Roland®

CA-30

Owner's Manual

INTELLIGENT ARRANGER

CA-30

OWNER'S MANUAL

Introduction

Thank you, and congratulations on your purchase of the Roland CA-30 Intelligent Arranger. To help ensure that the CA-30 will be the perfect and reliable partner in your musical life and provide you with years of trouble-free service, please read this Owner's Manual carefully.

Features of the CA-30 Intelligent Arranger

The CA-30 receives chord data from a MIDI sequencer, and plays along in realtime with an accompaniment/bass/drums arrangement. The arrangement can change freely according to a specified chord progression or selected musical genre (the "Music Style"). By sending this data to an LA sound module (MT-32/CM-32L/CM-64, etc.) and then adding a melody, you can easily create a musical ensemble of high quality.

Contents

Important Notes

When employing an AC adaptor, make certain you use only one that has been supplied by the manufacturer. Use of any other power adaptor could result in malfunction or damage.

[Connecting the power supply]

- Whenever you make any connections with other devices, always turn off the power to all equipment first. This will help in preventing malfunction, and damage to speakers.

- Do not force the unit to share the same power outlet as one used for distortion producing devices (such as motors, variable lighting devices). Be sure to use a separate power outlet.

- Before using the AC adaptor, always make certain the voltage of the available power supply conforms to its rating.

- Do not place heavy objects onto, step on, or otherwise risk causing damage to the power cord.

- Whenever you disconnect the AC adaptor from the outlet, always grasp it by the plug, to prevent internal damage to the cord and hazard of possible short circuits.

- If the unit is not to be used for a long period of time, unplug the cord from the socket.

[Concerning placement]

- Avoid using or storing the unit in the following places, as damage could result.

  ○Places subject to extremes in temperature. (Such as under direct sunlight, near heating units, above equipment generating heat, etc.)

  ○Places near water and moisture.(Baths, washrooms, wet floors, etc.) Places otherwise subject to high humidity.

  ○Dusty environments.

  ○Places where high levels of vibration are produced.

- Should the unit be operated nearby television or radio receivers, TV pictures may show signs of interference, and static might be heard on radios. In such cases, move the unit out of proximity with such devices.

[Maintenance]

- For everyday cleaning, wipe the unit with a soft dry cloth, or one that is dampened slightly. To remove dirt that is more stubborn, wipe using a mild, neutral detergent. Afterwards, make sure to wipe thoroughly with a soft cloth.

- Never apply benzene, thinners, alcohol or any like agents, to avoid the risk of discoloration and deformation.

[Other Precautions]

- Protect the unit from strong impact.

- Avoid getting any foreign objects (coins, wire, etc.), or liquids (water, drinks, etc.) into the unit.

- Never apply strong pressure to the display, or strike it in any way.

- At any time that you notice a malfunction, or otherwise suspect there is damage, immediately refrain from using the unit. Then contact the store where bought, or the nearest Roland Service Station.

1. Panel Description

(1)Front Panel

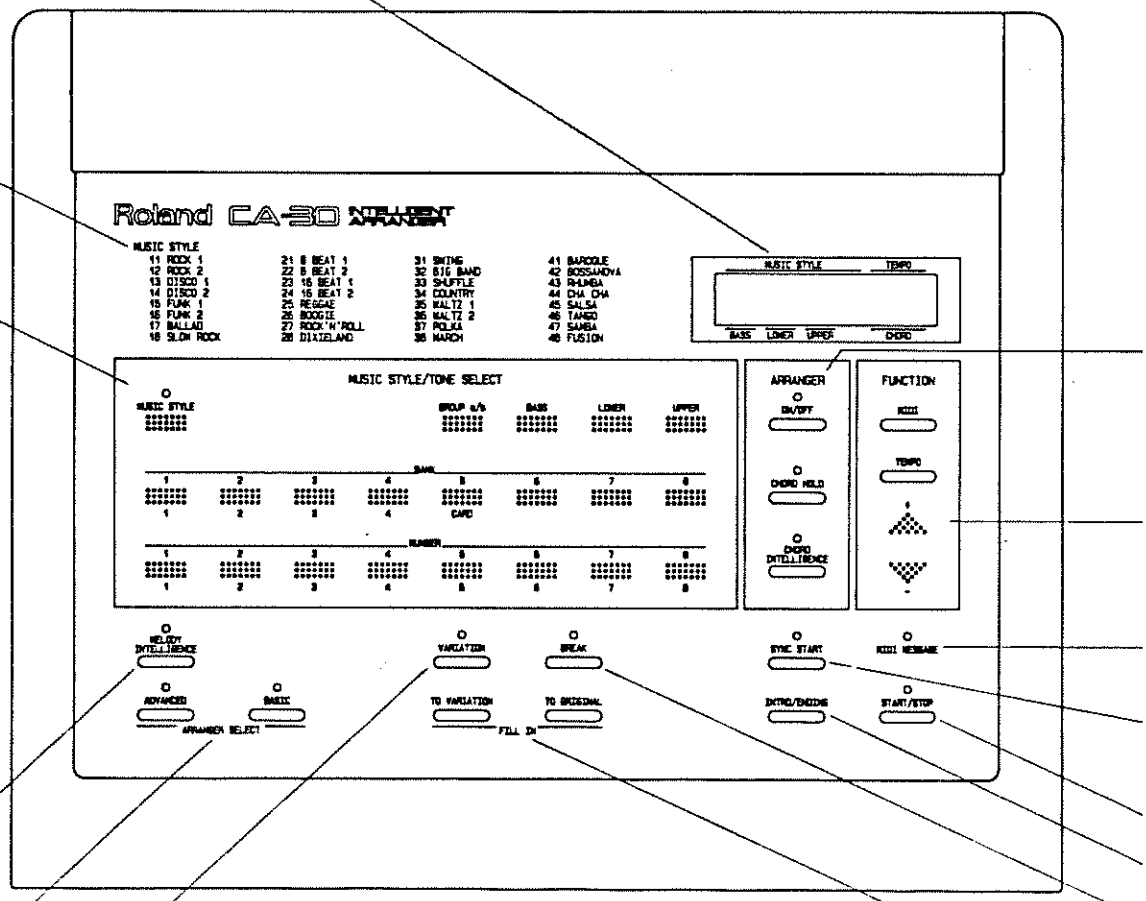
MUSIC STYLE/TONE SELECT [→P. 8]

MUSIC STYLE list [→P. 15]

Shows the built-in 32 different Music Styles.

DISPLAY [→P. 6]

Displays the current condition of the CA-30 or instructions for you to follow.



VARIATION [→P. 23]

Selects the advanced type accompaniment.

ARRANGER SELECT [→P. 22]

Selects an accompaniment type (BASIC or ADVANCED).

MELODY INTELLIGENCE [→P. 26]

Can add harmony to the melody data.

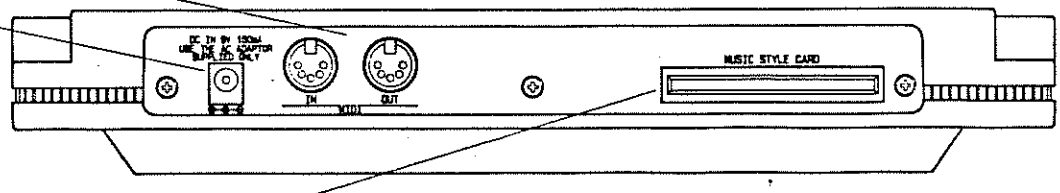
(2)Rear Panel

DC IN jack

Accepts connection of the supplied AC adaptor.

MIDI connectors

Provides for the transmission and reception of MIDI messages.



MUSIC STYLE CARD slot [→P. 27]

Is used for inserting optional MUSIC STYLE CARD (TN-SC 1 series).

ARRANGER [→P. 21]

Allows you to select an ideal auto-accompaniment that suits the played chord and selected Music Style.

FUNCTION [→P. 10]

Allows you to set parameters related with the tempo and MIDI.

MIDI MESSAGE indicator

Lights up while MIDI message is being received.

SYNC/START [→P. 17]

Starts playing the moment the chord messages are received.

START/STOP [→P. 17]

Starts or stops the performance.

INTRO/ENDING [→P. 18]

Inserts specific patterns at the beginning and end of the performance.

BREAK [→P. 26]

Can make a space of silence in the middle of the performance.

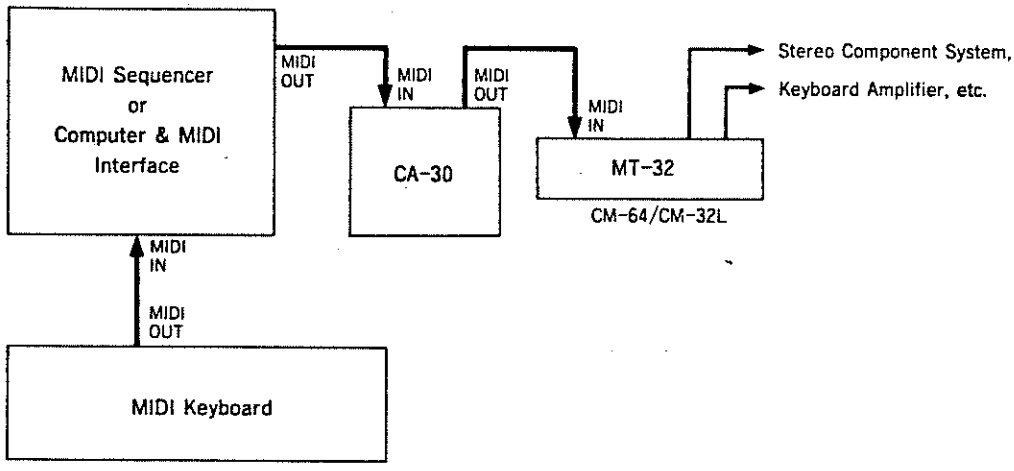
FILL IN [→P. 23]

Can put a Fill in in the middle of the performance.

2. Getting Started

(1)Making Connections

Use the supplied MIDI cables to connect the CA-30 MIDI IN to the MIDI sequencer (or computer & MIDI interface) MIDI OUT, and connect the CA-30 MIDI OUT to the MT-32 (CM-64/32L) MIDI IN.



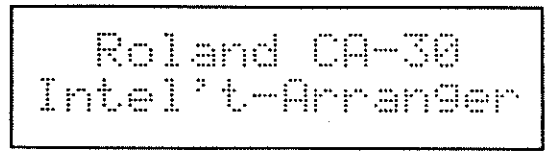
(2)Turning on the Power

[Procedure]

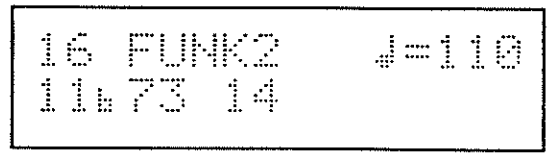
①Make sure that all connections are correct, and turn the power of the MT-32 (CM-64 32L) on.

②Turn the CA-30 power on.

The following will appear in the display:



When the display changes to the following, the CA-30 is ready to use.



③Turn on the power of the sequencer or computer, and load the MIDI sequencer program.

* Throughout this manual, this will be referred to as the "Master Display". All operations will be started from this display.

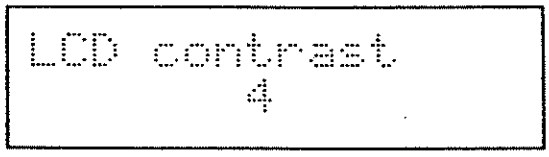
* In this manual, we will simply use the word "sequencer" to refer to the computer & sequencer software or the MIDI sequencer.

(3)LCD Contrast

If it is difficult to read the characters in the display, adjust the darkness of the characters using LCD contrast function. The LCD contrast can be adjusted over a range of 8 steps.

[**Procedure**]

①Press [MIDI] to get the LCD contrast display.



*If any other display appears, press [MIDI] repeatedly until the LCD contrast display appears.

②To make the display darker, press [+] ; to lighten the contrast, press [−].

③Press [TEMPO] to complete the setting.

3. Introducing the CA-30

(1)About the "Music Style"

In order to use the CA-30, it is important to understand what a Music Style is. For the CA-30, the Music Style determines how the accompaniment pattern will be generated. In other words, changing the Music Style allows you to use different accompaniments. Each Music Style has a name, such as POLKA, JAZZ, DIXIELAND, SAMBA, etc.
When the "Arranger" is on and the Music Style is selected, the CA-30 will receive chord data from the sequencer and add a realistic accompaniment. (The POLKA Music Style will be obviously polka-like, and the JAZZ Music Style will have a truly jazzy quality.)

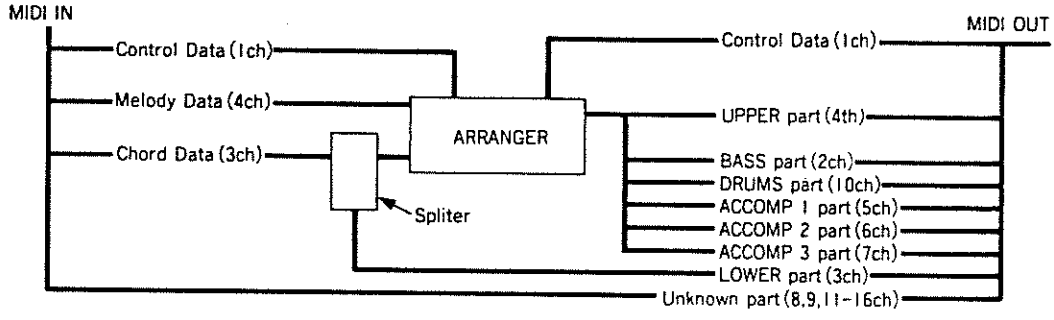
* Roland has assembled a wide range of rhythm data covering Music Styles from every musical genre from all over the world. Each type of data has been analyzed and stored in the CA-30's memory as a Music Style. This is why the various Music Styles of the CA-30 are able to reproduce the true feeling of the musical essence or atmosphere of each genre of music.

* In addition to the 32 Music Styles preset in the CA-30, you may purchase separately sold Music Style Cards (TN-SC1 series : ROM cards) that allow you to use additional Music Styles. (→ page 27)

Each Music Style has two types ; ADVANCED and BASIC. Each type has two VARIATIONs. This means that a single Music Style actually provides you with 4 types of accompaniments.
A Music Style contains special patterns for 2 types of FILL IN, INTRO and ENDING.
The accompaniment patterns will change depending on the chord progressions creating a musically appropriate accompaniment that matches your data. Each Music Style also contains the Tones and TEMPO appropriate for the accompaniment, so that selecting a Music Style will automatically take care of all musical aspects of the automatic accompaniment.

(2)Basic Concepts of the CA-30

When melody data (MIDI ch.4) and chord data (MIDI ch.3) is sent from a sequencer to the CA-30, the CA-30 will control an external multi timbral sound module capable of producing 6 individual parts and one rhythm part. It is also possible to automatically control the CA-30's Arranger functions and Music Styles by sending control data (MIDI ch.1) from the sequencer.



* Among the chord data recieved by CA-30, the notes from C−1 to B3 (key numbers 0-59) will be recognized for the distinction of chord patterns. The notes C4 (key numbers 60) and above will be sent to the lower part.

The channel which transmits the control data is called "CONTROL", the channel which transmits the melody data is called "A-UPPER (Arranger Upper)" and also the channel which transmits the chord data (chord recognition area : from C−1 to B3) is called "A-LOWER" throughout this Manual.

4. How to Make MIDI Settings

The CA-30 can be controlled via MIDI in many sophisticated ways.
This chapter explains the MIDI settings of the CA-30.

The following functions can be set here:

★MIDI Proc. Mode (MIDI processing mode)

If this is set to Auto Slave, the CA-30 will run in synchronization with the sequencer when System Realtime Messages are received from the sequencer.
If this is set to "TRANSPARENT", all messages from MIDI IN will pass through the CA-30 and be transmitted to MIDI OUT directly.

★A-UPPER (Arranger Upper)

Transmits melody data from the sequencer on this channel.

★A-LOWER (Arranger Lower)

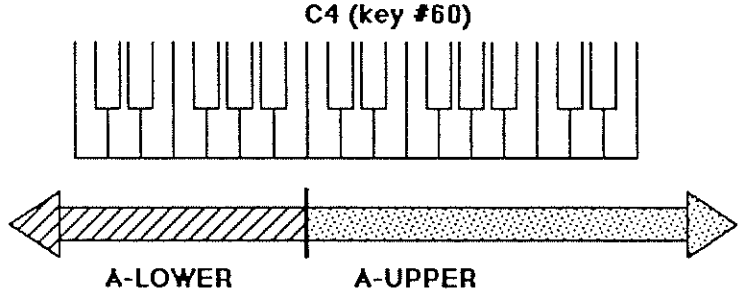
Transmits chord data from the sequencer on this channel.

★CONTROL

Controls the arranger from the sequencer on this channel. (→ page 11)

If messages are received on other channels than set for A-UPPER/A-LOWER/CONTROL, they will be passed through to the sound module without being processed.

*If A-UPPER/A-LOWER are set to the same channel, the split point will be C4 (key number 60).



Initial settings of the MIDI Proc. Mode and reception MIDI channels:

Parameter	Setting value
MIDI Proc. Mode	AUTO SLAVE
A-UPPER	4
A-LOWER	3
CONTROL	1

*For general use, there is no need to modify these settings.

(1)MIDI Proc. Mode

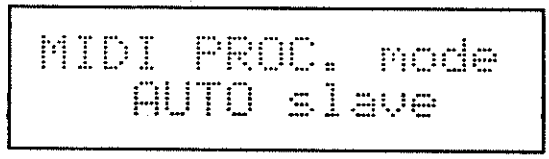
When you do not require the CA-30's arranger functions, set MIDI Proc. mode to "OFF". The CA-30 will act as a MIDI thru box. There is no need to reconnect MIDI cables, but be sure that the power is turnde on.

* When the Arranger is off, rhythm part will sound by synchronizing with the sequencer's tempo while the exact chord data will flow to the sound module.

[Procedure]

①Press [MIDI].

The MIDI Proc. mode will be displayed.



②Press [−] to set MIDI Proc. mode to "OFF".

To return to the previous setting, press [+] and [TEMPO].

* Any other operations except pressing [+] can't be performed while the "TRANSPARENT" is displayed.

(2)Setting the Reception MIDI Channel

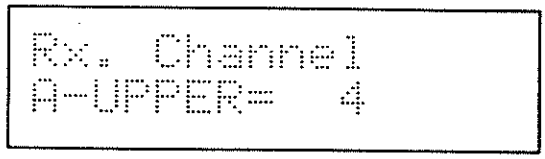
If the sequencer you are using does not allow you to change the transmission channel, use the following procedure to change the CA-30 reception channels.

[Procedure]

From the "Master Display"

①Press [MIDI].

When you press this button, the reception channel for the Arranger Upper (A-UPPER) part will be displayed.

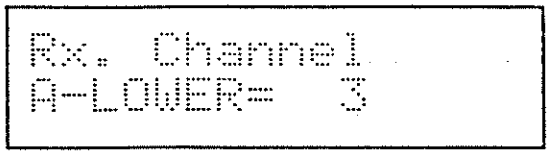


If any other display appears, press [MIDI] until the "A-UPPER=××" display appears.

②Press [+] or [−] to change the channel number.

③Press [MIDI].

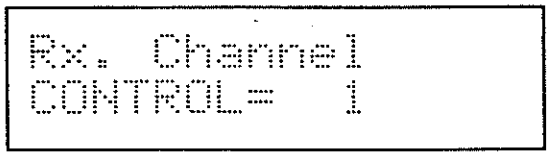
The reception channel for the Arranger Lower (A-LOWER) part will be displayed.



④Press [+] or [−] to change the channel number.

⑤Press [MIDI].

The reception channel for the Control (CONTROL) part will be displayed.



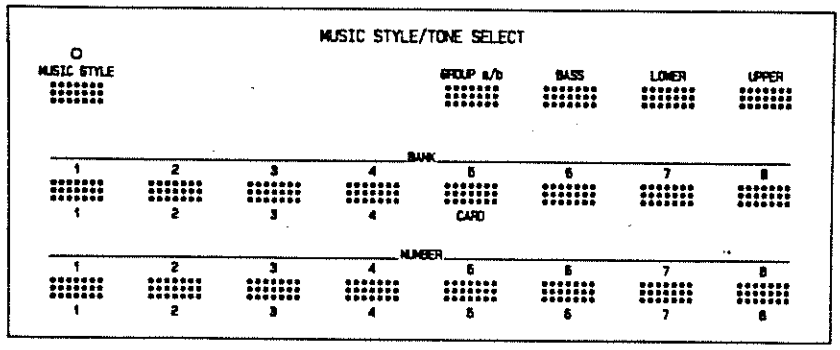
⑥Press [+] or [−] to change the channel number.

⑦Press [TEMPO] to complete the settings.

5. How to Select a Tone for Each Part

You can select tones by sending Program Changes (1-128) from the sequencer to each part (UPPER/LOWER/BASS).

You can also select one of 128 different tones for each part from the front panel; use the **GROUP a/b**, and BANK and NUMBER buttons.



(1)Selecting a Tone for Each Part from the Sequencer

When a Program Change is sent from the sequencer, it passes through the CA-30 and selects a tone for the sound module. When this occurs, the CA-30 display will show the selected tone number (UPPER / LOWER / BASS), allowing you to check that the correct tone was selected.

The initial settings for the MIDI channel of each part are as follows:

Part	MIDI channel
CONTROL	1
BASS	2
A-LOWER	3
A-UPPER	4
ACCOMP 1	5
ACCOMP 2	6
ACCOMP 3	7

The relationship between Group a/b, Bank, Number and the Program Change number is given in the following table:

Group a

Bank \ Number	1	2	3	4	5	6	7	8
1	1	2	3	4	5	6	7	8
2	9	10	11	12	13	14	15	16
3	17	18	19	20	21	22	23	24
4	25	26	27	28	29	30	31	32
5	33	34	35	36	37	38	39	40
6	41	42	43	44	45	46	47	48
7	49	50	51	52	53	54	55	56
8	57	58	59	60	61	62	63	64

Group b

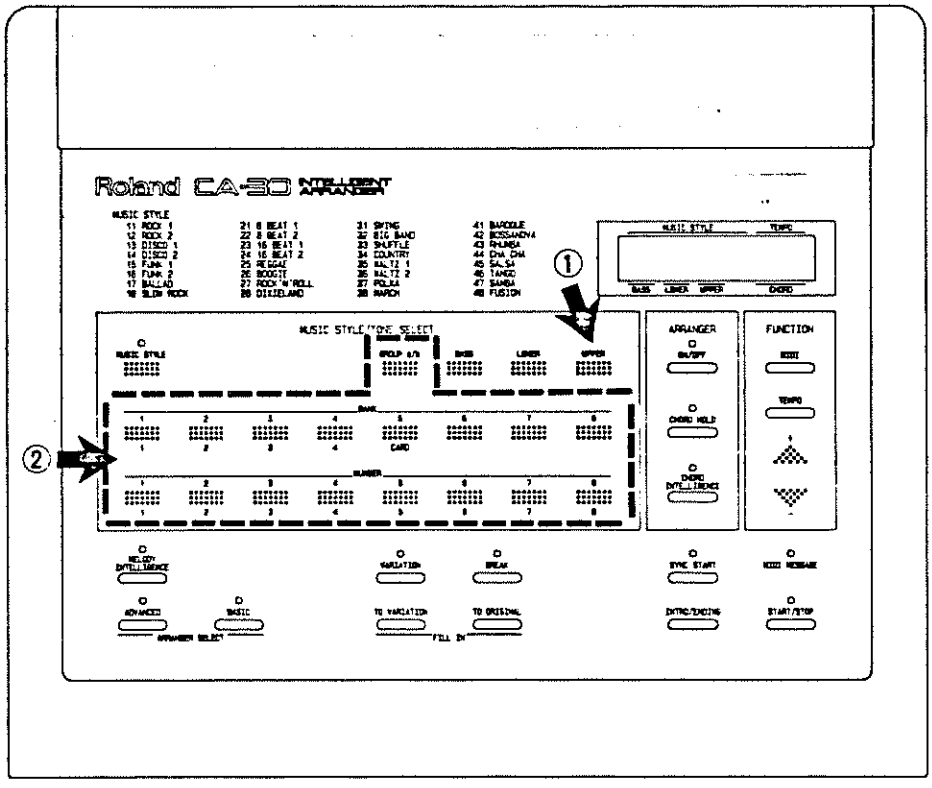
Bank \ Number	1	2	3	4	5	6	7	8
1	65	66	67	68	69	70	71	72
2	73	74	75	76	77	78	79	80
3	81	82	83	84	85	86	87	88
4	89	90	91	92	93	94	95	96
5	97	98	99	100	101	102	103	104
6	105	106	107	108	109	110	111	112
7	113	114	115	116	117	118	119	120
8	121	122	123	124	125	126	127	128

* When the Music Style starts, the CA-30 itself will transmit Program Changes to BASS/ACCOMP1-3. ("Music style" → page 15)

* The CONTROL part will change the Music Styles. (CONTROL part → page 11)

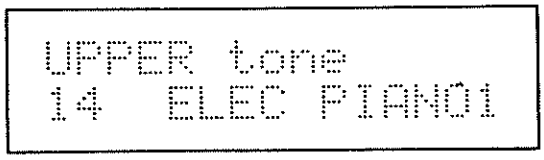
(2)Selecting a Tone for Each Part from the Front Panel

[Procedure]



From the "Master Display"

①Press TONE SELECT [UPPER] to get the upper tone select display.



②Use [GROUP a/b] and the BANK and NUMBER buttons to select the upper tone.

In a few seconds, the "Master Display" will reappear.

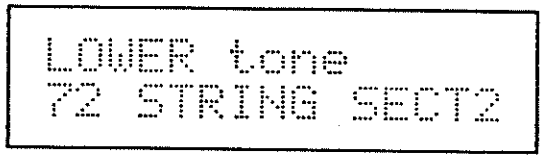
* If you do not press any buttons for a while during this operation, the "Master Display" will reappear.

* When you have pressed [UPPER], the "Master Display" cursor (=blinking area) will move to the upper tone. Now you can select the upper tone using only step ②.

* When you select the lower tone or bass tone, press [LOWER] or [BASS] instead of [UPPER] in step ①.

Example) Here's how to select "72 STRING SECT2" for the lower tone.

Press [LOWER], BANK7, NUMBER2 in that order.



In a few seconds, the "Master Display" will reappear.

* The [GROUP a/b] and the BANK and NUMBER buttons can be pressed in any order.

* The upper tone and lower tone can be selected whether the rhythm has been started or not.

* The bass tone can also be selected whether the rhythm has been started or not. However if you start the Music Style while the Arranger is on, the bass tone will automatically change to the tone specified by the Music Style, and the tone you selected will be ignored. (This is also true for accompaniment parts 1-3.)

6. Music Style

The CA-30's auto accompaniment capabilities allows you to easily create highly musical performances by selecting one of the 32 types (4 banks×8 numbers) of Music Style from internal memory or from a separately sold "Music Style Card (TN-SC1 series)".

Each Music Style specifies a drum pattern and basic tempo, and bass/chord/accompaniment for when the Arranger is used. The drum pattern includes a basic rhythm (Original) and a variant rhythm (Variation), and the accompaniment includes a basic arrangement (Basic) and a developed arrangement (Advanced). This means that a single Musical Style can be enjoyed in four different ways. (Refer to 7. Accompaniment.)

(1)Selecting a Music Style from the Sequencer

When the CA-30 Control part receives a Program Change from the sequencer, the Music Style will change automatically.

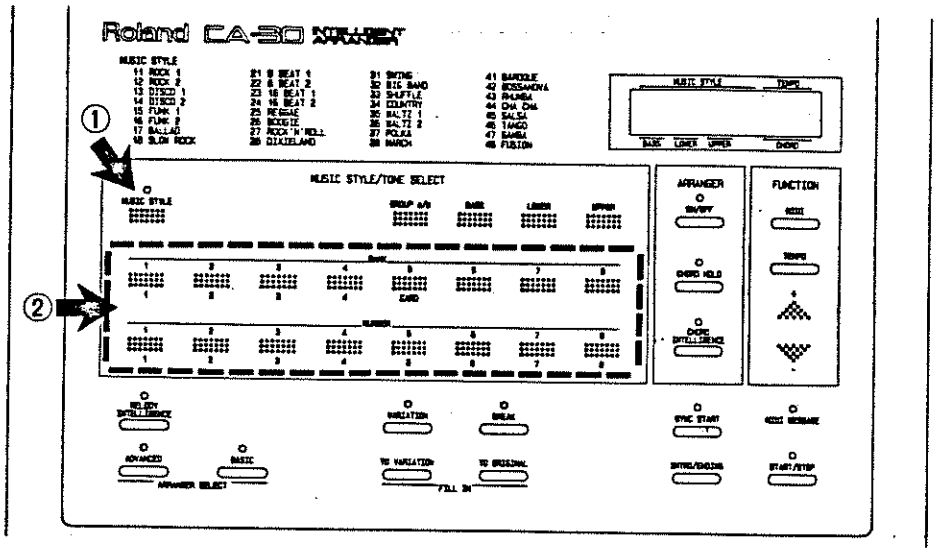
*The Control part is initially set to MIDI channel 1.

Music Style list:

PROG#	MUSIC STYLE	PROG#	MUSIC STYLE
1	ROCK 1	22	WALTZ 2
2	ROCK 2	23	POLKA
3	DISCO 1	24	MARCH
4	DISCO 2	25	BAROQUE
5	FUNK 1	26	BOSSANOVA
6	FUNK 2	27	RHUMBA
7	BALLAD	28	CHA CHA
8	SLOW ROCK	29	SALSA
9	8 BEAT 1	30	TANGO
10	8 BEAT 2	31	SAMBA
11	16 BEAT 1	32	FUSION
12	16 BEAT 2	:	
13	REGGAE	65	CARD 1
14	BOOGIE	66	CARD 2
15	ROCK'N'ROLL	67	CARD 3
16	DIXIELAND	68	CARD 4
17	SWING	69	CARD 5
18	BIG BAND	60	CARD 6
19	SHUFFLE	71	CARD 7
20	COUNTRY	72	CARD 8
21	WALTZ 1	:	

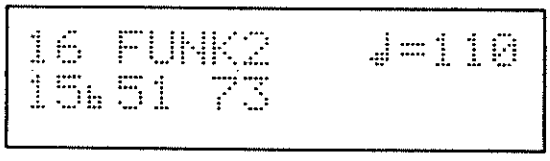
(2)Selecting a Music Style from the Front Panel

[Procedure]



From the "Master Display"

①Press [MUSIC STYLE] and move the cursor to the Music Style number.

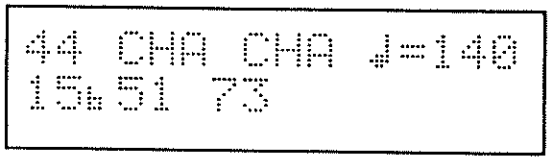


②Use the [BANK] and [NUMBER] buttons to select the Music Style.

*When you have pressed [MUSIC STYLE], the cursor in the "Master Display" will move to the Music Style number. Now you can select the Music Style using only step ②.

Example) Here's how to select the Music Style "44 CHA CHA".

Press [MUSIC STYLE], BANK4, NUMBER4 in that order.



*The BANK and NUMBER buttons can be pressed in any order.

*When selecting a Music Style from internal memory, only BANK keys 1-4 can be used. Use the BANK button 5 (CARD) when selecting a Music Style from a Music Style Card. For details refer to "8 Music Style Card".

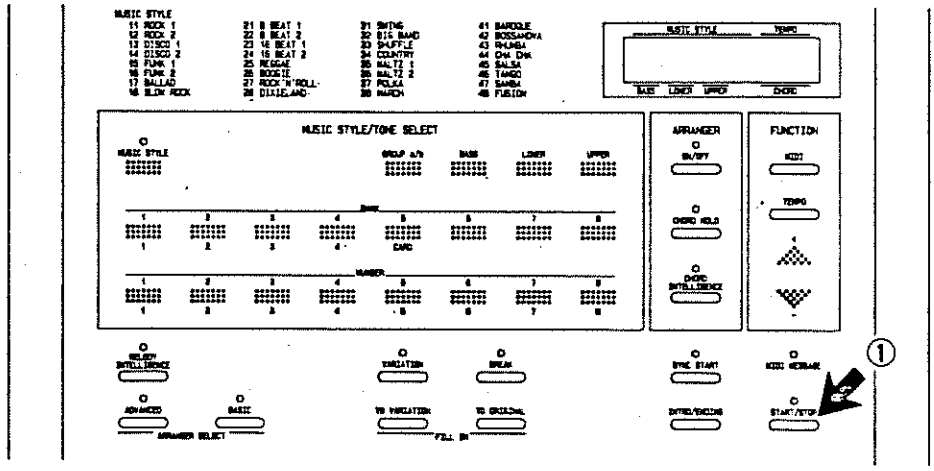
*You can select a different Music Style even after starting the rhythm. In this case, the tempo specified by the newly selected Music Style (this is known as the "Basic Tempo") will not be used, but the previous tempo will continue.

(3)How to Start the Music Style

There are four ways to start the Music Style ; use the method that is most appropriate in each musical situation.

a. Immediate start

[Procedure]

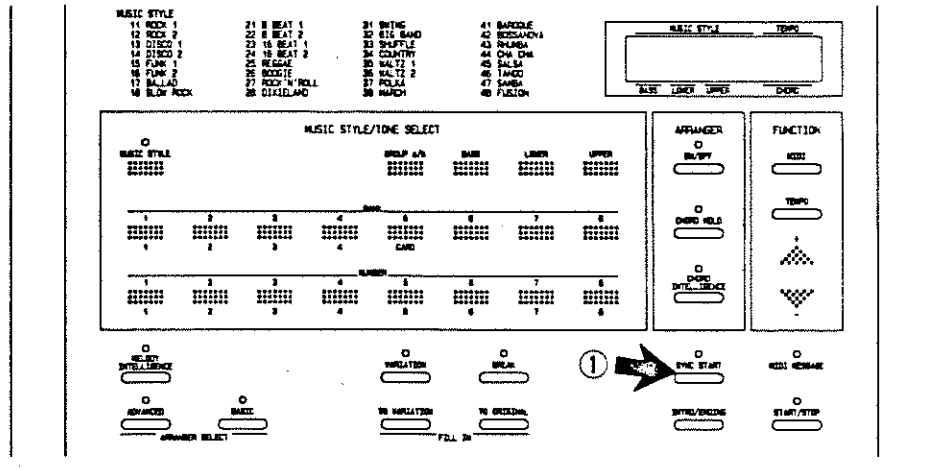


①Press [START/STOP].

The Music Style will start the instant CA-30 receives any note in the chord recognition area of the A-LOWER part. (up to B3, key #59)

b. Sync start

[Procedure]



①Press [SYNC START].

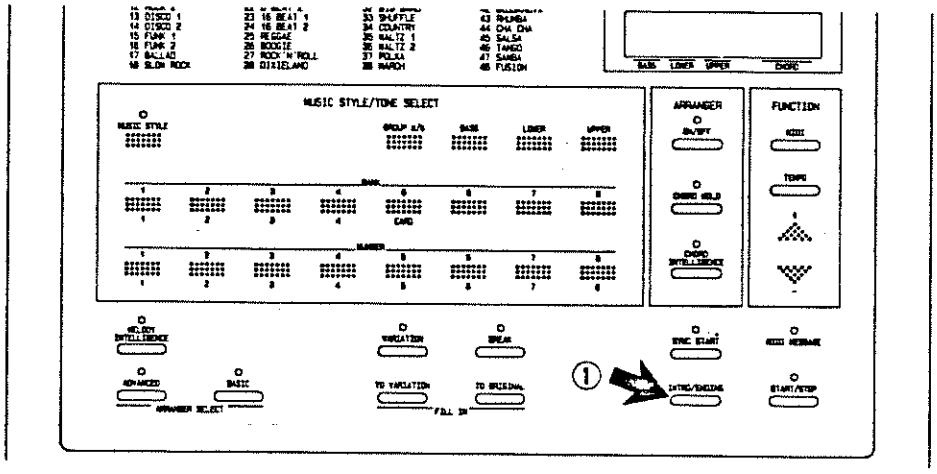
②Start playback of a sequencer, and the Music Style will start the instant CA-30 receives any note in the chord recognition area of the A-LOWER part.

*The sync indicator will light while standing by for sync start, and will go off when the Music Style starts.

c. Start with intro

If you wish to start with an intro, you must specify in advance the introduction data to be played at the beginning of the song. (See the "List of Intro/Ending Lengths" on page 31.)

[Procedure]



①Press INTRO/ENDING **.**

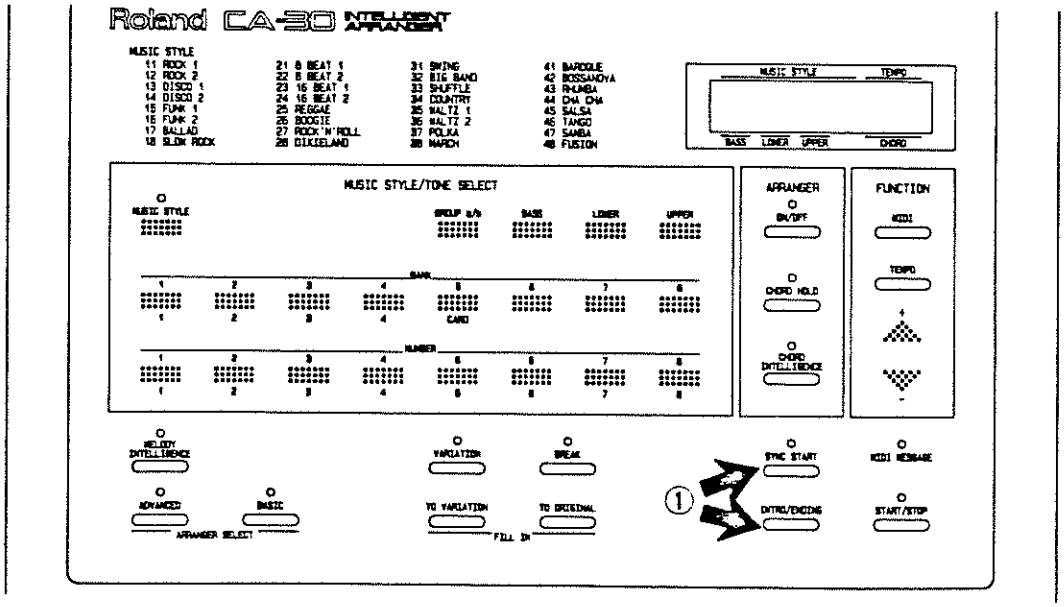
The Music Style soon will start with a musical intro.

*The length and pattern of the intro will depend on the Music Style.

d. Sync start with intro

If you wish to start with an intro, you must specify in advance the introduction data to be played at the beginning of the song. (See the "List of Intro/Ending Lengths" on page 31.)

[Procedure]



①Press SYNC START **, then** INTRO/ENDING **.**

②Start playback of a sequencer.

The Music Style will start the instant CA-30 receives any note in the chord recognition area of the A-LOWER part.

* The sync indicator will light while standing by for sync start with intro, and will go off when the Music Style starts.

* If you start the sequencer, CA-30 will automatically start synchronously.

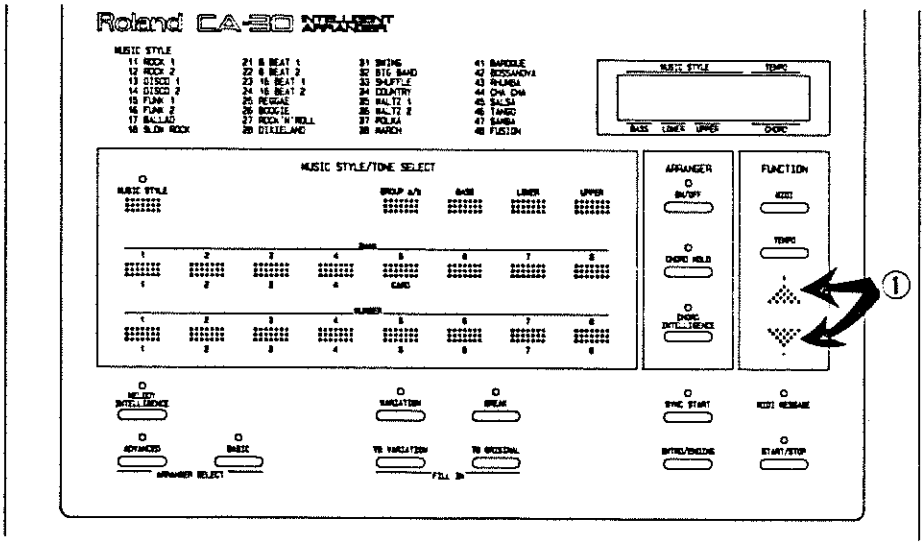
* While standing by for sync start in both b. and d., you can also press [START/STOP] to start the Music Style.

(4)How to Adjust the Tempo

Use the [+]/[−] buttons to adjust the tempo of the Music Style. (After you finish making MIDI settings, be sure to press the [TEMPO] button.)

The tempo is shown in the upper right of the display as ♩=×××. (♩=××× indicates the tempo speed as the number of quarter notes per minute.) The tempo can be adjusted over a range of ♩=32-250.

[Procedure]



①To make the tempo faster, press [+]; to make the tempo slower, press [−].

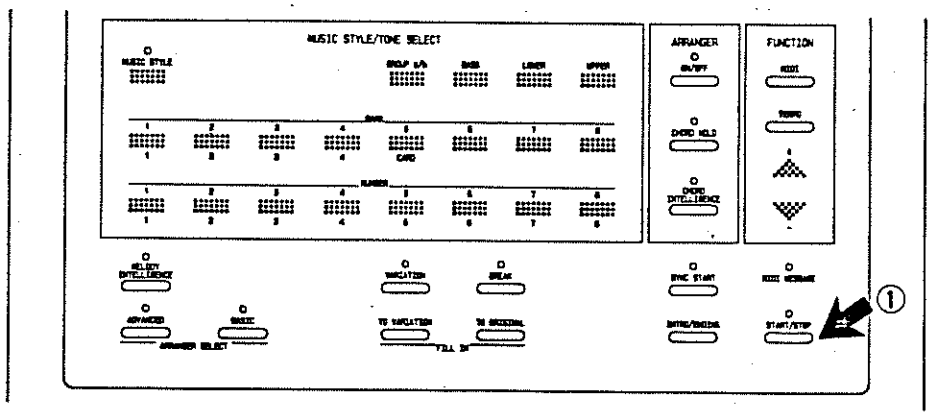
* To make large adjustments, continue pressing the [+] or [−] button.

(5)How to Stop the Music Style

There are two ways to stop the Music Style; use the method that is most appropriate in each musical situation.

a. Immediate stop

[Procedure]

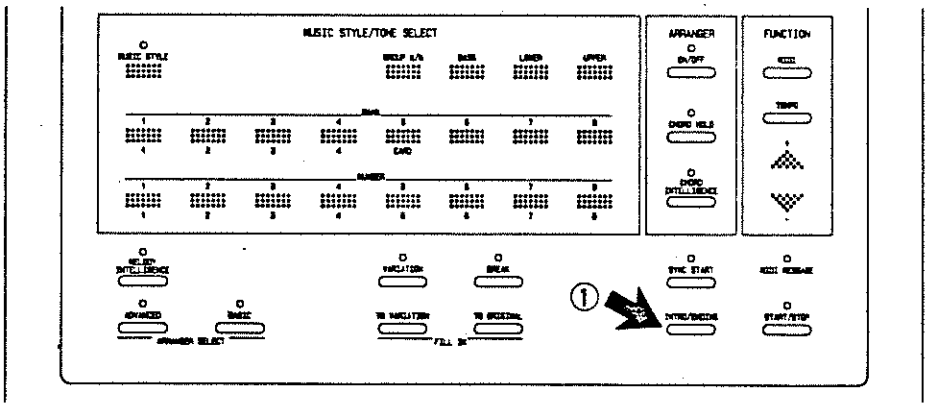


①**Press** START/STOP.

The Music Style will stop the instant you press the button.

b. Stop with ending

[Procedure]



①**Press** INTRO/ENDING.

A musical ending will be played from the first downbeat after CA-30 receives any note in the chord recognition area of the A-LOWER part, and then the Music Style will end.

* The length and pattern of the ending will depend on the Music Style.
(See the "List of Intro/Ending Lengths" on page 31.)

* You can select a different Music Style without stopping the Music Style. In this case, the tempo specified by the newly selected Music Style (this is known as the "Basic Tempo") will not be used, but the previous tempo will continue.

7. Accompaniment

Accompaniment means to "play along", but in this manual we will be using this word to indicate the automatic musical accompaniment produced by the Arranger function.
The Arranger function detects chords from the notes played on the lower part of the keyboard, and simultaneously arranges parts for bass and accompaniments 1, 2, 3. The accompaniment data that is produced will depend on the Music Style, allowing you to enjoy a wide variety of music from simple chord progressions to complex performances.

(1)Changing the Performance by Program Changes from the Sequencer

We have explained in 6.how to change the Music Style, but it is also possible to modify the music using Program Changes transmitted to the Control part. When the CA-30 receives the program changes in the following chart, it will add a variety of Fill ins and Variations even within a single Music Style.

PROG#	Corresponding function
105	BREAK ON
114	ENDING
115	FILL IN (TO ORIGINAL)
116	FILL IN (TO VARIATION)
117	RHYTHM (ORIGINAL)
118	RHYTHM (VARIATION)
119	ARRANGER (BASIC)
120	ARRANGER (ADVANCED)
121	MELODY INTELLIGENCE OFF
122	MELODY INTELLIGENCE ON
123	CHORD INTELLIGENCE OFF
124	CHORD INTELLIGENCE ON
125	CHORD HOLD OFF
126	CHORD HOLD ON
127	ARRANGER OFF
128	ARRANGER ON

* For the details of each function, refer to following paragraphs (2) to (10).

(2)Arranger ON/OFF

The Arranger function specifies and arranges chords from the notes in the chord recognition area of the A-LOWER part. When the Arranger is on and the Music Style has been started, the CA-30 Arranger Lower part is used only for detecting chords.

* The range of the Arranger Lower part is C−1 to B3 (key numbers 0 to 59). Notes C4 and above will play the tone of the Lower part.

[**Procedure**]

①**Press** [ARRANGER ON/OFF] **to make the indicator light.**

②**Start the Music Style. (see p. 17.)**

③**When CA-30 receives any note in the chord recognition area of the A-LOWER part, the CA-30 will begin producing an accompaniment appropriate for the selected Music Style and for the chord progression.**

④**Stop the Music Style. (see p. 20.)**

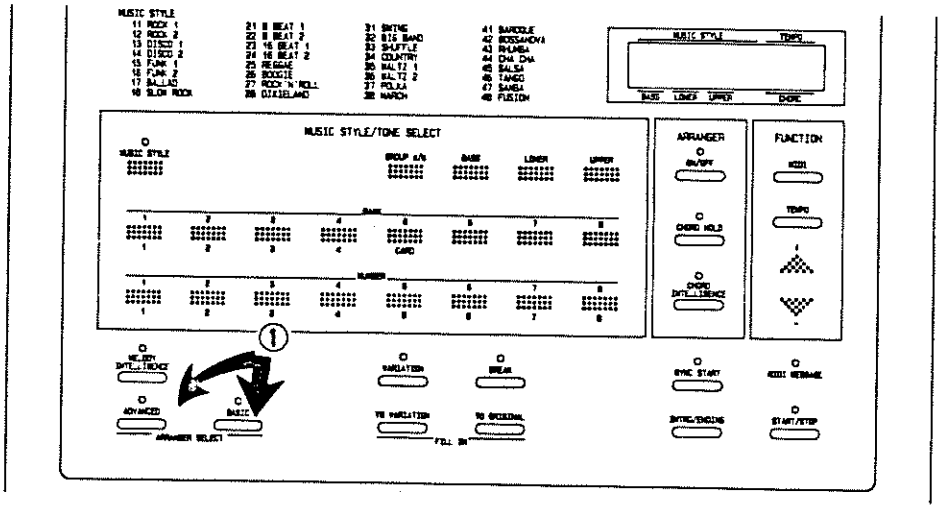
* The Lower part mute will return to the condition it was in when the Music Style was started, but even if you stop the Music Style while still recognizing a chord, the Lower part will not sound. To play the lower part, release the notes and start the Music Style again.

(3)Two Types of Arranger

For each Music Style, two types of Arranger (BASIC/ADVANCED) are provided.

BASIC·····simple arrangement
ADVANCED·····complex arrangement

[**Procedure**]



①**Press** [ARRANGER SELECT]**, and the indicator of the selected type will light.**

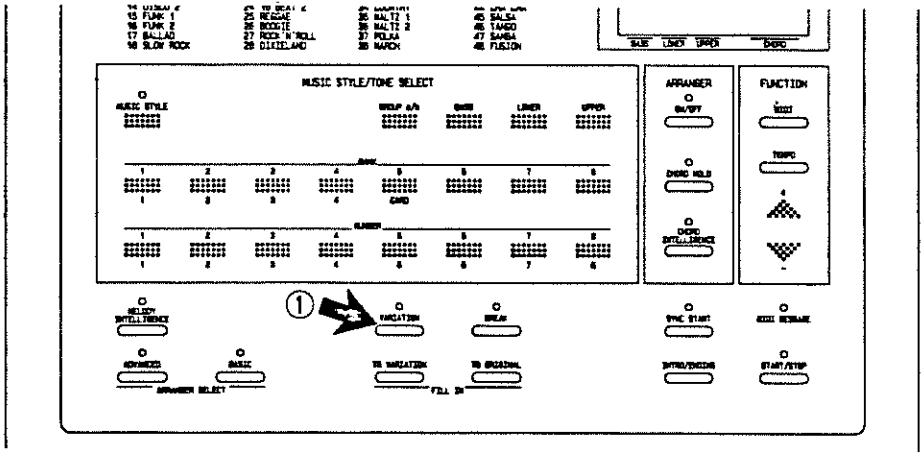
(4)Two Types of Variation

For each Music Style, two types of rhythm pattern (ORIGINAL/VARIATION) are provided.

ORIGINAL……basic pattern
VARIATION……Variation pattern

Normally you will use the ORIGINAL pattern, and use the VARIATION pattern for points of musical emphasis during the song.

[Procedure]

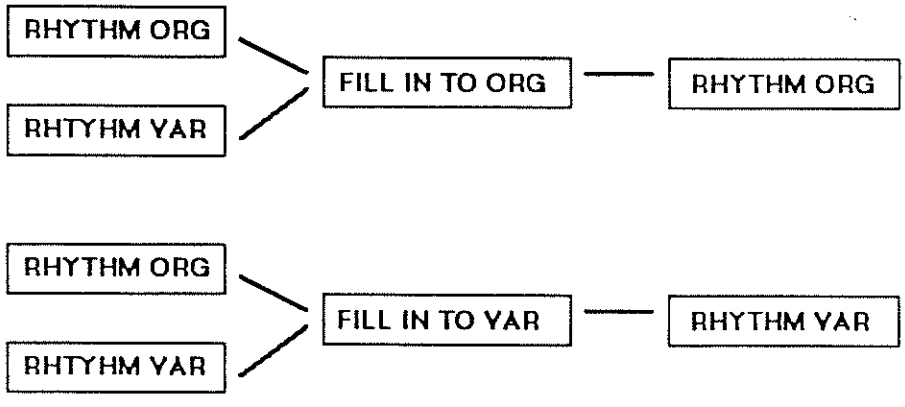


①To use the Variation, press [VARIATION] to make the indicator light.

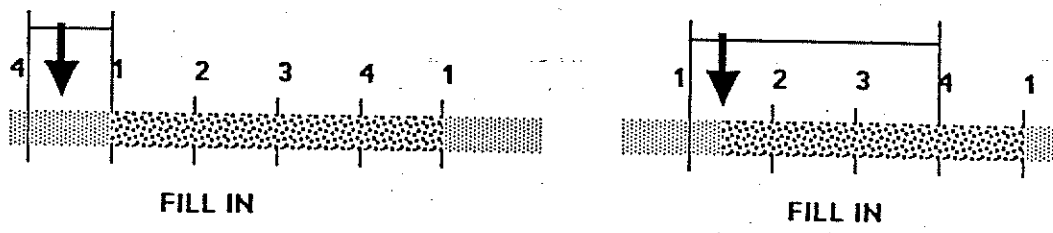
*If you press [VARIATION] once again, the indicator will go out and ORIGINAL will be selected.

(5)Fill in

Fill in is a short improvisational irregular phrase (such as a drum-roll) in the song.
There are two types of Fill in button, allowing you to specify which Music Style patterns will occur after the Fill in.



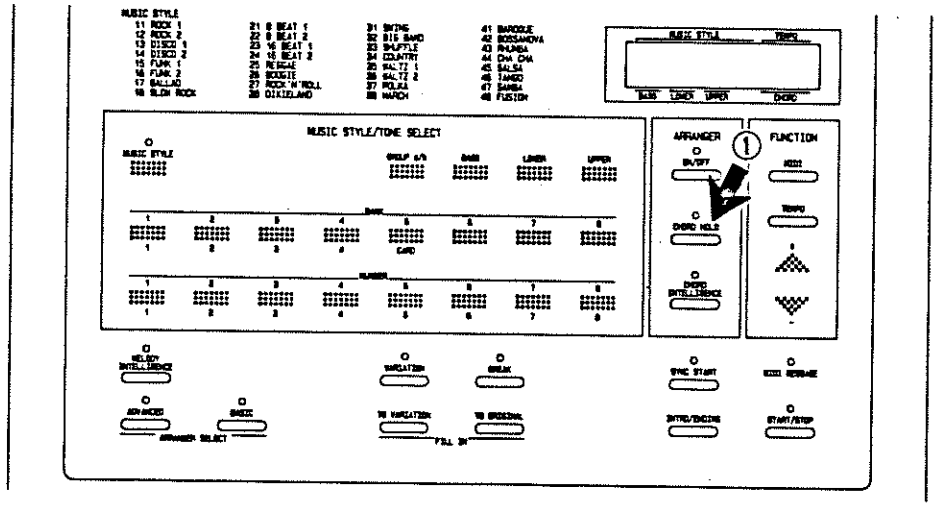
The Fill in function plays only one measure, but the result will differ depending on the timing at which you press the Fill in button.



(6)Chord Hold

Use the Chord Hold function to hold the chord played by the Arranger Lówer part until the next chord occurs.

[Procedure]



①Press CHORD HOLD to make the indicator light.

*To turn Chord Hold off, press CHORD HOLD to make the indicator go out.

(7)Sync Start

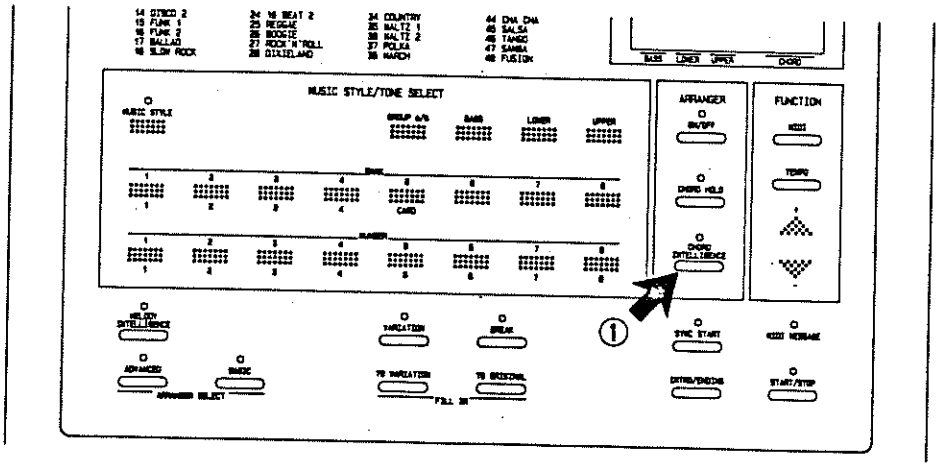
When the Sync Start function is used, the Music Style will begin when CA-30 receives any note in the chord recognition area of the A-LOWER part. (See page17.)

*If the Music Style has already been started, the Sync Start function has no effect.

(8)Chord Intelligence

The Chord Intelligence function can assign certain chords without having to specify all the notes of the chord. (Chords that the CA-30 can assign are shown on page 32 "Chord List".)

[Procedure]



①Press CHORD INTELLIGENCE to make the indicator light.

*To turn Chord Intelligence off, press CHORD INTELLIGENCE to make the indicator go out.

Regardless of whether Chord Intelligence is turned on or off, the CA-30 can distinguish the following ten types of chord. The displayed root notes are ; C, C#, D, E♭, E, F, F#, G, A♭, A, B♭, B.
The following chart shows the chords with a root of C:

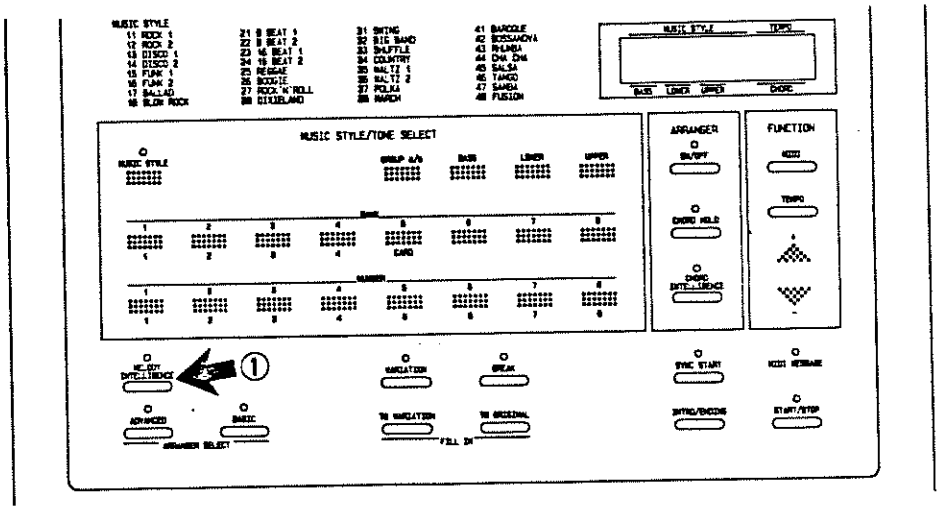
Chord name	CA-30 abbreviation	Conventional notation
Major	C Ma	C
Minor	C mi	C m
Seventh	C 7	C 7
Minor seventh	C mi7	C m7
Major seventh	C Ma7	C M7
Minor seventh flat fifth	C ϕ	C m7-5
Diminished	C Dim	C dim
Augmented	C Aug	C aug
Suspended fourth	C Su4	C sus4
Suspended seventh	C Su7	C 7sus4

*The display for chords other than these ten types will be abbreviated as "the lowest note played" and "＊＊＊".

(9)Melody Intelligence

When Melody Intelligence is used, the Arranger Upper part adds a harmony to the single note melody. The Melody Intelligence function works when chords are being detected (whether or not the Chord Hold is on/off).

[Procedure]

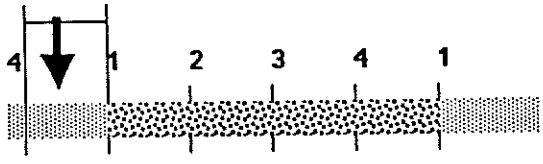


①Press MELODY INTELLIGENCE to make the indicator light.

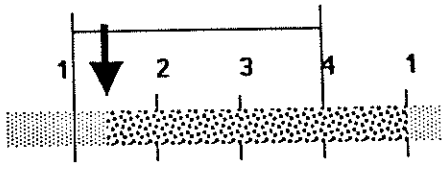
To turn Melody Intelligence off, press MELODY INTELLIGENCE to make the indicator go out.

(10)Break

Break creates a one-measure rest, but the result will depend on the timing at which you press BREAK. You may think of this as being a "blank Fill in".



BREAK



BREAK

8. Music Style Card

The CA-30 can create an accompaniment using not only the 32 Music Styles in internal memory, but also by using Music Styles from an optional Music Style Card (SN-SC1 series). Each card provides a unique selection of popular styles representing a wide range of musical genres.

* Music Style Cards are compatible with the Roland E-10/20 Intelligent Synthesizers, KR-3000/500 Digital Keyboards, and the RA-50 Realtime Arranger.

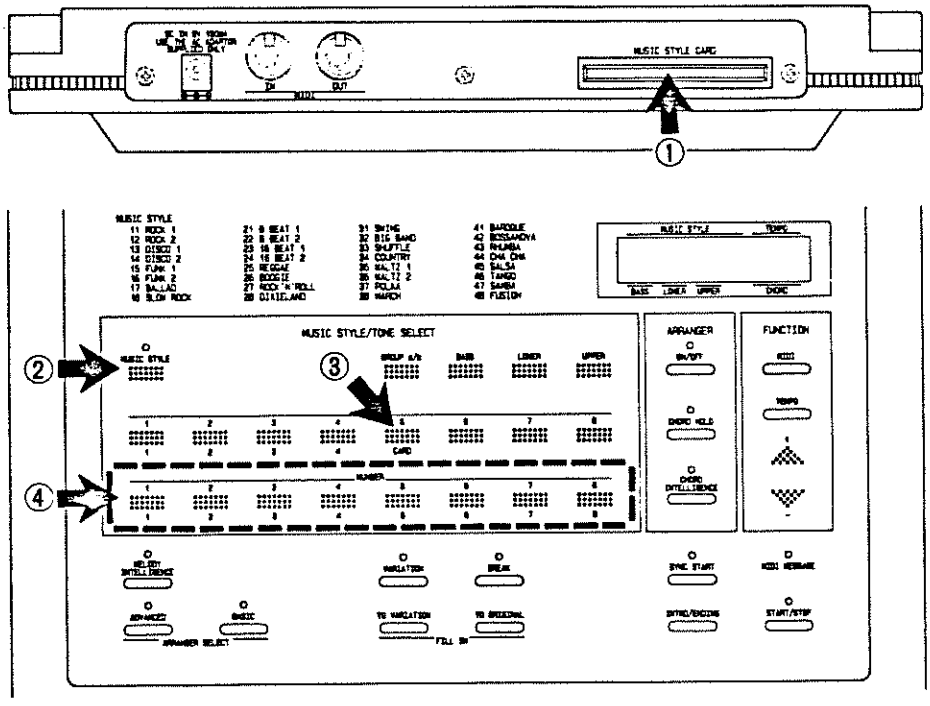
(1)Playing with a Music Style Card

The procedure is exactly the same as when selecting an internal Music Style.

[**Procedure**]

From the "Master Display"

①Insert the Music Style Card into the Card Slot.



②Press MUSIC STYLE **.**

③Press the BANK button CARD(5).

④Use the number buttons to select a Music Style.

* For some cards, numbers 1-4 and numbers 5-8 will contain the same Music Styles.

9. Troubleshooting

(1)Before You Consider It a Mulfunction

No sounds produced or some parts are missing.

〈**Reason**〉 1. The MIDI cables and connectors are connected incorrectly.
2. The MIDI channels of each part and the sequencer or sound modules are set incorrectly.

〈**Action**〉 1. Check these connections. Please refer to p. 6.
2. Check these settings and match the channels.

Tones cannot be selected correctly.

〈**Reason**〉 You have selected the Upper Tone without pressing [UPPER] after selecting a Lower Tone (or vise versa).

〈**Action**〉 The CA-30 continues to select a Tone of the previous Part. So, to select a Upper Tone after selecting a Lower Tone, you must press [UPPER].

Style Performance cannot be played.

〈**Reason**〉 1. The Arranger function is set to OFF.
2. The MIDI Proc. mode is set to "TRANSPARENT".

〈**Action**〉 1. When the Arranger is set to OFF, Style Performance cannot be performed. Set the Arranger to ON.
2. When the MIDI proc. mode is set to "TRANSPARENT", Style Performance cannot be performed. Set the MIDI proc. mode to "AUTO SLAVE".

Sound dose not stop.

〈**Reason**〉 1. The Chord Hold function is turned on in the Split mode.
2. The MIDI cable is disconnected.

〈**Action**〉 1. Press [CHORD HOLD] to turn off the Chord Hold function.
2. Switch the unit off once and connect the cables securely.

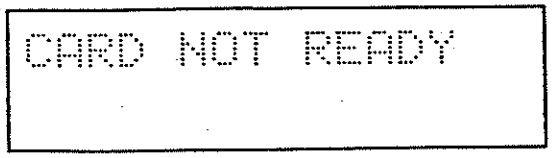
Several sounds are mixed/the sound which is not selected is played.

〈**Reason**〉 You have pressed [MIDI] and change the MIDI channels.

〈**Action**〉 If you inadvertently change MIDI channels, you may unexpectedly hear Lower Tone or Bass Tone when not using the Split function, or hear drum sound. If this happens, switch the unit off, then switch it on again to return to the normal condition.

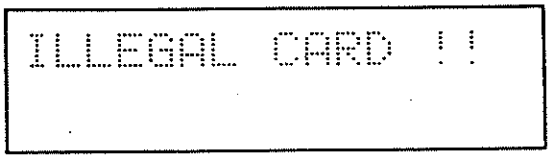
In the event the unit is still inoperable, your Roland service technician or Roland dealer is best qualified to provide you with competent service. Do not attempt any adjustments or repairs by yourself.

(2)Error Messages



〈**Reason**〉 A Music Style Card is not inserted.

〈**Action**〉 Insert a Music Style Card and try the operation again from the beginning.



〈**Reason**〉 The CA-30 tried to read Music Style data from a card that was not a Music Style Card.

〈**Action**〉 Insert a Music Style Card and try the operation again from the beginning.

Supplementary Information

The settable parameters and factory settings are as follows:

Part name	MIDI channel Rx.	MIDI Channel Tx.
A-UPPER	4	4
A-LOWER	3	3
CONTROL	1	1
UPPER	4	4
LOWER	3	3
BASS	2	2
DRUMS	10	10
ACCOMP 1	5	5
ACCOMP 2	6	6
ACCOMP 3	7	7

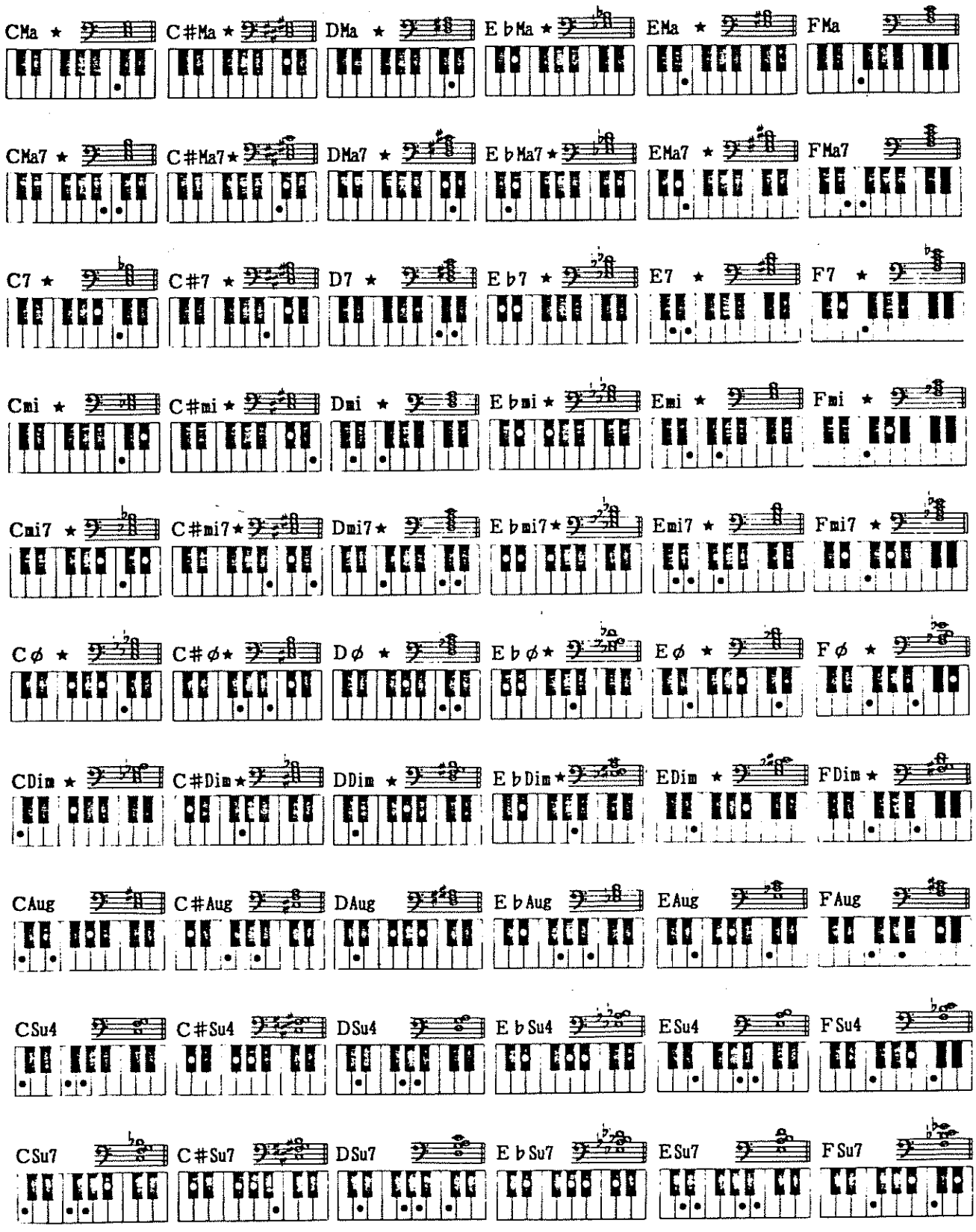
*The channel of each part is fixed and cannot be changed.

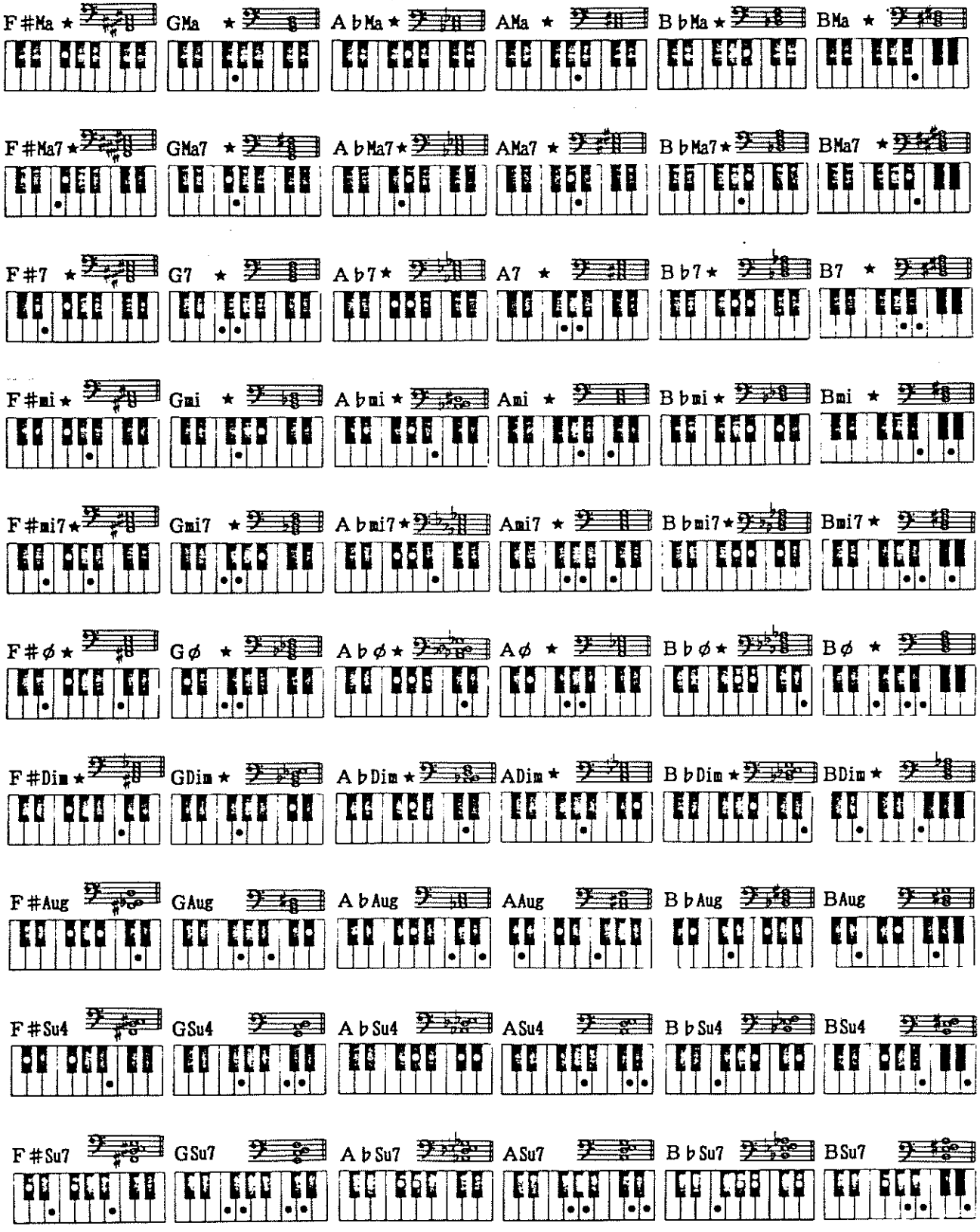
List of Intro/Ending Lengths

Music style	B/M	Intro (meas)	Ending (meas)
Rock 1	4/4	1	4
Rock 2	4/4	1	3
Disco 1	4/4	4	6
Disco 2	4/4	4	7
Funk 1	4/4	1	4
Funk 2	4/4	2	1
Ballad	4/4	1	3
Slow rock	4/4	1	3
8 beat 1	4/4	1	3
8 beat 2	4/4	1	3
16 beat 1	4/4	1	3
16 beat 2	4/4	1	2
Reggae	4/4	2	2
Boogie	4/4	1	2
Rock'n'roll	4/4	2	4
Dixieland	4/4	2	4
Swing	4/4	4	4
Big band	4/4	2	4
Shuffle	4/4	1	3
Country	4/4	1	1
Waltz 1	3/4	2	3
Waltz 2	3/4	4	5
Polka	2/4	4	3
March	4/4	2	2
Baroque	4/4	1	2
Bossanova	4/4	4	5
Rhumba	4/4	4	4
Cha cha	4/4	4	4
Salsa	4/4	2	4
Tango	4/4	3	3
Samba	4/4	5	2
Fusion	4/4	4	2

* Fractions of the Ending measure are raised decimals to the next whole number.

Chord List


CMa ★
C#Ma ★
DMa ★
E♭Ma ★
EMa ★
FMa
CMa7 ★
C#Ma7 ★
DMa7 ★
E♭Ma7 ★
EMa7 ★
FMa7
C7 ★
C#7 ★
D7 ★
E♭7 ★
E7 ★
F7 ★
Cmi ★
C#mi ★
Dmi ★
E♭mi ★
Emi ★
Fmi ★
Cmi7 ★
C#mi7 ★
Dmi7 ★
E♭mi7 ★
Emi7 ★
Fmi7 ★
C∅ ★
C#∅ ★
D∅ ★
E♭∅ ★
E∅ ★
F∅ ★
CDim ★
C#Dim ★
DDim ★
E♭Dim ★
EDim ★
FDim ★
CAug
C#Aug
DAug
E♭Aug
EAug
FAug
CSu4
C#Su4
DSu4
E♭Su4
ESu4
FSu4
CSu7
C#Su7
DSu7
E♭Su7
ESu7
FSu7



*All above chords attached "★" are the Intelligent Chords.

Roland Exclusive Messages

1. Data Format for Exclusive Messages

Roland's MIDI implementation uses the following data format for all exclusive messages (type IV):

Byte	Description
F0H	Exclusive status
41H	Manufacturer ID (Roland)
DEV	Device ID
MDL	Model ID
CMD	Command ID
[BODY]	Main data
F7H	End of exclusive

≠ MIDI status : F0H, F7H

An exclusive message must be flanked by a pair of status codes, starting with a Manufacturer – ID immediately after F0H (MIDI version1.0).

≠ Manufacturer – ID : 41H

The Manufacturer – ID identifies the manufacturer of a MIDI instrument that triggers an exclusive message. Value 41H represents Roland's Manufacturer – ID.

≠ Device – ID : DEV

The Device – ID contains a unique value that identifies the individual device in the multiple implementation of MIDI instruments. It is usually set to 00H – 0FH, a value smaller by one than that of a basic channel, but value 00H – 1FH may be used for a device with multiple basic channels.

≠ Model – ID : MDL

The Model – ID contains a value that uniquely identifies one model from another. Different models, however, may share an identical Model – ID if they handle similar data.

The Model – ID format may contain 00H in one or more places to provide an extended data field. The following are examples of valid Model – IDs, each representing a unique model:

01H
02H
03H
00H, 01H
00H, 02H
00H, 00H, 01H

≠ Command – ID : CMD

The Command – ID indicates the function of an exclusive message. The Command – ID format may contain 00H in one or more places to provide an extended data field. The following are examples of valid Command – IDs, each representing a unique function:

01H
02H
03H
00H, 01H
00H, 02H
00H, 00H, 01H

≠ Main data : BODY

This field contains a message to be exchanged across an interface. The exact data size and contents will vary with the Model – ID and Command – ID.

2. Address – mapped Data Transfer

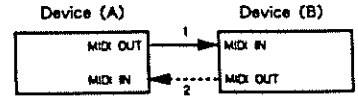
Address mapping is a technique for transferring messages conforming to the data format given in Section 1. It assigns a series of memory – resident records – – waveform and tone data, switch status, and parameters, for example – – to specific locations in a machine – dependent address space, thereby allowing access to data residing at the address a message specifies.

Address – mapped data transfer is therefore independent of models and data categories. This technique allows use of two different transfer procedures : one – way transfer and handshake transfer.

≠ One – way transfer procedure (See Section 3 for details.)

This procedure is suited for the transfer of a small amount of data. It sends out an exclusive message completely independent of a receiving device status.

Connection Diagram

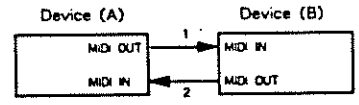


Connection at point 2 is essential for "Request data" procedures. (See Section 3.)

≠ Handshake – transfer procedure (See Section 4 for details.)

This procedure initiates a predetermined transfer sequence (handshaking) across the interface before data transfer takes place. Handshaking ensures that reliability and transfer speed are high enough to handle a large amount of data.

Connection Diagram



Connection at points 1 and 2 is essential.

Notes on the above two procedures

* There are separate Command – IDs for different transfer procedures.
* Devices A and B cannot exchange data unless they use the same transfer procedure, share identical Device – ID and Model ID, and are ready for communication.

3. One – way Transfer Procedure

This procedure sends out data all the way until it stops and is used when the messages are so short that answerbacks need not be checked.
For long messages, however, the receiving device must acquire each message in time with the transfer sequence, which inserts intervals of at least 20 milliseconds in between.

Types of Messages

Message	Command ID
Request data 1	RQ1 (11H)
Data set 1	DT1 (12H)

≠ Request data = 1 : RQ1 (11H)

This message is sent out when there is a need to acquire data from a device at the other end of the interface. It contains data for the address and size that specify designation and length, respectively, of data required.
On receiving an RQ1 message, the remote device checks its memory for the data address and size that satisfy the request.

If it finds them and is ready for communication, the device will transmit a "Data set 1 (DT1)" message, which contains the requested data. Otherwise, the device will send out nothing.

Byte	Description
F0H	Exclusive status
41H	Manufacturer ID (Roland)
DEV	Device ID
MDL	Model ID
11H	Command ID
aaH	Address MSB
⋮	⋮
	LSB
ssH	Size MSB
⋮	⋮
	LSB
sum	Check sum
F7H	End of exclusive

* The size of the requested data does not indicate the number of bytes that will make up a DT1 message, but represents the address fields where the requested data resides.
* Some models are subject to limitations in data format used for a single transaction. Requested data, for example, may have a limit in length or must be divided into predetermined address fields before it is exchanged across the interface.
* The same number of bytes comprises address and size data, which, however, vary with the Model – ID.
* The error checking process uses a checksum that provides a bit pattern where the least significant 7 bits are zero when values for an address, size, and that checksum are summed.

* Data set 1 : DT1 (12H)

This message corresponds to the actual data transfer process. Because every byte in the data is assigned a unique address, a DT1 message can convey the starting address of one or more data as well as a series of data formatted in an address – dependent order.

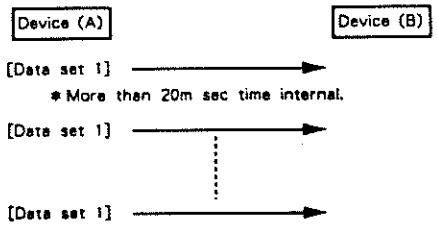
The MIDI standards inhibit non – real time messages from interrupting an exclusive one. This fact is inconvenient for the devices that support a "soft – through" mechanism. To maintain compatibility with such devices, Roland has limited the DT1 to 256 bytes so that an excessively long message is sent out in separate segments.

Byte	Description
F0H	Exclusive
41H	Manufacturer ID (Roland)
DEV	Device ID
MDL	Model ID
12H	Command ID
aaH	Address MSB
⋮	⋮
	LSB
ddH	Data
⋮	⋮
sum	Check sum
F7H	End of exclusive

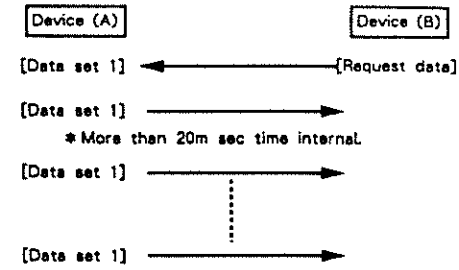
* A DT1 message is capable of providing only the valid data among those specified by an RQ1 message.
* Some models are subject to limitations in data format used for a single transaction. Requested data, for example, may have a limit in length or must be divided into predetermined address fields before it is exchanged across the interface.
* The number of bytes comprising address data varies from one Model – ID to another.
* The error checking process uses a checksum that provides a bit pattern where the least significant 7 bits are zero when values for an address, size, and that checksum are summed.

* Example of Message Transactions

● Device A sending data to Device B
Transfer of a DT1 message is all that takes place.



● Device B requesting data from Device A
Device B sends an RQ1 message to Device A. Checking the message, Device A sends a DT1 message back to Device B.



4. Handshake – Transfer Procedure

Handshaking is an interactive process where two devices exchange error checking signals before a message transaction takes place, thereby increasing data reliability. Unlike one – way transfer that inserts a pause between message transactions, handshake transfer allows much speedier transactions because data transfer starts once the receiving device returns a ready signal.

When it comes to handling large amounts of data – – sampler waveforms and synthesizer tones over the entire range, for example – – across a MIDI interface, handshaking transfer is more efficient than one – way transfer.

Types of Messages

Message	Command ID
Want to send data	WSD (40H)
Request data	RQD (41H)
Data set	DAT (42H)
Acknowledge	ACK (43H)
End of data	EOD (45H)
Communication error	ERR (4EH)
Rejection	RJC (4FH)

* Want to send data : WSD (40H)

This message is sent out when data must be sent to a device at the other end of the interface. It contains data for the address and size that specify designation and length, respectively, of the data to be sent.

On receiving a WSD message, the remote device checks its memory for the specified data address and size which will satisfy the request. If it finds them and is ready for communication, the device will return an "Acknowledge (ACK)" message.
Otherwise, it will return a "Rejection (RJC)" message.

Byte	Description
F0H	Exclusive status
41H	Manufacturer ID (Roland)
DEV	Device ID
MDL	Model ID
40H	Command ID
aaH	Address MSB
⋮	⋮
	LSB
ssH	Size MSB
⋮	⋮
	LSB
sum	Check sum
F7H	End of exclusive

* The size of the data to be sent does not indicate the number of bytes that make up a "Data set (DAT)" message, but represents the address fields where the data should reside.
* Some models are subject to limitations in data format used for a single transaction. Requested data, for example, may have a limit in length or must be divided into predetermined address fields before it is exchanged across the interface.
* The same number of bytes comprises address and size data, which, however, vary with the Model – ID.
* The error checking process uses a checksum that provides a bit pattern where the least significant 7 bits are zero when values for an address, size, and that checksum are summed.

≠Request data : RQD (41H)

This message is sent out when there is a need to acquire data from a device at the other end of the interface. It contains data for the address and size that specify designation and length, respectively, of data required.

On receiving an RQD message, the remote device checks its memory for the data address and size which satisfy the request. If it finds them and is ready for communication, the device will transmit a "Data set (DAT)" message, which contains the requested data. Otherwise, it will return a "Rejection (RJC)" message.

Byte	Description
F0H	Exclusive status
41H	Manufacturer ID (Roland)
DEV	Device ID
MDL	Model ID
41H	Command ID
aaH	Address MSB
⋮	⋮
	LSB
ssH	Size MSB
⋮	⋮
	LSB
sum	Check sum
F7H	End of exclusive

* The size of the requested data does not indicate the number of bytes that make up a "Data set (DAT)" message, but represents the address fields where the requested data resides.
* Some models are subject to limitations in data format used for a single transaction. Requested data, for example, may have a limit in length or must be divided into predetermined address fields before it is exchanged across the interface.
* The same number of bytes comprises address and size data, which, however, vary with the Model – ID.
* The error checking process uses a checksum that provides a bit pattern where the least significant 7 bits are zero when values for an address, size, and that checksum are summed.

≠Data set : DAT (42H)

This message corresponds to the actual data transfer process. Because every byte in the data is assigned a unique address, the message can convey the starting address of one or more data as well as a series of data formatted in an address – dependent order.

Although the MIDI standards inhibit non – real time messages from interrupting an exclusive one, some devices support a "soft – through" mechanism for such interrupts. To maintain compatibility with such devices, Roland has limited the DAT to 256 bytes so that an excessively long message is sent out in separate segments.

Byte	Description
F0H	Exclusive status
41H	Manufacturer ID (Roland)
DEV	Device ID
MDL	Model ID
42H	Command ID
aaH	Address MSB
⋮	⋮
	LSB
ddH	Data
⋮	⋮
sum	Check sum
F7H	End of exclusive

* A DAT message is capable of providing only the valid data among those specified by an RQD or WSD message.
* Some models are subject to limitations in data format used for a single transaction. Requested data, for example, may have a limit in length or must be divided into predetermined address fields before it is exchanged across the interface.
* The number of bytes comprising address data varies from one model ID to another.
* The error checking process uses a checksum that provides a bit pattern where the least significant 7 bits are zero when values for an address, size, and that checksum are summed.

≠Acknowledge : ACK (43H)

This message is sent out when no error was detected on reception of a WSD, DAT, "End of data (EOD)", or some other message and a requested setup or action is complete. Unless it receives an ACK message, the device at the other end will not proceed to the next operation.

Byte	Description
F0H	Exclusive status
41H	Manufacturer ID (Roland)
DEV	Device ID
MDL	Model ID
43H	Command ID
F7H	End of exclusive

≠End of data : EOD (45H)

This message is sent out to inform a remote device of the end of a message. Communication, however, will not come to an end unless the remote device returns an ACK message even though an EOD message was transmitted.

Byte	Description
F0H	Exclusive status
41H	Manufacturer ID (Roland)
DEV	Device ID
MDL	Model ID
45H	Command ID
F7H	End of exclusive

≠Communications error : ERR (4EH)

This message warns the remote device of a communications fault encountered during message transmission due, for example, to a checksum error. An ERR message may be replaced with a "Rejection (RJC)" one, which terminates the current message transaction in midstream.

When it receives an ERR message, the sending device may either attempt to send out the last message a second time or terminate communication by sending out an RJC message.

Byte	Description
F0H	Exclusive status
41H	Manufacturer ID (Roland)
DEV	Device ID
MDL	Model ID
4EH	Command ID
F7H	End of exclusive

Rejection : RJC (4FH)

This message is sent out when there is a need to terminate communication by overriding the current message. An RJC message will be triggered when :

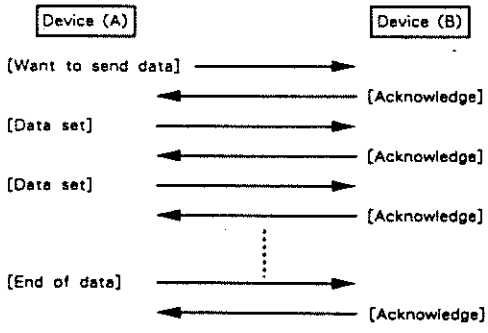
- a WSD or RQD message has specified an illegal data address or size.
- the device is not ready for communication.
- an illegal number of addresses or data has been detected.
- data transfer has been terminated by an operator.
- a communications error has occurred.

An ERR message may be sent out by a device on either side of the interface. Communication must be terminated immediately when either side triggers an ERR message.

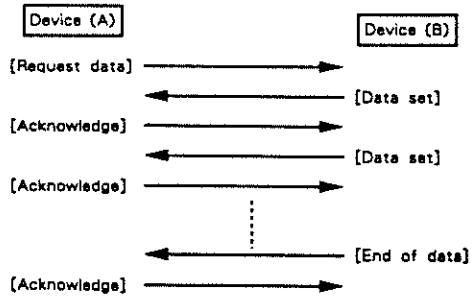
Byte	Description
F0H	Exclusive status
41H	Manufacturer ID (Roland)
DEV	Device ID
MDL	Model ID
4FH	Command ID
F7H	End of exclusive

Example of Message Transactions

●Data transfer from device (A) to device (B).

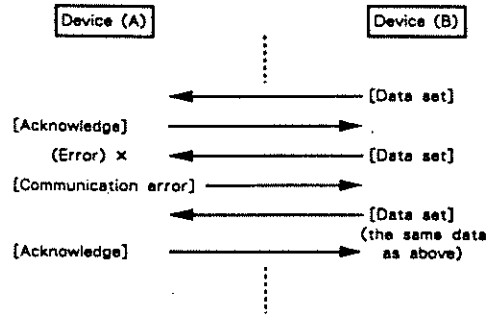


●Device (A) requests and receives data from device (B).

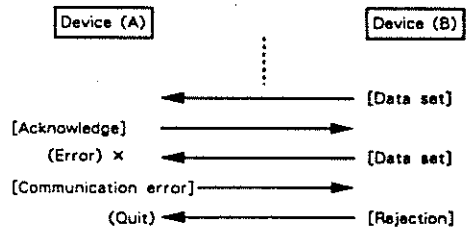


●Error occurs while device (A) is receiving data from device (B).

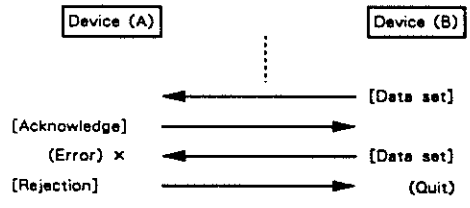
1) Data transfer from device (A) to device (B).



2) Device (B) rejects the data re – transmitted, and quits data transfer.



3) Device (A) immediately quits data transfer.



INTELLIGENT ARRANGER

Model CA-30

MIDI Implementation

Date : Aug. 11 1989

Version : 1.00

1. RECOGNIZED RECEIVE DATA

1.RECOGNIZED RECEIVE DATA

■ Channel Voice Message

● Note off

Status	Second	Third
8nH	kkH	vvH
9nH	kkH	00H

n = MIDI channel number : 0H - FH (0 - 15) 0 = ch.1 15 = ch.16
kk = Note number : 00H - 7FH (0 - 127)
vv = Velocity : 00H - 7FH (0 - 127)

● Note on

Status	Second	Third
9nH	kkH	vvH

n = MIDI channel number : 0H - FH (0 - 15) 0 = ch.1 15 = ch.16
kk = Note number : 00H - 7FH (0 - 127)
vv = Velocity : 01H - 7FH (1 - 127)

● Polyphonic key pressure

Status	Second	Third
AnH	kkH	vvH

n = MIDI channel number : 0H - FH (0 - 15) 0 = ch.1 15 = ch.16
kk = Note number : 00H - 7FH (0 - 127)
vv = Value : 00H - 7FH (0 - 127)

● Control change

Status	Second	Third
BnH	kkH	vvH

n = MIDI channel number : 0H - FH (0 - 15) 0 = ch.1 15 = ch.16
kk = Control number : 00H - 78H (0 - 120)
vv = Value : 00H - 7FH (0 - 127)

● Program change

Status	Second
CnH	ppH

n = MIDI channel number : 0H - FH (0 - 15) 0 = ch.1 15 = ch.16
pp = Program number : 00H - 7FH (0 - 127)

● Channel pressure

Status	Second
DnH	vvH

n = MIDI channel number : 0H - FH (0 - 15) 0 = ch.1 15 = ch.16
vv = Value : 00H - 7FH (0 - 127)

● Pitch bend change

Status	Second	Third
EnH	llH	mmH

n = MIDI channel number : 0H - FH (0 - 15) 0 = ch.1 15 = ch.16
mm,ll = Value : 00H,00H - 7FH,7FH 0 - 16383 (-8192 - -8191)

■ System Common Message

● Tune request

Status
F6H

■ System Realtime Message

● Timing clock

Status
F8H

*Recognized after receiving FAH or FBH at MIDI (SEQ) IN, when Rx.SYNC mode is AUTO SLAVE.

● Start

Status
FAH

* Recognized when Rx.SYNC mode is AUTO SLAVE.

● Continue

Status
FBH

* Recognized when Rx.SYNC mode is AUTO SLAVE.
* Recognized only as FAH.

● Stop

Status
FCH

* Recognized when Rx.SYNC mode is AUTO SLAVE.

■ System Exclusive Message

Status	data
F0H	iiH,ddH,.....eeH
F7H	

F0H : System Exclusive
ii = ID number : 00H - 7FH (0 - 127)
dd.....ee = data : 00H - 7FH (0 - 127)
F7H : EOX (End of Exclusive/System common)

*Recieved when System Exclusive is up to 300 bytes.
Using System Exclusive Communications, refer to Sections 3.

2. TRANSMITTED

If CA-30 is set to "MIDI Proc. mode = TRANSPARENT", this will turn the CA-30 into the Hand THRU EMULATION mode so that all the recognized messages can be transmitted in this mode.

■ Channel Voice Message

● Note off

Status	Second	Third
8nH	kkH	40H

n = MIDI channel number : 0H - FH (0 - 15) 0 = ch.1 15 = ch.16
kk = Note number : 00H - 7FH (0 - 127)
40 = Velocity : 40H (64)

● Note on

Status	Second	Third
9nH	kkH	vvH

n = MIDI channel number : 0H - FH (0 - 15) 0 = ch.1 15 = ch.16
kk = Note number : 00H - 7FH (0 - 127)
vv = Velocity : 01H - 7FH (1 - 127)

● Polyphonic key pressure

Status	Second	Third
AnH	kkH	vvH

n = MIDI channel number : 0H - FH (0 - 15) 0 = ch.1 15 = ch.16
kk = Note number : 00H - 7FH (0 - 127)
vv = Value : 00H - 7FH (0 - 127)

* Can be SOFT THRU when received.

● Control change

Status	Second	Third
BnH	kkH	vvH

n = MIDI channel number : 0H - FH (0 - 15) 0 = ch.1 15 = ch.16
kk = Control number : 00H - 78H (0 - 120)
vv = Value : 00H - 7FH (0 - 127)

* Can be SOFT THRU when received.

● Program change

Status	Second
CnH	ppH

n = MIDI channel number : 0H - FH (0 - 15) 0 = ch.1 15 = ch.16
pp = Program number : 00H - 7FH (0 - 127)

* Can be SOFT THRU when received.

● Channel pressure

Status	Second
DnH	vvH

n = MIDI channel number : 0H - FH (0 - 15) 0 = ch.1 15 = ch.16
vv = Value : 00H - 7FH (0 - 127)

* Can be SOFT THRU when received.

● Pitch bend change

Status	Second	Third
EnH	llH	mmH

n = MIDI channel number : 0H - FH (0 - 15) 0 = ch.1 15 = ch.16
mm,ll = Value : 00H,00H - 7FH,7FH 0 - 16383 (-8192 - -8191)

* Can be SOFT THRU when received.

■ System Common Message

● Tune request

Status
F0H

* Can be SOFT THRU when received.

■ System Realtime Message

● Timing clock

Status
F8H

● Start

Status
FAH

● Continue

Status
FBH

● Stop

Status
FCH

● Active sensing

Status
FEH

* Always transmitted up to 300msec.

■ System Exclusive Message

Status	data
F0H	iiH,ddH,.....,eeH
F7H	

F0H : System Exclusive
ii = ID number : 00H - 7FH (0 - 127)
dd,.....ee = data : 00H - 7FH (0 - 127)
F7H : EOX (End of Exclusive/System common)

*Recieved when System Exclusive is up to 300 bytes.
Using System Exclusive Communications, refer to Sections 5.

3. Exclusive communications

The data can be transffered to CA－30 through System Exclusive Message. Model ID # and device ID # of CA－30 are 2DH and 1FH.

■ One way communication

Byte	Description
F0H	Exclusive Status
41H	Manufacturer's ID (Roland)
1FH	Device ID
2DH	Model ID (CA-30/RA-50)
11H	Command ID (RQ1)
aaH	Address MSB
bbH	Address
ccH	Address LSB
ssH	Size MSB
:	:
ssH	Size LSB
sum	Check sum
F7H	EOX (End of Exclusive/System Common)

● Data set 1 DT1 (12H)

Byte	Description
F0H	Exclusive Status
41H	Manufacturer's ID (Roland)
1FH	Device ID
2DH	Model ID (CA-30/RA-50)
12H	Command ID (DT1)
aaH	Address MSB
bbH	Address
ccH	Address LSB
ddH	Data
:	:
eeH	Data
sum	Check sum
F7H	EOX (End of Exclusive/System Common)

4. PARAMETER ADDRESS MAP

■ Parameter base address

Start address	Description	
10 00 00	MIDI Setting area	*7-1
20 00 00	String area	*7-2
40 00 00	Receive and write data onto RAM card	*7-3
60 00 00	Program Change Map area	*7-4

Notes :

*7－1 MIDI Setting area

Offset address	Description	
00 00	Arranger Upper MIDI setup	*7-1-1
00 04	Arranger Lower MIDI setup	
00 08	Control Channel MIDI setup	
00 0C	Upper MIDI setup	
00 10	Lower MIDI setup	
00 14	Drums MIDI setup	
00 18	Bass MIDI setup	
00 1C	Accompaniment 1 MIDI setup	
00 20	Accompaniment 2 MIDI setup	
00 24	Accompaniment 3 MIDI setup	
00 28	Rx. 1 MIDI setup	
00 2C	Rx. 2 MIDI setup	
Total size	00 00 30	

*7－1－1 MIDI setup

Offset address		Description	
00	0000 aaaa	Receive Channel	0 - 15
01	0000 aaaa	Transmit Channel	0 - 15
02	0000 0000	dummy (ignored if received)	
03	0000 000a	OFF(0) / ON(1)	0 - 1

Example

*To get setting of each part (UPPER, LOWER, DRUMS, BASS, ACCOMPt－3), send a message as shown below.

F0 41 1F 2D 11 10 00 0C 00 00 1C 48 F7

*7－2 String area

Offset address	Description	
00 00	0aaa aaaa character	32 - 127
:	: : (ASCII)	
0n nn	0aaa aaaa character	

*This area is used for asking about style name, tone name, length of intro, card status etc. Only DT1 is effective on these address, and RQ1 is ignored. Refer to section 5.

Example

*To get a selected style name, send messages as shown below.

F0 41 1F 2D 12 20 00 00 53 54 59 4C 45 3F 10 F7 ("STYLE?")
F0 41 1F 2D 12 20 00 00 1A 46 F7 (EOF)

*7 - 3 Write data onto RAM card

Offset address	Description
00 00 00	0000 hhhh | higher nibble at RAM address $0000
00 00 01	0000 llll | lower nibble at RAM address $0000
:	: :
00 00 7F	0000 llll | lower nibble at RAM address $007F
00 01 00	0000 hhhh | higher nibble at RAM address $0080
:	: :
00 7F 7F	0000 hhhh | higher nibble at RAM address $3FFF
01 00 00	0000 llll | lower nibble at RAM address $4000
:	: :
01 00 7F	0000 llll | lower nibble at RAM address $407F
01 01 00	0000 hhhh | higher nibble at RAM address $4080
:	: :
01 7F 7F	0000 llll | lower nibble at RAM address $7FFF

*This area is used for writing data onto RAM card. Only DT1 is effective on these address, and RQ1 is ignored.

*7 - 4 Program Change Map area

Offset address	Description	
00 00	Program Change Map Upper	*7-3-1
01 00	Program Change Map Lower	
02 00	Program Change Map Bass	
03 00	Program Change Map Accomp 1	
04 00	Program Change Map Accomp 2	
05 00	Program Change Map Accomp 3	
Total size	00 06 00	

*7-4-1 Program Change Map for each Part

Offset address	Description
00	0aaa aaaa | for program change 0 0 - 127
:	: :
7F	0aaa aaaa | for program change 127 0 - 127
Total size	00 01 00

Example
*To get a program change map of UPPER part, send a message as shown below.

F0 41 1F 2D 11 60 00 00 00 01 00 1F F7

Address Map

Address	Block	Reference
10 00 00	MIDI Setting	7-1
20 00 00	String	7-2, 5
40 00 00	String	7-3
60 00 00	Program Change Map	7-4

5. Comminucation of string packet

You will get a various information of CA - 30's arranger section, using "STRING PACKET".

"STRING EXCLUSIVE" fills these conditions as shown below.
- COMMAND ID 12H (DT1)
- DEVICE ID 1FH
- ADDRESS 200000H
- DATA ASCII STRING (upper case), or 1AH (one byte)

Example 1
F0 41 1F 2D 12 20 00 00 53 54 59 4C 45 3F 10 F7 ("STYLE?")
Example 2
F0 41 1F 2D 12 20 00 00 1A 46 F7

"EOF" is a specific excliusive message on CA - 30, this message has only one byte data (1AH) as example 2.

"MESSAGE" is a meaningful string sequence. Example 1, "MESSAGE" is only one string. example 3, "MESSAGE" is two strings.

Example 3
F0 41 1F 2D 12 20 00 00 53 54 59 4C 45 3D 3D 55 F7 ("STYLE==")
F0 41 1F 2D 12 20 00 00 30 3A 52 4F 43 4B 20 31 20 20 20 20 20 20 20 20 20 3A 7C F7 ("0:ROCK 1 :")

"STRING PACKET" is "MESSAGE" and "EOF" ("EOF comes after "MESSAGE"). Example 4 is "STRING PACKET" from example 1, and also Example 5 is "STRING PACKET" from example 3.

Example 4
F0 41 1F 2D 12 20 00 00 53 54 59 4C 45 3F 10 F7 ("STYLE?")
F0 41 1F 2D 12 20 00 00 1A 46 F7 (EOF)

Example 5
F0 41 1F 2D 12 20 00 00 53 54 59 4C 45 3D 3D 55 F7 ("STYLE==")
F0 41 1F 2D 12 20 00 00 30 3A 52 4F 43 4B 20 31 20 20 20 20 20 20 20 20 20 3A 7C F7 ("0:ROCK 1 :")
F0 41 1F 2D 12 20 00 00 1A 46 F7 (EOF)

Between "STRING EXCLUSIVE" of one "STRING PACKET", you can send other status. But you should not send other exclusive message. One "STRING PACKET" can include only one "MESSAGE".

Illustrating computer communication, one "STRING PACKET" means one file and one "STRING EXCLUSIVE" means one line.

"MESSAGE" has two classes as shown below.
- Ask about a value of specified parameter. (send to CA - 30)
- Notify a value of specified parameter. (CA - 30 returns)

Six kinds of parameter as shown below.
- STYLE TABLE
- STYLE
- CARD
- LENGTH OF INTRO
- LENGTH OF MEASURE
- TONE TABLE

When you ask about a value of specified parameter, adding "?" after parameter name.

Example 6 LENGTH OF INTRO?
F0 41 1F 2D 12 20 00 00 4C 45 4E 47 54 48 20 4F 46 20 49 4E 54 52 4F 3F 7E F7
F0 41 1F 2D 12 20 00 00 1A 46 F7

CA – 30 notifies a value after parameter name and " = =".

Example 7 LENGTH OF INTRO = = 96

F0 41 1F 2D 12 20 00 00 4C 45 4E 47 54 48 20 4F 46 20 49 4E 54 52 4F 3D 3D 39 36 54 F7

F0 41 1F 2D 12 20 00 00 1A 46 F7

When you design a communication program, you should observe these rules.
- When it receives "ask about a value", you should send "notify of a value".

CA – 30 reacts as shown below, when CA – 30 receives these "MESSAGE".
- When CA – 30 receives "ask about a value", CA – 30 sends "notify of a value".
- When CA – 30 receives "notify of a value", CA – 30 ignores it.

CA – 30 doesn't send "MESSAGE" voluntarily, except "notify of a value" of CARD.

Introducing meaning of each parameter, the format of "notify of a value", and how to use it.

● STYLE TABLE

STYLE TABLE has a table of style number and style name.

Usable style numbers and style names are connected " : ". When MUSIC STYLE CARD is inserted, STYLE TABLE includes style number and style name on CARD.

Example 8 STYLE TABLE= =

0:ROCK 1	: 1:ROCK 2	: 2:DISCO 1	:
3:DISCO 2	: 4:FUNK 1	: 5:FUNK 2	:
6:BALLAD	: 7:SLOW ROCK	: 8:8 BEAT 1	:
9:8 BEAT 2	:10:16 BEAT 1	:11:16 BEAT 2	:
12:REGGAE	:13:BOOGIE	:14:ROCK'N'ROLL	:
15:DIXIELAND	:16:SWING	:17:BIG BAND	:
18:SHUFFLE	:19:COUNTRY	:20:WALTZ 1	:
21:WALTZ 2	:22:POLKA	:23:MARCH	:
24:BAROQUE	:25:BOSSANOVA	:26:RHUMBA	:
27:CHA CHA	:28:SALSA	:29:TANGO	:
30:SAMBA	:31:FUSION	:	

This "MESSAGE" is divided into some "STRING EXCLUSIVE", by reason of too long for Roland Exclusive format.

● STYLE

STYLE has a selected style number and style name.

A style number and a style name is connected " : ".

Example 9 STYLE = = 0 : ROCK 1 :

● CARD

When MUSIC STYLE CARD is inserted, "notify a value" of a CARD has "INSERTED". And when MUSIC STYLE CARD is not inserted, "notify a value" of a CARD has " REMOVED".

CA – 30 sends voluntarily "notify of a value" of CARD without "ask about a value" When you design a communication program, you may observe these rules.
- When it receives "notify of a value", you may send "ask about a value" of STYLE TABLE or STYLE.

Example 10 CARD = = INERTED

Example 11 CARD = = REMOVED

● LENGTH OF INTRO

LENGTH OF INTRO has a MIDI beat intro length of selected style.
The length is notified in decimal system.

Example 12 LENGTH OF INTRO = = 96

● LENGTH OF MEASURE

LENGTH OF MEASURE has a MIDI beat measure length of selected style.
The length is notified in decimal system.

Example 13 LENGTH OF MEASURE = = 72

● TONE TABLE

TONE TABLE has a table of tone number and tone name.
Usable tone numbers and tone names are connected " : ".

Example 14 TONE TABLE = =

0:ELEC PIANO1	: 1:ELEC PIANO2	: 2:ELEC PIANO3	: 3:HONKYTONK :
4:HARPSI 1	: 5:CLAVI 1	: 6:CELESTA 1	: 7:HARP 1 :
8:ELEC ORGAN1	: 9:ELEC ORGAN2	: 10:ELEC ORGAN3	: 11:PIPE ORGAN1 :
12:PIPE ORGAN2	: 13:BREATHPIPE	: 14:SHAKUHACHI	: 15:ACCORDION :
16:SYN BRASS1	: 17:SYN BRASS2	: 18:SYN BRASS3	: 19:TRUMPET 1 :
20:TROMBONE 1	: 21:FRENCH HORN1	: 22:BRASS SECT 1	: 23:SAX 1 :
24:STRING SECT1	: 25:STRING SECT2	: 26:PIZZICATO	: 27:VIOLIN 1 :
28:ORCH HIT	: 29:CHORALE	: 30:SOUNDTRACK	: 31:WHISTLE 1 :
32:FANTASY	: 33:ATMOSPHERE	: 34:WARM BELL	: 35:ECHO BELL :
36:WATER BELL	: 37:ECHO PAN	: 38:DOCTOR SOLO	: 39:SQUARE WAVE :
40:GUITAR1	: 41:GUITAR2	: 42:ELEC GUITAR1	: 43:ELEC GUITAR2:
44:FLUTE 1	: 45:PAN PIPES	: 46:CLARINET 1	: 47:HARMONICA :
48:ACOU BASS1	: 49:ACOU BASS2	: 50:ELEC BASS1	: 51:SLAP BASS1 :
52:SLAP BASS2	: 53:FRETLESS1	: 54:FRETLESS2	: 55:CONTRABASS :
56:VIBE1	: 57:VIBE2	: 58:GLOCKEN	: 59:XYLOPHONE :
60:MARIMBA	: 61:JUNGLE TUNE	: 62:ICE RAIN	: 63:TELEPHONE :
64:ACOU PIANO 1	: 65:ACOU PIANO 2	: 66:ACOU PIANO 3	: 67:ELEC PIANO 4:
68:ELEC ORGAN4	: 69:PIPE ORGAN3	: 70:HARPSI 2	: 71:HARPSI 3 :
72:CLAVI 2	: 73:CLAVI 3	: 74:CELESTA 2	: 75:SYN BRASS 4 :
76:SYN BASS 1	: 77:SYN BASS 2	: 78:SYN BASS 3	: 79:SYN BASS 4 :
80:HARMO PAN	: 81:GLASSES	: 82:FUNNY VOX	: 83:OBOE 2001 :
84:SCHOOLDAZE	: 85:BELLSINGER	: 86:STRING SECT3	: 87:VIOLIN 2 :
88:CELLO 1	: 89:CELLO 2	: 90:HARP 2	: 91:SITAR :
92:ELEC BASS 2	: 93:FLUTE 2	: 94:PICCOLO 1	: 95:PICCOLO 2 :
96:RECORDER	: 97:SAX 2	: 98:SAX 3	: 99:SAX 4 :
100:CLARINET 2	:101:OBOE	:102:ENGLISH HORN	:103:BASSOON :
104:TRUMPET 2	:105:TROMBONE 2	:106:FRENCH HORN2	:107:TUBA :
108:BRASS SECT 2	:109:SYN MALLET	:110:WINDBELL	:111:TUBE BELL :
112:KOTO	:113:SHO	:114:WHISTLE 2	:115:BOTTLEBLOW :
116:TIMPANI	:117:MELODIC TOM	:118:DEEP SNARE	:119:ELEC PERC 1 :
120:ELEC PERC 2	:121:TAIKO	:122:TAIKO RIM	:123:CYMBAL :
124:CASTANETS	:125:TRIANGLE	:126:BIRD TWEET	:127:ONE NOTE JAM:

This "MESSAGE" is divided into some "STRING EXCLUSIVE", by reason of too long for Roland Exclusive format.

INTELLIGENT ARRANGER

Model CA-30

MIDI Implementation Chart

Date : Aug. 11 1989

Version : 1.00

Function ...		Transmitted	Recognized	Remarks
Basic Channel	Default	1, 3, 4, 5 – 7, 10	1, 3, 4	
	Changed	*********	1 – 16 each	
Mode	Default	Mode 3	Mode 3	
	Messages	×	×	
	Alterd	*********		
Note Number		0 – 127	0 – 127	
	True Voice	*********	0 – 127	
Velocity	Note ON	○	○	
	Note OFF	○ 8n v = 64	× 9n v = 0	
After Touch	Key's	○	○	*2
	Ch's	○	○	*2
Pitch Bender		○	○	*2
Control Change	0 – 120	○	○	*2
	121	○	○	*2
Prog Change		○	○	
	True #	*********	0 – 127	
System Exclusive		○	○	
System Common	Song Pos	×	×	
	Song Sel	×	×	
	Tune	○	○	*2
System Real Time	Clock	*1	*1	
	Commands	×	*1	
Aux Message	Local ON/OFF	×	×	
	All Notes OFF	× (123)	× (123 – 127)	
	Active Sense	○	×	
	Reset	×	×	
Notes		*1 Can be set to ○ or × manually. *2 Only SOFT THRU *3 HARD THRU EMULATION mode can be assigned		

Mode 1 : OMNI ON, POLY Mode 2 : OMNI ON, MONO ○ : Yes

Mode 3 : OMNI OFF, POLY Mode 4 : OMNI OFF, MONO

Specifications

CA-30 <INTELLIGENT ARRENGER>

●ARRANGER Section

MUSIC STYLE: 32 (INTERNAL)
ARRANGER CONTROL: START/STOP, ARRENGER SELECT, INTRO/ENDING, FILL IN, BREAK, CHORD INTELLIGENCE, MELODY INTELLIGENCE, CHORD HOLD, VARIATION

●Front Panel

Number of Buttons: 31 (sheet type)
Button Indicators: 11
MIDI Message Indicator: 1

●Display

2 line, 16 letter LCD (Liquid Crystal Display)

●Rear Panel

MIDI Connectors: 2 (IN/OUT)
DC-IN Jack
Music Style Card Slot

●Power Supply

ACA-120
ACA-220
(ACF-240E) 12449545
(ACF-240A) 12449565

●Consumption

150 mA/9V

●Dimensions

284 (W) × 239 (D) × 50 (H) mm
11-3/16" (W) × 9-7/16" (D) × 2" (H)

●Weight

1.1kg
2 lb 7 oz
* Except for the AC Adaptor.

●Accessories

MIDI Cable × 1
AC Adaptor
Owner's Manual

●Option

Music Style Card (TN-SC1 series)

* Specifications are subject to change without prior notice.

Information

- Please use this AC adaptor only with the specified device.
- Please use the AC Adaptor of an appropriate voltage (120, 220 or 240) depending on the voltage system in your country.
- When the device is not used for a long period, be sure to disconnect the AC adaptor (Power Supply Unit) from the wall outlet.
- When you need repair service, call your local Roland Service Station as shown below or the authorized Roland distributer in your country.

U. S. A.

Roland Corp US
7200 Dominion Circle
Los Angeles, CA. 90040-3647
U. S. A.
☎ (213) 685-5141

CANADA

Roland Canada Music Ltd.
(Head Office)
13880 Mayfield Place
Richmond B. C., V6V 2E4
CANADA
☎ (604) 270-6626

Roland Canada Music Ltd.
3469 rue Ashby,
St Laurent,
Quebec H4R 2C1
CANADA
☎ (514) 335-2009

Roland Canada Music Ltd.
Unit B-12, 1515 Matheson Blvd
Mississauga, Ontario L4W 2P5
CANADA
☎ (416) 625-4880

AUSTRALIA

Roland Corporation
(Australia) Pty. Ltd.
(Head Office)
38 Campbell Avenue
Dee Why West. NSW 2099
AUSTRALIA
☎ (02) 982-8266

Roland Corporation
(Australia) Pty. Ltd.
(Melbourne Office)
50 Garden Street
South Yarra, Victoria 3141
AUSTRALIA
☎ (03) 241-1254

NEW ZEALAND

Roland Corporation (NZ) Ltd.
97 Mt. Eden Road, Mt, Eden,
Auckland 3
NEW ZEALAND
☎ (09) 398-715

UNITED KINGDOM

Roland (UK) Ltd.
Amalgamated Drive
West Cross Centre, Brentford,
Middlesex TW8 9EZ,
UNITED KINGDOM
☎ (01) 568-4578

WEST GERMANY

Roland Elektronische
Musikinstrumente
Handelsgesellschaft mbH.
Oststrasse 96,
2000 Norderstedt
WEST GERMANY
☎040/52 60 09 25

BELGIUM/HOLLAND/ LUXEMBOURG

Roland Benelux N. V.
Houtstraat 1
B-2431 Oevel-Westerlo
BELGIUM
☎014-58 45 39

DENMARK

Roland Scandinavia A/S
Langebrogade 6, 1937.
DK-1023 Copenhagen K.
DENMARK
☎ (01) 95 31 11

SWEDEN

Roland Scandinavia A/S
Swedish Sales Office
DanvikCenter 28A, 2tr.
S-131 30 Nacka,
SWEDEN
☎08-702 00 20

NORWAY

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Haakon den godes Vei 14
N-0319 Oslo 3,
NORWAY
(Box 145 Vindern, N-0319
Oslo 3 NORWAY)
☎02 141266

FINLAND

OY Musiikki Fazer Musik AB
Takomotie 3
00380 Helsinki 38,
FINLAND
☎05 56551

ITALY

Roland Italy S. P. A.
Via Gallarate 58
20151 Milano
ITALY
☎02-3086849

SWITZERLAND

Musitronic AG
Gerberstrasse 5, CH-4410
Liestal
SWITZERLAND
☎061/921 16 15

FRANCE

Musikengro
102, Avenue Jean-Jaures
69367 Lyon Cedex 07
FRANCE
☎ (7) 858-54 60

Musikengro
(Paris Office)
Centre Region Parisienne
41 rue Charles-Fourier,
94400 Vitry s/Seinc
FRANCE
☎ (1) 4680 86 62

SPAIN

Vietronic S. A.
Bolivia 239
08020 Barcelona
SPAIN
☎34-307 47 12

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Nue-Rum Siemens-Strasse 4
A-6021 Innsbruck box 591
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