FORMAT ?" display will appear. Press the [+ / YES] key to start the format operation. ">>Completed!!<<" will appear briefly when the format operation has finished.

Details: Formatting can only be carried out if the memory card WRITE PROTECT switch is turned OFF (refer to your MCD64 or MCD32 Memory Card instructions for details).
If an error is encountered, one of the following displays may appear:

Card not ready! No card in card slot.
Card protected! Card protect switch is ON.
Change Card Bank 32k card inserted and C2 is selected.

CARD BANK SELECT

UC CARD
BANK 1

Summary: Selects bank 1 or bank 2 of a Yamaha MCD64 type memory card prior to formatting or load/save operations.

Settings: 1, 2

Procedure: Use the [DATA ENTRY] control or [-1 / NO] and [+1 / YES] keys to select the desired bank.

Details: MCD32 memory cards only have a single bank, so bank 2 settings are ignored if this type of card is used. MCD64 memory cards allow selection of bank 1 or 2. Each bank holds 64 voices and 16 multi-play setups.

ERROR MESSAGES

Things do go wrong from time to time, and people do make mistakes. When an error occurs, the TG33 will usually display a message that describes the type of error so you can easily take steps to rectify the problem. The following are quick summaries of the TG33 error displays.

Change int bat!

The internal memory backup battery voltage has dropped to an unsafe level. Have the backup battery replaced by *qualified Yamaha service personnel*.

Change Card Bank

You have attempted to save to, compare or format a 32k card while card bank 2 (C₂) is selected.

Card not ready!

You have attempted to perform a data card operation (save, load, format, etc.) while no data card is present in the TG33 card slot.

Change card bat!

The data card battery is low and must be replaced — refer to the operating instructions that came with your data card for details.

Card protected!

You have attempted to perform an operation that writes to the data card (save or format) while the card protect switch is ON.

Verify error!

Unrecognizable data has been received by the TG33.

Card not format!

You have attempted to save or load using a card that has not been properly formatted for use with TG33.

SPECIFICATIONS

SPECIFICATIONS

Tone Generator Systems: AWM (Advanced Wave Memory) & FM (Frequency Modulation)

Internal Memory: Wave ROM; 128 preset AWM & 256 preset FM waveforms
Preset ROM; 128 preset voices
Internal RAM; 64 user voices & 16 user multi setups

External Memory: Voice & Multi data; MCD64 or MCD32 --- write & read

Displays: 16-character × 2-line backlit LCD

Controls: MASTER VOLUME, VECTOR CONTROL

Keys & Switches: POWER ON/OFF; MODE VOICE, MULTI and UTILITY; EDIT/COMPARE; STORE/COPY; VECTOR PLAY LEVEL/DETUNE; EF BYPASS ON/OFF; PAGE ◀ and ▶; CURSOR ◀ and ▶; -1/NO and +1/YES; MEMORY INTERNAL, CARD and PRESET; BANK/MULTI CHANNEL 1-16 (VOICE COMMON and VECTOR; ELEMENT TONE and EG; UTILITY SYSTEM, MIDI and CARD; ELEMENT SELECT A, B, C and D; ELEMENT ON/OFF A, B, C and D)

Connectors: DC 10V IN; PHONES; OUTPUT 1 (L/MONO,R) and OUTPUT 2 (L/MONO, R)

MIDI Connectors: IN, OUT, THRU

Power Requirement/Consumption: DC 10V, 700 mA

Dimensions (W × H × D): 439 × 80.4 × 229.9 mm

Weight: 2.8 kg

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MIDI DATA FORMAT

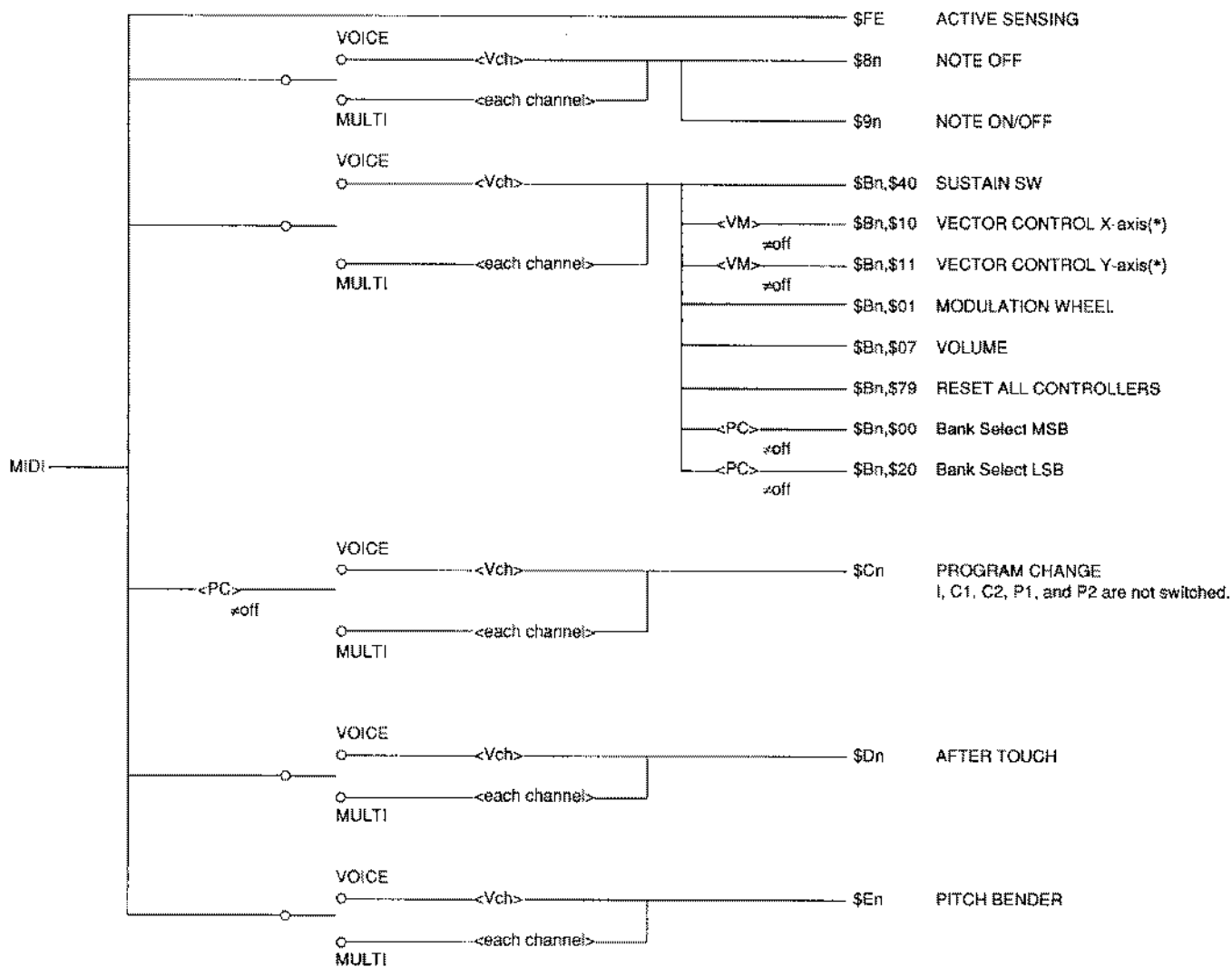
1. MIDI reception/transmission block diagram

<MIDI reception conditions> 1/2

Vch Voice Receive ch.

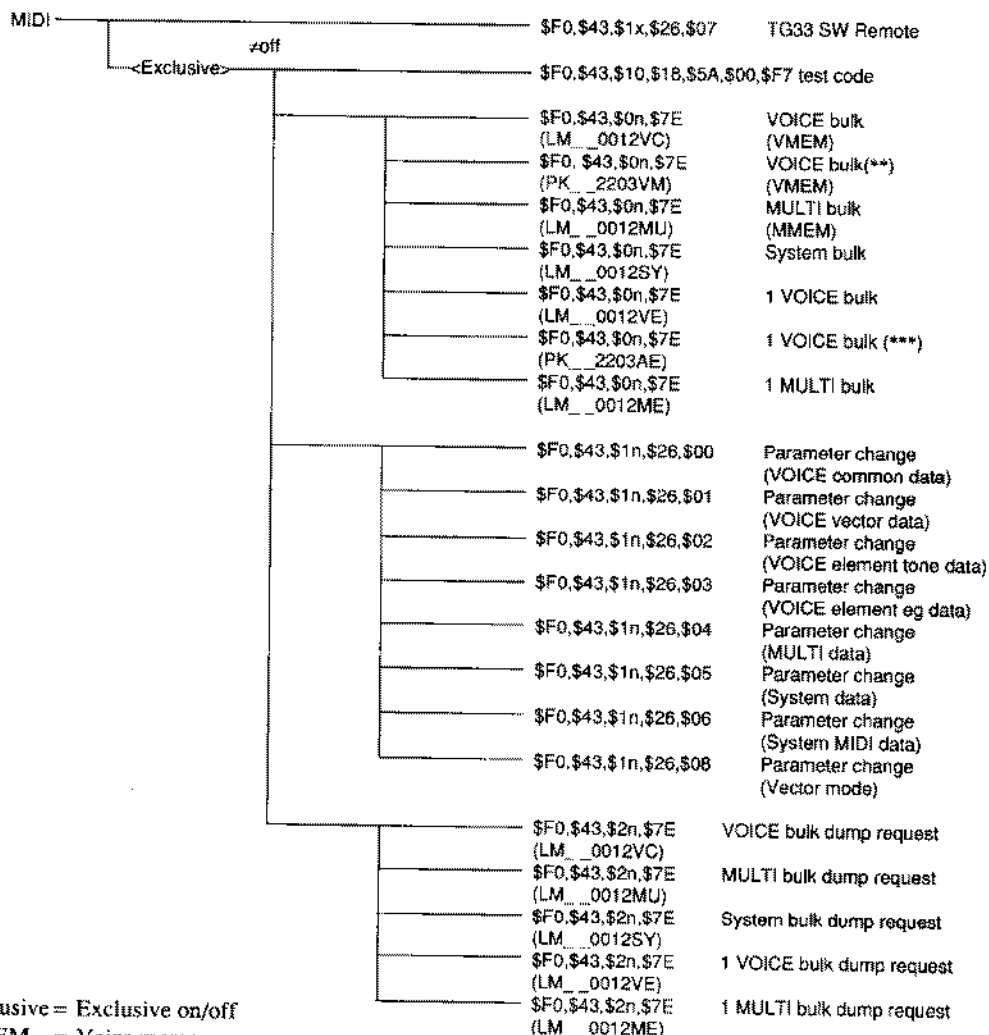
PC Program Change on/off

VM Vector Mode off/level/detune



(*) In the case of MULTI, only the channel which matches the vector channel can be received.

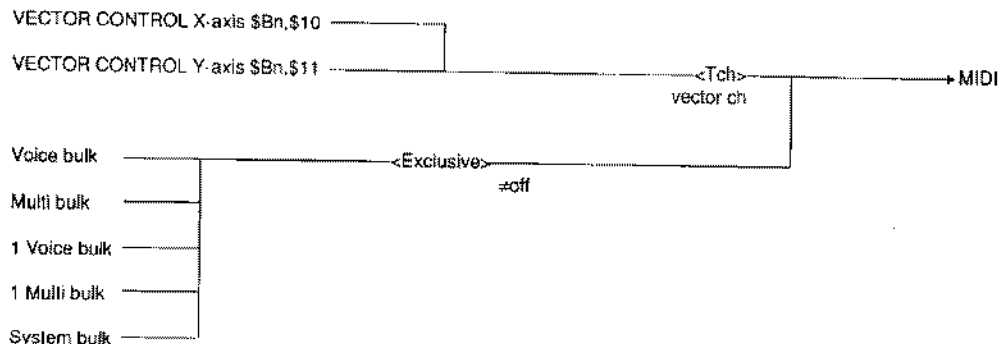
<MIDI reception conditions> 2/2



Exclusive = Exclusive on/off
 VMEM = Voice memory
 MMEM = Multi memory

(**) Only 64 voice data of SY22 is expanded into the TG33 format and is received.
 (***) Only 1 voice data of SY22 is expanded into the TG33 format and is received.

<MIDI transmission conditions>



MIDI DATA FORMAT

2. Channel messages

2.1 Transmission

2.1.1 Control change

Data is output to the MIDI port when you operate the following controller.

cntrl#	parameter	data rng
16	Vector control X-axis	0~127
17	Vector control Y-axis	0~127

2.2 Reception

2.2.1 Note on/off

Reception note range = C2~G8

Velocity range = 1~127 (Only note on can be received for velocity.)

2.2.2 Control change

The following parameters can be controlled via MIDI.

cntrl#	parameter	data rng	
0	Bank Select MSB	0...127	#
1	Modulation Wheel	0...127	
7	Volume	0...127	
16	Vector Control X-axis	0...127	
17	Vector Control Y-axis	0...127	
32	Bank Select LSB	0...127	#
64	Sustain Switch	0...127	
121	Reset All Controllers	0	

The following Bank Select Data can be used for changing mode and the mode and voice are changed when receiving the succeeding program changes 00~79.

bank select	HEX	
data value	14bit	
* #2	(0x0002)	Voice Mode PRESET1
* #0	(0x0000)	Voice Mode INTERNAL
* #1	(0x0001)	Voice Mode CARD1
* #5	(0x0005)	Voice Mode PRESET2
* #4	(0x0004)	Voice Mode CARD2
* #16	(0x0010)	Multi Mode Multi INTERNAL
* #17	(0x0011)	Multi Mode Multi CARD1
* #20	(0x0014)	Multi Mode Multi CARD2
#34	(0x0022)	Multi Mode Voice PRESET1
#32	(0x0020)	Multi Mode Voice INTERNAL or CARD1 (CARD2) (the one selected by MULTI currently)
#33	(0x0021)	Multi Mode Voice CARD1 (CARD2) or INTERNAL (the one selected by MULTI currently)
#37	(0x0025)	Multi Mode Voice PRESET2

However, when the receiving device is in Voice mode, #32~#34, #37 will be interpreted as

#32 → #0
 #33 → #1
 #34 → #2
 #37 → #5

and will be received while remaining in Voice mode.

When 0~79 are received as the Program Change Data immediately after the Bank Select Data is received, the Mode, Voice, and Multi are switched according to the above table.

However, when the Bank Select Data is those other than 16, 17, and 20, the succeeding Program Change Data must be equal to 0~63.

In the similar manner, when the Bank Select Data is 16, 17, and 20, the succeeding Program Change Data must be equal to 64~79.

Those marked by an asterisk (*) are valid only when data is received through the Voice Receive Channel.

2.2.3 Program change

When a program change is received, this unit operates as follows. The Utility System allows the following two types of reception modes.

- 1) off: No program changes are received.
- 2) on

[Voice Play Mode]

When the Program Change Data 0~63 are received, the Media selection stays as it is, thus switching only the voice numbers 11~88.

The Program Change Data 64~127 are ignored.

Only the Program Change Data received through the voice Receive Channel is valid.

[Multi Play Mode]

When the Program Change Data 0~63 are received, the Media of Voice corresponding to that Channel stays as it is, thus switching to the Voice 11~88.

When the Program Change Data 64~79 is received through the Voice Receive Channel, the Media selection stays as it is, thus switching to the Multi 11~28.

The Program Change Data 80~127 are ignored.

[Multi Edit Mode]

It is the same as in the case of the Multi Play Mode. However, the Program Change Data 64~79 are ignored.

[Cautions]

- In the case of the Voice Edit Mode, even if the Voice program change and multi program change are received, they are ignored.
- In the case of the Multi Edit Mode, when the Voice (mode) program change and multi program change are received, they are ignored.
- When data is received in Utility Mode, Voice Play or Multi Play mode is selected, thus receiving data.
- No data is received during Vector recording, Compare, Card load/save execution, and Bulk transmit execution.

2.2.4 Pitch bend

Reception of pitch bend is operated at the MSB side only.

2.2.5 After touch

2.2.6 Channel mode message

No data is received.

3. System exclusive message

3.1 Parameter change

This unit receives the following 9 types of parameter changes. Also, when 8). Remote Switch is received, the corresponding display will appear just as if the switch had actually been pressed.

- 1) Voice Common Data parameter change
- 2) Voice Vector Data parameter change
- 3) Voice Element Tone Data parameter change
- 4) Voice Element Envelope Data parameter change
- 5) Multi Data parameter change
- 6) System Data parameter change
- 7) System MIDI Data parameter change
- 8) Switch Remote parameter change
- 9) Vector Mode parameter change

Reception of parameter change cannot be turned off by each MIDI switch other than Exclusive = off.

8) The Switch Remote parameter change can be received even if the exclusive is off.

[Cautions]

- No data is received during Vector recording, Compare, Card load/save execution, and Bulk transmit execution.

3.1.1 Voice Common Data parameter change

```

11110000 F0
01000011 43
0001nnnn nnnn = Device Number
00100110 26
00000000 00
0aaaaaaa aaaaaa = ST of appended table 1-1
00000000 00
0ccccccc ccccc = (MSB7bits) F1 of appended table 1-1
0ccccccc ccccc = (LSB7bits) F2 of appended table 1-1
0000000d d = (MSB) B1 of appended table 1-1
0ddddd dddddd = (LSB7bits) B2 of appended table 1-1
0000000v v = Data Value (MSB)
0vvvvvvv vvvvvv = Data Value (LSB7bits)
11110111 F7

```

This message is used to change the Voice Common Data for each parameter.

When this message is received, the following automatically results.

- Voice Play Mode : Shifts to Voice Edit Mode and receives data (Screen shift).
- Voice Edit Mode : The Mode stays as it is, receiving data (Screen shift).
- Multi Play Mode : Shifts to the Voice Edit Mode and receives data (Screen shift).
- Multi Edit Mode : Shifts to the Voice Edit Mode and receives data (Screen shift).
- Utility Mode : Shifts to the Voice Edit mode and receives data (Screen shift).

3.1.2 Voice Vector Data parameter change

```

11110000 F0
01000011 43
0001nnnn nnnn = Device Number
00100110 26
00000001 01
0aaaaaaa aaaaaa = ST of appended table 1-2
00000000 00
0ccccccc ccccc = (MSB7bits) F1 of appended table 1-2
0ccccccc ccccc = (LSB7bits) F2 of appended table 1-2
0000000d d = (MSB) B1 of appended table 1-2
0ddddd dddddd = (LSB7bits) B2 of appended table 1-2
0000000v v = Data Value (MSB)
0vvvvvvv vvvvvv = Data Value (LSB7bits)
11110111 F7

```

This message is used to change the Voice Common Data for each parameter.

When this message is received, the following results automatically.

- Voice Play Mode : Shifts to Voice Edit Mode and receives data (Screen shift).
- Voice Edit Mode : The Mode stays as it is, receiving data (Screen shift).
- Multi Play Mode : Shifts to the Voice Edit Mode and receives data (Screen shift).
- Multi Edit Mode : Shifts to the Voice Edit Mode and receives data (Screen shift).
- Utility Mode : Shifts to the Voice Edit mode and receives data (Screen shift).

3.1.3 Voice Element Tone Data parameter change

```

11110000 F0
01000011 43
0001nnnn nnnn = Device Number
00100110 26
00000010 02
0aaaaaaa aaaaaa = ST of appended table 1-3
000000bb bb = Element Number
0ccccccc ccccc = (MSB7bits) F1 of appended table 1-3
0ccccccc ccccc = (LSB7bits) F2 of appended table 1-3
0000000d d = (MSB) B1 of appended table 1-3
0ddddd dddddd = (LSB7bits) B2 of appended table 1-3
0000000v v = Data Value (MSB)
0vvvvvvv vvvvvv = Data Value (LSB7bits)
11110111 F7

```

This message is used to change the Voice Element Tone Data for each parameter.

When this message is received, the following results automatically.

- Voice Play Mode : Shifts to Voice Edit Mode and receives data (Screen shift).
- Voice Edit Mode : The Mode stays as it is, receiving data (Screen shift).
- Multi Play Mode : Shifts to the Voice Edit Mode and receives data (Screen shift).
- Multi Edit Mode : Shifts to the Voice Edit Mode and receives data (Screen shift).
- Utility Mode : Shifts to the Voice Edit mode and receives data (Screen shift).

[Cautions]

When the element C data is received in the A-B (2 element) mode, only the screen changes to the element A. When the element D data is received, only the screen changes to the element B.

If there is no parameter agreeing with the corresponding element, it is ignored.

3.1.4 Voice Element Envelope Data parameter change

```

11110000 F0
01000011 43
0001nnnn nnnn = Device Number
00100110 26
00000011 03
0aaaaaaa aaaaaa = ST of appended table 1-4
000000bb bb = Element Number
0ccccccc ccccc = (MSB7bits) F1 of appended table 1-4
0ccccccc ccccc = (LSB7bits) F2 of appended table 1-4
0000000d d = (MSB) B1 of appended table 1-4
0ddddd dddddd = (LSB7bits) B2 of appended table 1-4
0000000v v = Data Value (MSB)
0vvvvvvv vvvvvv = Data Value (LSB7bits)
11110111 F7

```

This message is used to change the Voice Element Envelope Data for each parameter.

When this message is received, the following results automatically.

MIDI DATA FORMAT

- Voice Play Mode : Shifts to Voice Edit Mode and receives data (Screen shift).
- Voice Edit Mode : The Mode stays as it is, receiving data (Screen shift).
- Multi Play Mode : Shifts to the Voice Edit Mode and receives data (Screen shift).
- Multi Edit Mode : Shifts to the Voice Edit Mode and receives data (Screen shift).
- Utility Mode : Shifts to the Voice Edit mode and receives data (Screen shift).

[Cautions]

When the element C data is received in the A-B (2 element) mode, only the screen changes to the element A. When the element D data is received, only the screen changes to the element B.

3.1.5 Multi Data parameter change

```

11110000 F0
01000011 43
0001nnnn nnnn - Device Number
00100110 26
00000100 04
0aaaaaaa aaaaaa - ST of appended table 1-5
0000bbbb bbbb - Channel Number
0ccccccc cccccc - (MSB7bits) F1 of appended table 1-5
0ccccc0c cccccc - (LSB7bits) F2 of appended table 1-5
0000000d d - (MSB) B1 of appended table 1-5
0ddddd0d dddddd - (LSB7bits) B2 of appended table 1-5
0000000v v - Data Value (MSB)
0vvvvvvv vvvvvvv - Data Value (LSB7bits)
11110111 F7
    
```

This message is used to change the Multi Data for each parameter.

When this message is received, the following results automatically.

- Voice Play Mode : Shifts to Multi Edit Mode and receives data (Screen shift).
- Voice Edit Mode : Shifts to Multi Edit Mode and receives data (Screen shift).
- Multi Play Mode : Shifts to Multi Edit Mode and receives data (Screen shift).
- Multi Edit Mode : The Mode stays as it is, receiving data (Screen shift).
- Utility Mode : Shifts to the Multi Edit Mode and receives data (Screen shift).

[Cautions]

The Channel Number is ignored if not the parameter for each channel.

3.1.6 System Data parameter change

```

11110000 F0
01000011 43
0001nnnn nnnn - Device Number
00100110 26
00000101 05
0aaaaaaa aaaaaa - ST of appended table 1-6
00000000 00
0ccccccc cccccc - (MSB7bits) F1 of appended table 1-6
0ccccc0c cccccc - (LSB7bits) F2 of appended table 1-6
0000000d d - (MSB) B1 of appended table 1-6
0ddddd0d dddddd - (LSB7bits) B2 of appended table 1-6
0000000v v - Data Value (MSB)
0vvvvvvv vvvvvvv - Data Value (LSB7bits)
11110111 F7
    
```

This message is used to change the System Data for each parameter.

When this message is received, the following results automatically.

- Voice Play Mode : Shifts to Utility System Mode and receives data (Screen shift).
- Voice Edit Mode : Shifts to Utility System Mode and receives data (Screen shift).
- Multi Play Mode : Shifts to Utility System Mode and receives data (Screen shift).
- Multi Edit Mode : Shifts to Utility System Mode and receives data (Screen shift).
- Utility Mode : The Mode stays as it is, receiving data (Screen shift).

3.1.7 System MIDI Data parameter change

```

11110000 F0
01000011 43
0001nnnn nnnn - Device Number
00100110 26
00000110 06
0aaaaaaa aaaaaa - ST of appended table 1-7
00000000 00
0ccccccc cccccc - (MSB7bits) F1 of appended table 1-7
0ccccc0c cccccc - (LSB7bits) F2 of appended table 1-7
0000000d d - (MSB) B1 of appended table 1-7
0ddddd0d dddddd - (LSB7bits) B2 of appended table 1-7
0000000v v - Data Value (MSB)
0vvvvvvv vvvvvvv - Data Value (LSB7bits)
11110111 F7
    
```

This message is used to change the System MIDI Data for each parameter.

When this message is received, the following results automatically.

- Voice Play Mode : Shifts to Utility System Mode and receives data (Screen shift).
- Voice Edit Mode : Shifts to Utility System Mode and receives data (Screen shift).
- Multi Play Mode : Shifts to Utility System Mode and receives data (Screen shift).
- Multi Edit Mode : Shifts to Utility System Mode and receives data (Screen shift).
- Utility Mode : The Mode stays as it is, receiving data (Screen shift).

3.1.8 Switch Remote parameter change

```

11110000 F0
01000011 43
0001xxxx xxxx - don't care
00100110 26
00000111 07
0sssssss ssssss - CD of appended table 1-8
11110111 F7
    
```

All panel switches can be remotely controlled. This message has the same effect as pressing the corresponding switch.

3.1.9 Vector Mode parameter change

```

11110000 F0
01000011 43
0001nnnn nnnn - Device Number
00100110 26
00001000 08
000000ss ss=0:OFF, 1:LEVEL, 2:DETUNE
11110111 F7
    
```

Switches the Vector Mode to OFF (=Auto), LEVEL, or DETUNE. However, no data is received in the case of the VOICE VECTOR EDIT, COMPARE VOICE, COMPARE MULTI, and DEMO.

4. Bulk dump

Reception is enabled in cases other than Vector recording, Comparing, Card load/save execution, and Bulk transmit execution. Transmission is executed when the "Bulk Transmit" of UTILITY MIDI is executed or Dump Request is received.

4.1 Voice data bulk dump

4.1.1 64 voice data

```

11110000 F0
01000011 43
0000nnnn nnnn - Device Number
01111110 7E
0bbbbbbb BYTE count(MSB)
0bbbbbbb BYTE count(LSB)
01001100 4C(ascii"L")
01001101 4D(ascii"M")
00100000 20(ascii" ")
00100000 20(ascii" ")
00110000 30(ascii"O")
00110000 30(ascii"O")
00110001 31(ascii"1")
00110010 32(ascii"2")
01010110 56(ascii"V")
01000011 43(ascii"C")
0ddddddd ddddddd VOICE DATA
↓
0ddddddd ddddddd (Appended table 2)
00000000 c0000000 (00-03)
0sssssss sssssss CHECK SUM
.....100 msec WAIT.....
0bbbbbbb BYTE count(MSB)
0bbbbbbb BYTE count(LSB)
0ddddddd ddddddd VOICE DATA
↓
0ddddddd ddddddd (Appended table 2)
00000000 d0000000 (04-07)
0sssssss sssssss CHECK SUM
.....100 msec WAIT.....
As shown in the above, voice data is divided (four voices in a set) and transmitted. Always keep 100 msec or more between transmission.
↓
11110111 F7
    
```

Byte count shows this area.

Check sum is 2's compliment 7bits sum of their data bytes.

- ◆ Reception data is written into the Internal Voice Memory (VMEM).
- ◆ See Appended table 2 for details on each bulk dump data and dump request format. The MIDI data format is different from that on the actual memory since the data size is equal to 7 bits.

4.1.2 1 voice data

```

11110000 F0
01000011 43
0000nnnn nnnn - Device Number
01111110 7E
0bbbbbbb BYTE count(MSB)
0bbbbbbb BYTE count(LSB)
01001100 4C(ascii"L")
01001101 4D(ascii"M")
00100000 20(ascii" ")
00100000 20(ascii" ")
00110000 30(ascii"O")
00110000 30(ascii"O")
00110001 31(ascii"1")
00110010 32(ascii"2")
01010110 56(ascii"V")
01000011 43(ascii"C")
0ddddddd ddddddd VOICE DATA
↓
0ddddddd ddddddd (Appended table 2)
0sssssss sssssss CHECK SUM
11110111 F7
    
```

Byte count shows this area.

Check sum is 2's compliment 7bits sum of their data bytes.

- ◆ Reception data is written into Voice Edit Buffer (VCED) and is handled as being edited.
- ◆ See Appended table 2 for details on each bulk data and bulk request format. The MIDI data format is different from that on the actual memory since the data size is equal to 7 bits.

4.1.3 SY22 64 voice data

Only 64 voice data out of the SY22 ALL V/M BULK DUMP are expanded into the TG33 format and received. The 16 MULTI Data is ignored. See the SY22 reference for details on data format.

- ◆ The reception data is written into the Internal Voice Memory (VMEM).

4.1.4 SY22 1 voice data

The SY22 1 VOICE BULK DUMP is expanded into the TG33 format and is received. See the SY22 reference for details on data format.

- ◆ The reception data is written into the Voice Edit Buffer (VCED) and is handled as being edited.

4.2 Multi data bulk dump

4.2.1 16 multi data

```

11110000 F0
01000011 43
0000nnnn nnnn - Device Number
01111110 7E
0bbbbbbb BYTE count(MSB)
0bbbbbbb BYTE count(LSB)
01001100 4C(ascii"L")
01001101 4D(ascii"M")
00100000 20(ascii" ")
00100000 20(ascii" ")
00110000 30(ascii"O")
00110000 30(ascii"O")
00110001 31(ascii"1")
00110010 32(ascii"2")
01010110 4D(ascii"H")
01010101 55(ascii"U")
0ddddddd ddddddd MULTI DATA
↓
0ddddddd ddddddd (Appended table 3)
0sssssss sssssss CHECK SUM
11110111 F7
    
```

Byte count shows this area.

Check sum is 2's compliment 7bits sum of their data bytes.

- ◆ The reception data is written into the Internal Multi Memory (MMEM).
- ◆ See Appended table 3 for details on each bulk data and bulk request format. The MIDI data format is different from that on the actual memory since the data size is equal to 7 bits.

4.2.2 1 multi data

```

11110000 F0
01000011 43
0000nnnn nnnn - Device Number
01111110 7E
0bbbbbbb BYTE count(MSB)
0bbbbbbb BYTE count(LSB)
01001100 4C(ascii"L")
01001101 4D(ascii"M")
00100000 20(ascii" ")
00100000 20(ascii" ")
00110000 30(ascii"O")
00110000 30(ascii"O")
00110001 31(ascii"1")
00110010 32(ascii"2")
01001101 4D(ascii"M")
01000101 45(ascii"E")
0ddddddd ddddddd MULTI DATA
↓
0ddddddd ddddddd (Appended table 3)
0sssssss sssssss CHECK SUM
11110111 F7
    
```

Byte count shows this area.

Check sum is 2's compliment 7bits sum of their data bytes.

- ◆ The reception data is written into the Multi Edit Buffer (MCED) and is handled as being edited.
- ◆ See Appended table 3 for details on each bulk data and bulk request format. The MIDI data format is different from that on the actual memory since the data size is equal to 7 bits.

MIDI DATA FORMAT

4.3 System data bulk dump

```
11110000 FD
01000011 43
0000nnnn nnnn - Device Number
01111110 7E
0bbbbbbb BYTE count(MSB)
0bbbbbbb BYTE count(LSB)
01001100 40(ascii"L")
01001101 4D(ascii"M")
00100000 20(ascii" ")
00100000 20(ascii" ")
00100000 30(ascii"0")
00100000 30(ascii"0")
00100001 31(ascii"1")
00100010 32(ascii"2")
01010011 53(ascii"S")
01011001 59(ascii"Y")
00000000 d00000 SYSTEM DATA
↓ (Appended table 4) ↓
00000000 d00000
00000000 sssssss CHECK SUM
11110111 F7
```

Byte count shows this area.

Check sum is 2's compliment 7bits sum of their data bytes.

5. Status FE (Active Sensing)

a) Transmission

No transmission

b) Reception

If no signal arrives through MIDI port for approximately 300 msec or more after receiving the FE once, the MIDI reception buffer is cleared and the remaining key-on data is keyed off.

- ◆ See Appended table 4 for details on each bulk data and bulk request format. The MIDI data format is different from that on the actual memory since the data size is equal to 7 bits.

<Table 1-1>

MIDI Parameter Change table (Voice Common)

\$F0, \$43, \$1n, \$26, \$00, \$ST, \$00, \$F1, \$F2, \$B1, \$B2, \$V1, V2, \$F7

Note) n ; device number

V1 ; MSB of parameter value

V2 ; LSB 7bits of parameter value

	ST	F1	F2	B1	B2	data name	data range
0	\$00	\$00	\$00	\$01	\$7E	CONFIGURATION	\$00:A-B, \$01:A-B-C-D
1	\$01	\$00	\$01	\$01	\$7F	EFFECT TYPE	0:Rev Hall 1:Rev Room 2:Rev Plate 3:Rev Club 4:Rev Metal 5:Delay 1 6:Delay 2 7:Delay 3 8:Doubler 9:Ping_Pong 10:Pan Ref 11:Early Ref 12:Gate Rev 13:Dly&Rev 1 14:Dly&Rev 2 15:Dist&Rev
2	\$02	\$00	\$02	\$01	\$7F	EFFECT BALANCE	0~127
3	\$02	\$00	\$06	\$01	\$7F	EFFECT SEND LEVEL	0~127
4	\$09	\$00	\$0C	\$01	\$7F	VOICE NAME 1	32~127 (ASCII)
5	\$09	\$00	\$0D	\$01	\$7F	VOICE NAME 2	32~127 (ASCII)
6	\$09	\$00	\$0E	\$01	\$7F	VOICE NAME 3	32~127 (ASCII)
7	\$09	\$00	\$0F	\$01	\$7F	VOICE NAME 4	32~127 (ASCII)
8	\$09	\$00	\$10	\$01	\$7F	VOICE NAME 5	32~127 (ASCII)
9	\$09	\$00	\$11	\$01	\$7F	VOICE NAME 6	32~127 (ASCII)
10	\$09	\$00	\$12	\$01	\$7F	VOICE NAME 7	32~127 (ASCII)
11	\$09	\$00	\$13	\$01	\$7F	VOICE NAME 8	32~127 (ASCII)
12	\$03	\$00	\$14	\$01	\$7F	PITCH BEND RANGE	0~12
13	\$06	\$00	\$15	\$01	\$3F	AFTER TOUCH LEVEL	\$00:off, \$40:on
14	\$05	\$00	\$15	\$01	\$5F	AFTER TOUCH PM	\$00:off, \$20:on
15	\$05	\$00	\$15	\$01	\$6F	AFTER TOUCH AM	\$00:off, \$10:on
16	\$04	\$00	\$15	\$01	\$7D	MODULATION WHEEL PM	\$00:off, \$02:on
17	\$04	\$00	\$15	\$01	\$7E	MODULATION WHEEL AM	\$00:off, \$01:on
18	\$06	\$00	\$16	\$01	\$7F	PITCH BIAS	-12~+12 (2's comp)
19	\$01	\$00	\$17	\$01	\$7F	EG DELAY RATE	0:0~127:99
20	\$07	\$00	\$18	\$01	\$7F	EG ATTACK RATE	\$C1:-99~\$00:0 -99~\$3F:+99
21	\$07	\$00	\$19	\$01	\$7F	EG RELEASE RATE	\$C1:-99~\$00:0 -99~\$3F:+99

[Cautions]

The Element EG Delay Rate screen appears when the EG DELAY RATE is received.

MIDI DATA FORMAT

<Table 1-2>

MIDI Parameter Change table (Voice Vector)

\$F0, \$43, \$1n, \$26, \$01, \$ST, \$00, \$F1, \$F2, \$B1, \$B2, \$V1, V2, \$F7

Note) n ; device number

V1 ; MSB of parameter value

V2 ; LSB 7bits of parameter value

	ST	F1	F2	B1	B2	data name	data range
0	\$00	\$00	\$00	\$01	\$7F	LEVEL SPEED	0:160msec 1:10msec : 15:150msec
1	\$03	\$00	\$01	\$01	\$7F	DETUNE SPEED	0:160msec 1:10msec : 15:150msec
2	\$02	\$00	\$02	\$01	\$7F	LEVEL TIME 1	0~253, 255:End
3	\$02	\$00	\$03	\$01	\$7F	LEVEL X-AXIS 1	0~-31~-31:+0~62:+31
4	\$02	\$00	\$04	\$01	\$7F	LEVEL Y-AXIS 1	0~-31~-31:+0~62:+31
:	:	:	:	:	:	:	:
:	:	:	:	:	:	:	:
128	\$02	\$01	\$00	\$01	\$7F	LEVEL TIME 43	0~253, 254:Repeat, 255:End
129	\$02	\$01	\$01	\$01	\$7F	LEVEL X-AXIS 43	0~-31~-31:+0~62:+31
130	\$02	\$01	\$02	\$01	\$7F	LEVEL Y-AXIS 43	0~-31~-31:+0~62:+31
:	:	:	:	:	:	:	:
:	:	:	:	:	:	:	:
149	\$02	\$01	\$15	\$01	\$7F	LEVEL TIME 50	0~253, 254:Repeat, 255:End
150	\$02	\$01	\$16	\$01	\$7F	LEVEL X-AXIS 50	0~-31~-31:+0~62:+31
151	\$02	\$01	\$17	\$01	\$7F	LEVEL Y-AXIS 50	0~-31~-31:+0~62:+31
152	\$05	\$01	\$18	\$01	\$7F	DETUNE TIME 1	0~253, 255:End
153	\$05	\$01	\$19	\$01	\$7F	DETUNE X-AXIS 1	0~-31~-31:+0~62:+31
154	\$05	\$01	\$1A	\$01	\$7F	DETUNE Y-AXIS 1	0~-31~-31:+0~62:+31
:	:	:	:	:	:	:	:
:	:	:	:	:	:	:	:
254	\$02	\$01	\$7E	\$01	\$7F	LEVEL TIME 35	0~253, 254:Repeat, 255:End
255	\$02	\$01	\$7F	\$01	\$7F	LEVEL X-AXIS 35	0~-31~-31:+0~62:+31
256	\$02	\$02	\$00	\$01	\$7F	LEVEL Y-AXIS 35	0~-31~-31:+0~62:+31
:	:	:	:	:	:	:	:
:	:	:	:	:	:	:	:
299	\$05	\$02	\$2B	\$01	\$7F	DETUNE TIME 50	0~253, 254:Repeat, 255:End
300	\$05	\$02	\$2C	\$01	\$7F	DETUNE X-AXIS 50	0~-31~-31:+0~62:+31
301	\$05	\$02	\$2D	\$01	\$7F	DETUNE Y-AXIS 50	0~-31~-31:+0~62:+31

<Table 1-3>

MIDI Parameter Change table (Voice Element Tone)

\$F0, \$43, \$1n, \$26, \$02, \$5T, \$0b, \$F1, \$F2, \$B1, \$B2, \$V1, V2, \$F7

Note) n : device number

b : element number 0:Element A, 1:Element B, 2:Element C, 3:Element D

V1 : MSB of parameter value

V2 : LSB 7bits of parameter value

(1) Element A or C

	ST	F1	F2	B1	B2	data name	data range
0	\$00	\$00	\$00	\$01	\$7F	WAVE TYPE	0~127
1	\$01	\$00	\$01	\$01	\$7F	FREQUENCY SHIFT	-12~+12 (2's comp)
2	\$05	\$00	\$02	\$01	\$0F	AFTER TOUCH SENSITIVITY	\$50:-3 \$60:-2 \$70:-1 \$00:+0 \$10:+1 \$20:+2 \$30:+3
3	\$04	\$00	\$02	\$01	\$70	VELOCITY SENSITIVITY	\$06:-6 \$07:-4 \$08:-3 \$09:-2 \$0A:-1 \$00:+0 \$01:+1 \$02:+2 \$03:+3 \$04:+4 \$05:+5
4	\$07	\$00	\$03	\$00	\$1F	LFO TYPE	\$00:saw down \$20:triangle \$40:square \$60:sample & hold \$80:saw up
5	\$09	\$00	\$03	\$01	\$60	LFO SPEED	\$00~\$1F
6	\$08	\$00	\$04	\$01	\$7F	LFO DELAY	0:0~127:99
7	\$08	\$00	\$05	\$01	\$7F	LFO RATE	127:0~0:99
8	\$07	\$00	\$06	\$01	\$70	LFO AM	\$00~\$0F
9	\$07	\$00	\$07	\$01	\$60	LFO PM	\$00~\$1F
10	\$03	\$00	\$08	\$01	\$78	PAN	\$00:left \$01:left center \$02:center \$03:right center \$04:right
11	\$02	\$00	\$09	\$01	\$7F	VOLUME	127:0~0:99

MIDI DATA FORMAT

(2) Element B or D

	ST	F1	F2	B1	B2	data name	data range
0	\$00	\$00	\$16	\$01	\$7F	WAVE TYPE	0~255
1	\$01	\$00	\$17	\$01	\$7F	FREQUENCY SHIFT	-12~+12 (2's comp)
2	\$05	\$00	\$18	\$01	\$0F	AFTER TOUCH SENSITIVITY	\$50:-3 \$60:-2 \$70:-1 \$00:+0 \$10:+1 \$20:+2 \$30:+3
3	\$04	\$00	\$18	\$01	\$70	VELOCITY SENSITIVITY	\$06:-5 \$07:-4 \$08:-3 \$09:-2 \$0A:-1 \$00:+0 \$01:+1 \$02:+2 \$03:+3 \$04:+4 \$05:+5
4	\$07	\$00	\$19	\$00	\$1F	LFO TYPE	\$00:saw down \$20:triangle \$40:square \$60:sample & hold \$80:saw up
5	\$09	\$00	\$19	\$01	\$60	LFO SPEED	\$00~\$1F
6	\$08	\$00	\$1A	\$01	\$7F	LFO DELAY	0:0~127:99
7	\$08	\$00	\$1B	\$01	\$7F	LFO RATE	127:0~0:99
8	\$07	\$00	\$1C	\$01	\$70	LFO AM	\$00~\$0F
9	\$07	\$00	\$1D	\$01	\$60	LFO PM	\$00~\$1F
10	\$03	\$00	\$1E	\$01	\$78	PAN	\$00:left \$01:left center \$02:center \$03:right center \$04:right
11	\$06	\$00	\$1F	\$01	\$78	FEED BACK	\$00~\$07
12	\$06	\$00	\$21	\$01	\$7F	TONE LEVEL	127:0~0:99
13	\$02	\$00	\$2D	\$01	\$7F	VOLUME	127:0~0:99

<Table 1-4>

MIDI Parameter Change table (Voice Element Envelope)

\$F0, \$43, \$1n, \$26, \$03, \$ST, \$0b, \$F1, \$F2, \$B1, \$B2, \$V1, V2, \$F7

Note) n ; device number

b ; element number 0:Element A, 1:Element B, 2:Element C, 3:Element D

V1 ; MSB of parameter value

V2 ; LSB 7bits of parameter value

(1) Element A or C

	ST	F1	F2	B1	B2	data name	data range
0	\$00	\$00	\$08	\$01	\$0F	TYPE	\$00:user \$10:preset \$20:piano \$30:guitar \$40:pluck \$50:brass \$60:strings \$70:organ
1	\$07	\$00	\$0B	\$00	\$0F	LEVEL SCALING	\$00:1~\$F0:16
2	\$08	\$00	\$0B	\$01	\$78	RATE SCALING	\$00:1~\$07:8
3	\$01	\$00	\$0C	\$00	\$7F	DELAY ON/OFF	\$00:off, \$80:on
4	\$03	\$00	\$0C	\$01	\$40	ATTACK RATE	\$00:0~\$3F:99
5	\$04	\$00	\$0D	\$01	\$40	DECAY1 RATE	\$00:0~\$3F:99
6	\$05	\$00	\$0E	\$01	\$40	DECAY2 RATE	\$00:0~\$3F:99
7	\$06	\$00	\$0F	\$01	\$40	RELEASE RATE	\$00:0~\$3F:99
8	\$02	\$00	\$10	\$01	\$00	INITIAL LEVEL	\$7F:0~\$00:99
9	\$03	\$00	\$11	\$01	\$00	ATTACK LEVEL	\$7F:0~\$00:99
10	\$04	\$00	\$12	\$01	\$00	DECAY1 LEVEL	\$7F:0~\$00:99
11	\$05	\$00	\$13	\$01	\$00	DECAY2 LEVEL	\$7F:0~\$00:99

(2) Element B or D

	ST	F1	F2	B1	B2	data name	data range
0	\$00	\$00	\$1E	\$01	\$0F	TYPE	\$00:user \$10:preset \$20:piano \$30:guitar \$40:pluck \$50:brass \$60:strings \$70:organ
1	\$07	\$00	\$2F	\$00	\$0F	LEVEL SCALING	\$00:1~\$F0:16
2	\$08	\$00	\$2F	\$01	\$78	RATE SCALING	\$00:1~\$07:8
3	\$01	\$00	\$30	\$00	\$7F	DELAY ON/OFF	\$00:off, \$80:on
4	\$03	\$00	\$30	\$01	\$40	ATTACK RATE	\$00:0~\$3F:99
5	\$04	\$00	\$31	\$01	\$40	DECAY1 RATE	\$00:0~\$3F:99
6	\$05	\$00	\$32	\$01	\$40	DECAY2 RATE	\$00:0~\$3F:99
7	\$06	\$00	\$33	\$01	\$40	RELEASE RATE	\$00:0~\$3F:99
8	\$02	\$00	\$34	\$01	\$00	INITIAL LEVEL	\$7F:0~\$00:99
9	\$03	\$00	\$35	\$01	\$00	ATTACK LEVEL	\$7F:0~\$00:99
10	\$04	\$00	\$36	\$01	\$00	DECAY1 LEVEL	\$7F:0~\$00:99
11	\$05	\$00	\$37	\$01	\$00	DECAY2 LEVEL	\$7F:0~\$00:99

MIDI DATA FORMAT

<Table 1-5>

MIDI Parameter Change table (Multi)

\$F0, \$43, \$1n, \$26, \$04, \$ST, \$0b, \$F1, \$F2, \$B1, \$B2, \$V1, V2, \$F7

Note) n ; device number
 b ; channel number
 V1 ; MSB of parameter value
 V2 ; LSB 7bits of parameter value

	ST	F1	F2	B1	B2	data name	data range
0	\$08	\$00	\$00	\$01	\$7F	EFFECT TYPE	0:Rev Hall 1:Rev Room 2:Rev Plate 3:Rev Club 4:Rev Metal 5:Delay 1 6:Delay 2 7:Delay 3 8:Doubler 9:Ping_Pong 10:Pan Ref 11:Early Ref 12:Gate Rev 13:Dly&Rev 1 14:Dly&Rev 2 15:Dist&Rev
1	\$09	\$00	\$01	\$01	\$7F	EFFECT BALANCE	0~127
2	\$0A	\$00	\$05	\$01	\$7F	GROUP1 EFFECT SEND LEVEL	0~127
3	\$0A	\$00	\$06	\$01	\$7F	GROUP2 EFFECT SEND LEVEL	0~127
4	\$07	\$00	\$07	\$01	\$7D	GROUP2 OUTPUT SELECT	\$00:out1, \$02:out2
5	\$07	\$00	\$07	\$01	\$7E	GROUP1 OUTPUT SELECT	\$00:out1, \$01:out2
6	\$0B	\$00	\$0D	\$01	\$7F	MULTI NAME 1	32~127 (ASCII)
7	\$0B	\$00	\$0E	\$01	\$7F	MULTI NAME 2	32~127 (ASCII)
8	\$0B	\$00	\$0F	\$01	\$7F	MULTI NAME 3	32~127 (ASCII)
9	\$0B	\$00	\$10	\$01	\$7F	MULTI NAME 4	32~127 (ASCII)
10	\$0B	\$00	\$11	\$01	\$7F	MULTI NAME 5	32~127 (ASCII)
11	\$0B	\$00	\$12	\$01	\$7F	MULTI NAME 6	32~127 (ASCII)
12	\$0B	\$00	\$13	\$01	\$7F	MULTI NAME 7	32~127 (ASCII)
13	\$0B	\$00	\$14	\$01	\$7F	MULTI NAME 8	32~127 (ASCII)
14	\$05	\$00	\$15	\$01	\$7F	ASSIGN MODE	0:32/0, 1:24/8, 2:16/16

	ST	F1	F2	B1	B2	data name	data range
0	\$00	\$00	\$00	\$01	\$77	<The same structure in the order of channels 1~16 in the following>	
1	\$06	\$00	\$00	\$01	\$7B	VOICE SWITCH	\$00:off voice, \$08:on
2	\$00	\$00	\$01	\$01	\$7F	SEND GROUP	\$00:group1, \$04:group2
						VOICE MEMORY	0:Internal (Card1, Card2) 1:Preset1 2:Preset2
3	\$00	\$00	\$02	\$01	\$7F	VOICE NUMBER	0~63
4	\$01	\$00	\$03	\$01	\$7F	VOLUME	127:0~0:99
5	\$02	\$00	\$04	\$01	\$7F	DETUNE	-50~+50 (2's comp)
6	\$03	\$00	\$05	\$01	\$7F	NOTE SHIFT	-24~+24 (2's comp)
7	\$04	\$00	\$06	\$01	\$7F	PAN	0:left 1:left center 2:center 3:right center 4:right 5:voice

<Table 1-6>

MIDI Parameter Change table (System)

\$F0, \$43, \$1n, \$26, \$05, \$ST, \$00, \$F1, \$F2, \$B1, \$B2, \$V1, V2, \$F7

Note) n ; device number

V1 ; MSB of parameter value

V2 ; LSB 7bits of parameter value

	ST	F1	F2	B1	B2	data name	data range
0	\$01	\$00	\$04	\$01	\$7F	TRANSPOSE	-12~+12 (2's comp)
1	\$00	\$00	\$05	\$01	\$7F	MASTER TUNE	-50~+50 (2's comp)
2	\$02	\$00	\$01	\$01	\$77	CONTROLLER RESET	\$00:hold, \$08:reset

<Table 1-7>

MIDI Parameter Change table (System MIDI)

\$F0, \$43, \$1n, \$26, \$06, \$ST, \$00, \$F1, \$F2, \$B1, \$B2, \$V1, V2, \$F7

Note) n ; device number

V1 ; MSB of parameter value

V2 ; LSB 7bits of parameter value

	ST	F1	F2	B1	B2	data name	data range
0	\$03	\$00	\$00	\$01	\$7F	DEVICE NUMBER	0~15, 16:all
1	\$03	\$00	\$01	\$01	\$7B	EXCLUSIVE ON/OFF	\$00:off, \$04:on
2	\$02	\$00	\$01	\$01	\$7C	PROGRAM CHANGE	\$00:off, \$01:on
3	\$00	\$00	\$02	\$01	\$7F	VOICE RECEIVE CHANNEL	0~15, 16:omni
4	\$01	\$00	\$03	\$01	\$7F	VECTOR CHANNEL	0~15

<Table 1-8>

MIDI Parameter Change table (Switch Remote)

\$F0, \$43, \$1x, \$26, \$07, \$CD, \$F7

Note) x ; don't care

	CD	switch
0	\$00	VECTOR
1	\$02	←
2	\$03	→
3	\$04	+1
4	\$05	-1
5	\$06	VOICE
6	\$07	MULTI
7	\$08	EDIT/COMPARE
8	\$09	STORE/COPY
9	\$0A	CARD
10	\$0B	INTERNAL
11	\$0C	PRESET
12	\$0D	BANK SELECT 1
13	\$0E	BANK SELECT 2
14	\$0F	BANK SELECT 3
15	\$10	BANK SELECT 4
16	\$11	BANK SELECT 5

	CD	switch
17	\$12	BANK SELECT 6
18	\$13	BANK SELECT 7
19	\$14	BANK SELECT 8
20	\$15	PROGRAM SELECT 1
21	\$16	PROGRAM SELECT 2
22	\$17	PROGRAM SELECT 3
23	\$18	PROGRAM SELECT 4
24	\$19	PROGRAM SELECT 5
25	\$1A	PROGRAM SELECT 6
26	\$1B	PROGRAM SELECT 7
27	\$1C	PROGRAM SELECT 8
28	\$1D	DEMO
29	\$1E	UTILITY
30	\$21	PAGE <
31	\$22	PAGE >
32	\$25	EFFECT BYPASS

MIDI DATA FORMAT

<Appended table 2>

The data format of each voice of (64) voice bulk is the same as that of 1 voice bulk. Only those with data at the MSB are 2-byte data.

Mb7~Mb1='0000000'

ADRS(HEX)	Mb0	Lb7	Lb6	Lb5	Lb4	Lb3	Lb2	Lb1	Lb0
00	0	0	0	0	0	0	0	DRM	2/4
01	0	0	0	0	----EFFECT-----				
02	0	----EFFECT BALANCE-----							
03	0	----((don't care))-----							
04	0	----((don't care))-----							
05	0	----((don't care))-----							
06	0	----EFFECT SEND-----							
07	0	----((don't care))-----							
08	0	----((don't care))-----							
09	0	----((don't care))-----							
0A	0	----((don't care))-----							
0B	0	----((don't care))-----							
0C	0	----NAME 1-----							
0D	0	----NAME 2-----							
0E	0	----NAME 3-----							
0F	0	----NAME 4-----							
10	0	----NAME 5-----							
11	0	----NAME 6-----							
12	0	----NAME 7-----							
13	0	----NAME 8-----							
14	0	0	0	0	-PITCH BEND R-				
					-AFTER TOUCH- PIT -WHEEL-				
15					LEV	PM	AM	0	TYP PM AM
16	17	→	0	----AFTER PITCH-----					
18				----EG DELAY RATE-----					
19	1A	→	0	--COMMON ENV. ATTACK-----					
1B	1C	→	0	--COMMON ENV. RELEASE-----					
***** ELEMENT A *****									
1D				----WAVE NO.-----					
1E	1F	→	0	----FREQUENCY SHIFT-----					
20				-AFTER SNS- -VELOCITY TYP--					
21	22	→	0	LFO TYP	----LFO SPEED----				
23	24	→	0	----LFO DELAY TIME-----					
25	26	→	0	----LFO DELAY RATE-----					
27			0	0	0	AM	---AM DEPTH---		
28			0	0	PM	---PM DEPTH---			
29			0	--EG TYPE-- 0 ----PAN----					
2A			0	----VOLUME-----					
2B			0	0	----DT2-----DT1-----				
2C	2D	→	0	L.SCALING	--RATE SCALING-				
2E	2F	DLAY	0	0	----EG AR-----				
30	31	→	0	MAX	----EG DIR-----				
32			0	0	----EG D2R-----				
33			0	0	----EG RR-----				
34			0	----EG IL-----					
35			0	----EG AL-----					
36			0	----EG D1L-----					
37			0	----EG D2L-----					
38			0	----((don't care))-----					
39			0	----((don't care))-----					
***** ELEMENT B *****									
3A	3B	→	0	----WAVE NO.-----					
3C	3D	→	0	----FREQUENCY SHIFT-----					
3E			0	-AFTER SNS- -VELOCITY TYP--					
3F	40	→	0	LFO TYP	----LFO SPEED----				
41	42	→	0	----LFO DELAY TIME-----					
43	44	→	0	----LFO DELAY RATE-----					
45			0	0	0	AM	---AM DEPTH---		
46			0	0	PM	---PM DEPTH---			
47			0	--EG TYPE-- 0 ----PAN----					
48			0	--CONNECT-- 0 --FEEDBACK-					
49	4A	MFX	0	-M WAVE-----M MULTI---					
4B			0	----TONE LEVEL-----					
4C			0	0	-M DT2- ----M DT1-----				
4D	4E	→	0	M L.SCALING	-M RATE SCALING				
4F	50	MDY	0	0	----M EG AR-----				
51	52	→	0	MAX	----M EG DIR-----				
53			0	0	----M EG D2R-----				
54			0	0	----M EG RR-----				
55			0	----M EG IL-----					
56			0	----M EG AL-----					
57			0	----M EG D1L-----					

58	0	-----M EG D2L-----							
59	5A	CFX	0	--C WAVE--- --C MULTI---					
5B			0	-----VOLUME-----					
5C			0	0	-C DT2- ----C DT1-----				
5D	5E	→	0	C L.SCALING	-C RATE SCALING				
5F	60	CDY	0	0	----C EG AR-----				
61	62	→	0	MAX	----C EG DIR-----				
63			0	0	----C EG D2R-----				
64			0	0	----C EG RR-----				
65			0	----C EG IL-----					
66			0	----C EG AL-----					
67			0	----C EG D1L-----					
68			0	----C EG D2L-----					
69			0	----((don't care))-----					
6A			0	----((don't care))-----					
***** ELEMENT C *****									
6B			0	----WAVE NO.-----					
:			:						
:			:						
85			0	-----EG D2L-----					
86			0	----((don't care))-----					
87			0	----((don't care))-----					
***** ELEMENT D *****									
88	89		0	----WAVE NO.-----					
:			:						
:			:						
B6			0	----C EG D2L-----					
B7			0	----((don't care))-----					
B8			0	----((don't care))-----					
***** VECTOR *****									
B9			0	0	0	0	--LEVEL SPEED--		
BA			0	0	0	0	--DETUNE SPEED--		
***** LEVEL VECTOR *****									
BB	BC	→	0	--LEVEL TIME INTERVAL STEP-					
BD			0	----LEVEL X-axis-----					
BE			0	----LEVEL Y-axis-----					
:			:						
:			:						
***** DETUNE VECTOR *****									
183	184	→	0	-DETUNE TIME INTERVAL STEP-					
185			0	----DETUNE X-axis-----					
186			0	----DETUNE Y-axis-----					
:			:						
:			:						
24A			0	----DETUNE Y-axis-----					

VOICE bulk dump request

	data
0	\$F0
1	\$43
2	\$2n
3	\$7E
4	L
5	M
6	—
7	—
8	0
9	0
10	1
11	2
12	V
13	C
14	\$F7

1 VOICE bulk dump request

	data
0	\$F0
1	\$43
2	\$2n
3	\$7E
4	L
5	M
6	—
7	—
8	0
9	0
10	1
11	2
12	V
13	E
14	\$F7

n: device number

<Appended table 3>

The data format of each voice of (64) voice bulk is the same as that of 1 voice bulk. Only those with data at the MSB are 2-byte data.

Mb7~Mb1='0000000'											
ADRS(HEX)	Mb0	Lb7	Lb6	Lb5	Lb4	Lb3	Lb2	Lb1	Lb0		
00	0	0	0	0						60	0
01	0									61	0
02	0									***** CHANNEL 7 *****	
03	0									62	0
04	0									:	0
05	0									6A	0
06	0									6B	0
										6C	0
										***** CHANNEL 8 *****	
										6D	0
										:	0
										75	0
										76	0
										77	0
										***** CHANNEL 9 *****	
										78	0
										:	0
										80	0
										81	0
										82	0
										***** CHANNEL 10 *****	
										83	0
										:	0
										8B	0
										8C	0
										8D	0
										***** CHANNEL 11 *****	
										8E	0
										:	0
										96	0
										97	0
										98	0
										***** CHANNEL 12 *****	
										99	0
										:	0
										A1	0
										A2	0
										A3	0
										***** CHANNEL 13 *****	
										A4	0
										:	0
										AC	0
										AD	0
										AE	0
										***** CHANNEL 14 *****	
										A7	0
										:	0
										B7	0
										B8	0
										B9	0
										***** CHANNEL 15 *****	
										BA	0
										:	0
										C2	0
										C3	0
										C4	0
										***** CHANNEL 16 *****	
										C5	0
										:	0
										CD	0
										CE	0
										CF	0
										***** CHANNEL 1 *****	
										GRP	
20	0	0	0	0							
21	0	0	0	0							
22	0	0									
23	0										
24	→	0									
26	→	0									
28	0	0	0	0							
29	0										
2A	0										
										***** CHANNEL 2 *****	
2B	0	0	0	0							
										:	
33	0	0	0	0							
34	0										
35	0										
										***** CHANNEL 3 *****	
36	0	0	0	0							
										:	
3E	0	0	0	0							
3F	0										
40	0										
										***** CHANNEL 4 *****	
41	0	0	0	0							
										:	
49	0	0	0	0							
4A	0										
4B	0										
										***** CHANNEL 5 *****	
4C	0	0	0	0							
										:	
54	0	0	0	0							
55	0										
56	0										
										***** CHANNEL 6 *****	
57	0	0	0	0							
										:	
5F	0	0	0	0							

MIDI DATA FORMAT

MULTI bulk dump request

	data
0	\$F0
1	\$43
2	\$2n
3	\$7E
4	L
5	M
6	—
7	—
8	0
9	0
10	1
11	2
12	M
13	U
14	\$F7

1 MULTI bulk dump request

	data
0	\$F0
1	\$43
2	\$2n
3	\$7E
4	L
5	M
6	—
7	—
8	0
9	0
10	1
11	2
12	M
13	E
14	\$F7

n: device number

<Table 4>

System bulk dump

Only those with data at the MSB are 2-byte data.

Mb7-Mb1='0000000'

ADRS(HEX)	Mb0	Lb7	Lb6	Lb5	Lb4	Lb3	Lb2	Lb1	Lb0
00		0	0	0					
									---DEVICE NUMBER---
									C.R EXC P.C
01 02	1	0	1	1	1	R/P SW	0	SW	
03		0	0	0					-VOICE RECEIVE CH-
04		0	0	0	0				---VECTOR CH---
05 06	→	0							-----TRANSPOSE-----
07 08	→	0							-----MASTER TUNE-----

bulk dump request

	data
0	\$F0
1	\$43
2	\$2n
3	\$7E
4	L
5	M
6	—
7	—
8	0
9	0
10	1
11	2
12	S
13	Y
14	\$F7

n: device number

Function ...	Transmitted	Recognized	Remarks
Basic Default	: 1 - 16	: 1 - 16	: memorized
Channel Changed	: 1 - 16	: 1 - 16	
Mode Default	: 3	: 1,3	: memorized
Mode Messages	: x	: x	
Mode Altered	: *****	: x	
Note Number : True voice	: x : *****	: 0 - 127 : 19 - 114	
Velocity Note ON	: x	: o v=1-127	
Velocity Note OFF	: x	: x	
After Key's	: x	: x	
Touch Ch's	: x	: o	
Pitch Bender	: x	: o 0-12 semi	: 7 bit resolution
Control Change	0 : x 1 : x 7 : x 16 : o 17 : o 32 : x 64 : x	: o : o : o : o : o : o : o	: Bank Select MSB : Modulation Wheel : Volume *1: Vector X-axis *1: Vector Y-axis : Bank Select LSB : Sustain
Reset All Cntrls	: x	: o	
Prog Change : True #	: x : *****	: o 0-79	: with Bank Select *2:
System Exclusive	: o	*3: o	*3: Voice Parameters
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	: x	
Mes- : Active Sense	: x	: o	
sages:Reset	: x	: x	
Notes: *1	: receive if vector switch is on.		
*2	: voice : 11 - 88 , multi : 11 - 28		
*3	: transmit/receive if exclusive switch is on.		
Mode 1	: OMNI ON, POLY	Mode 2	: OMNI ON, MONO
Mode 3	: OMNI OFF, POLY	Mode 4	: OMNI OFF, MONO
		o	: Yes
		x	: No

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

Pour plus de détails sur les produits, veuillez-vous adresser à Yamaha ou au distributeur le plus proche de vous figurant dans la liste suivante.

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Tel: 053-460-2311

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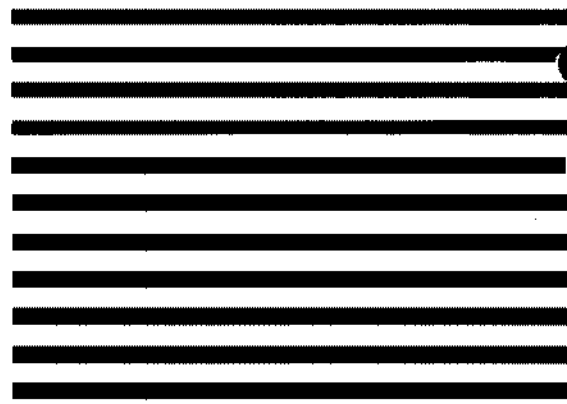
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