RODGERS INSTRUMENT CORPORATION
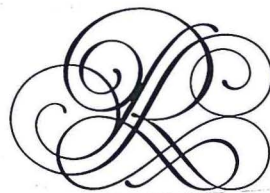
445E

Owner's Manual

RODGERS INSTRUMENTS LLC

| ⚡ | **CAUTION**
RISK OF ELECTRIC SHOCK
DO NOT OPEN | ⚠ | **WARNING:**
TO REDUCE THE RISK OF
FIRE OR ELECTRIC
SHOCK, DO NOT EXPOSE
THIS APPLIANCE TO RAIN
OR MOISTURE. | **PATENTS**
G.B. 1312161
F.R.G. 22 02 658
CANADIAN 951550
(1974) |

ATTENTION: RISQUE DE CHOC ELECTRIQUE NE PAS OUVRIR

CAUTION: TO REDUCE THE RISK OF ELECTRICAL SHOCK:

DO NOT REMOVE COVER OR BACK.

NO USER-SERVICEABLE PARTS INSIDE.

REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.

The lightning flash with arrowhead symbol, within an equilateral triangle, is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electrical shock to persons.

The exclamation point within the equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the product.

NOTICE TO USERS

Information in this document is subject to change without notice. No part of this manual may be translated into any language, stored in a retrieval system, reproduced or transmitted in any form or by any means, electronic or mechanical, including photocopying and recording, for any purpose without the express written permission of **Rodgers Instrument Corporation**.

ROD RODGERS INSTRUMENTS LLC   **ION**
1300 N.E. 25th Avenue
Hillsboro, Oregon 97124
Tel: (503) 648-4181 • Fax :(503) 681-0444

RODGERS CANADA
5480 Parkwood Way
Richmond, B.C. V6V 2M4
(604) 270-6332

> INSTRUCTIONS PERTAINING TO A RISK OF FIRE,
> ELECTRIC SHOCK OR INJURY TO PERSONS

IMPORTANT SAFETY INSTRUCTIONS

WARNING: When using this instrument, always follow basic precautions, including the following:

1. Read all the instructions before using, adjusting or repairing this instrument.

2. To reduce the risk of injury, supervise children closely when they are around the instrument.

3. Use this instrument only in the manner recommended by Rodgers Instrument Corporation.

4. Do not use this instrument near water, for example, near a swimming pool or a damp/wet room.

5. Use of this instrument, either alone or in combination with an amplifier and headphones or speakers, may be capable of producing sound levels that could cause permanent hearing loss. DO NOT operate for a long period 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.

6. Locate the instrument so its position does not interfere with its proper ventilation.

7. Locate the instrument away from heat sources such as radiators, heat registers or other products that radiate heat directly onto the instrument.

8. Protect the instrument from dust as much as possible.

9. Connect the instrument to a power source only of the type described in the operating instructions or as marked on the instrument. Do NOT attempt to defeat the grounding connection of the three-prong attachment plug. *This is a safety feature.* If you are unable to insert the plug into the outlet, contact an electrician to replace your obsolete outlet. Do NOT defeat the safety purpose of the plug.

10. Unplug the power cord of the instrument from the power source when left unattended for a long period of time.

11. Do not walk on or place objects on top of the power cord.

12. Do not pull the cord to unplug. Hold the plug when unplugging from the power source.

13. When setting up with other instruments or peripherals, follow the procedures in accordance with Rodgers' owner's manual.

14. Take care that objects do not fall or liquids spill into the instrument.

15. Service the instrument with qualified service personnel when:

    a. The power cord or plug has been damaged.

    b. Objects have fallen or liquid has spilled into the instrument.

    c. The instrument has been exposed to rain or other weather damage.

    d. The instrument does not appear to operate normally or exhibits a marked change in performance.

    e. The instrument has been dropped or the enclosure has been damaged.

16. Do not attempt to service the instrument beyond that described in the owner's manual. Refer all other servicing to qualified technical service personnel.
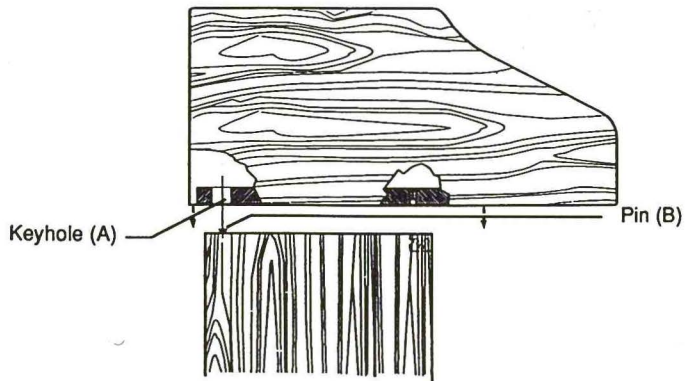
WARNING: THIS INSTRUMENT MUST BE EARTH GROUNDED.

You must GROUND instruments equipped with a TYPE AC, 3 WIRE GROUND PLUG.
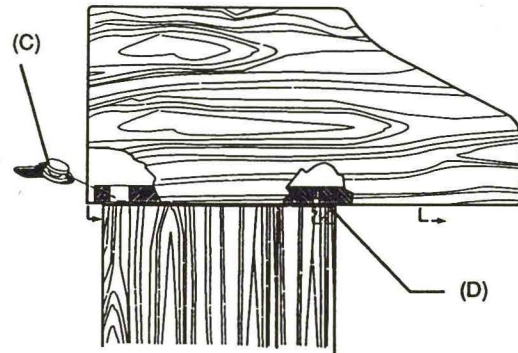
SAVE THESE INSTRUCTIONS

ASSEMBLY INSTRUCTIONS

Step 1.

Place top on base aligning keyhole (A) with pin (B). Lower into position until you feel it drop into place.

Keyhole (A)

Pin (B)

Step 2.

With top (key deck) and base in position with pin and and keyhole as shown (C), slide top forward so brackets at front of base are aligned with the holes in the bottom of the key deck (D).

(C)

(D)

Step 3.

Screw Thumbscrew (E) through bracket into deck (D).

(D)

NOTE:
Dis-assembly is the
reverse of assembly.

Step 4.

To make electrical connections:

1. Remove grille cloth (which is attached with velcro).

2. Plug in connectors as shown in illustration.

3. Replace grille cloth.

Underside of key deck

1.

2.

Radio and Television Interference

The Rodgers Classic Keyboard uses and generates small amounts of radio-frequency (RF) energy. The instrument complies with the limits set for Class B digital devices. FCC Rules, Part 15, Subpart B define the limits for radio and television interference in a residential installation.

Follow the installation and the use instructions in this manual, or the instrument could potentially cause interference with some radio or television reception. In the unlikely event this occurs, we encourage the user to try the following corrective measures:

✓ Turn the instrument OFF to see if it is the actual source of the interference.

✓ Disconnect the peripheral devices and their input/output cables one at a time. If the interference stops, it is caused by the peripheral device or its I/O cable.

✓ Try coiling and uncoiling the instrument's power cord in different ways.

✓ Connect the instrument's power cord to a power outlet on a different circuit.

✓ Move the instrument farther away from the radio or television receiver.

✓ Turn the radio or television receiver until the interference stops.

✓ Connect the radio or television receiver to a different power circuit.

✓ Reorient or move the receiver antenna farther away from the instrument. Consider installing a rooftop antenna with coaxial cable lead-in between the antenna and receiver.

✓ Consult the nearest Rodgers Classic Keyboards dealer for more information if the above corrective measures don't remove the interference.
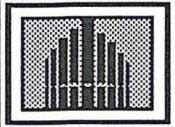
Table of Contents

OVERVIEW OF THE C-445 E

Congratulations on your purchase of a Rodgers Classic Keyboards® C-445E. The C-445E is a high quality church organ in both sound and construction, designed to provide years of reliable service.

The C-445E is a two-manual classical organ that incorporates an eclectic specification and authentic pipe organ sounds. In addition to a built-in two-channel stereo audio system, the C-445E has provisions for additional amplification and speakers.

The C-445E utilizes lighted tilt tab stop controls. Traditional couplers are included, as well as an adjustable combination action (pistons) with two memories.

The Rodgers C-445E is completely voiced and tuned for optimum tonal authenticity. A Rodgers factory-trained technician can provide additional voicing and finishing as required.

These instruments offer full MIDI (Musical Instrument Digital Interface) capability, allowing the organist to control other MIDI devices (keyboards, sequencers, rhythm units, sound modules, etc.). MIDI allows the performer full recording and playback capabilities.

Thank you for choosing a Rodgers Classic Keyboards® C-445E. Through the most advanced technology available, Rodgers Instrument Corporation delivers proven reliability and tradition of musical excellence and innovation marking our position as *The Sound Choice!*

To get started, here is a brief tour of the basic operations of Rodgers C-445E:

TURN ON/TURN OFF

To turn the organ on, press the power rocker switch at the top (1). In approximately 5 seconds, the the SET piston will light, indicating the power is on and the organ is ready to play. To turn the power off, press the power rocker switch at the bottom (0). The power to the organ is off.

DIVISIONS

The following groupings of stops (tilt tabs) affect the indicated manuals (keyboards) or pedalboard:
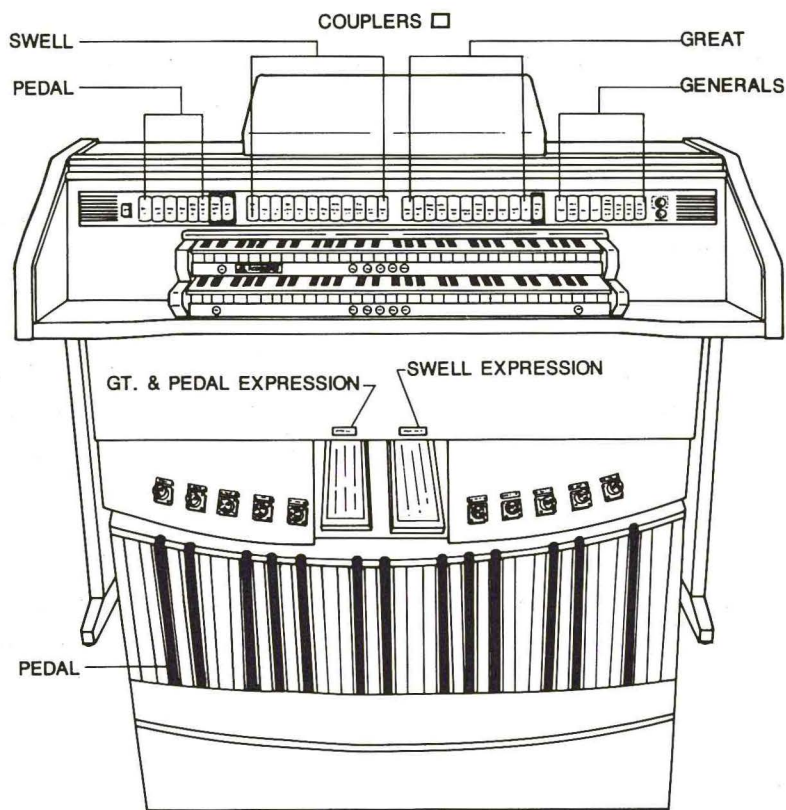
SELECTING OR RETIRING A STOP

Press the bottom of the desired tilt tab to turn it on. It will light, indicating it is on. Press the top of the tilt tab to turn off the stop. The light will go off, indicating the stop is off.

COMBINATION ACTION
(Pistons)

The C-445E features a combination action easily changed by the organist from the console. The organist can pre-select favorite registrations and make rapid changes in tone color using this advanced system. The pistons will light when pressed.

The C-445E combination action includes ten general pistons, a SET piston, a GENERAL CANCEL piston, a dual memory combination action (M2) and ten toe studs which duplicate the ten general pistons.
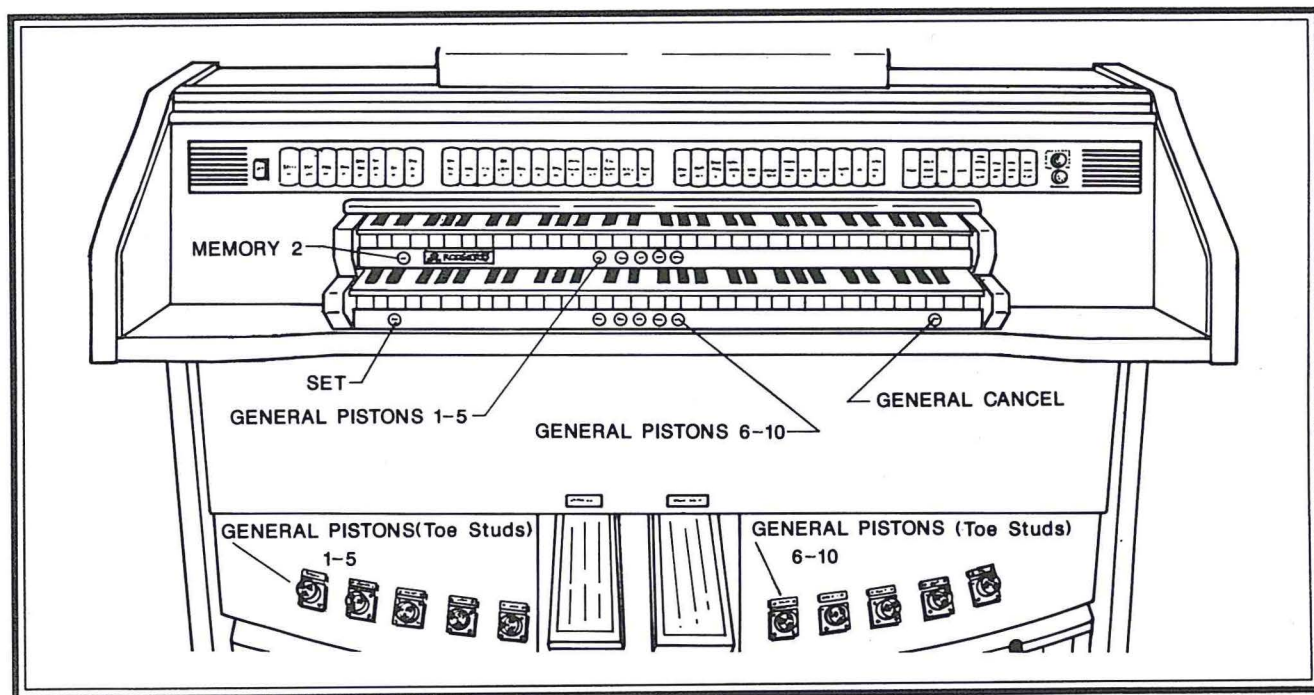
❧ HOW TO SET THE PISTONS:

1. Select the stops desired.

2. Push the SET piston and hold.

3. While holding the SET piston, push the desired piston and then release both pistons simultaneously.

(Note: On the C-445E, selecting M2 before steps 1-3 will activate a second memory, thereby doubling the number of combinations available.)

COUPLERS

❧ Couplers enable stops of one division to be played on
another keyboard or pedalboard. The couplers on the C-445E are
GREAT TO PEDAL, SWELL TO PEDAL and SWELL TO GREAT.
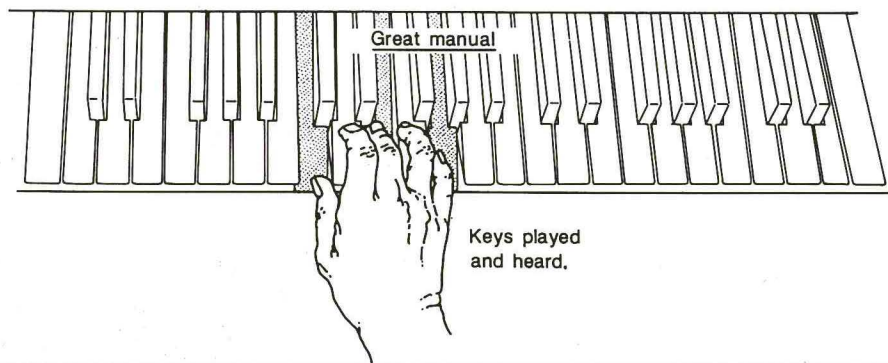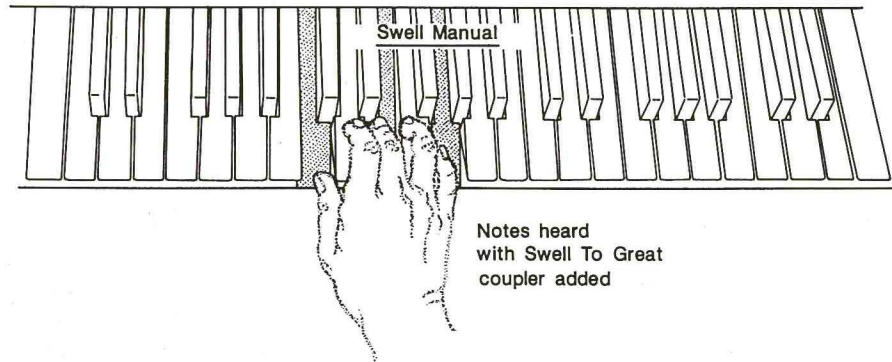
TREMULANTS

Tremulants create changes in pitch (sharp and flat) or amplitude (volume). The use of tremulants
adds warmth to solo or small ensemble combinations and is useful in gospel and romantic music.
The C-445E has a MAIN TREMULANT that affects all manual voices. The SWELL FLUTE
TREMULANT FULL affects all the flute voices on the Swell manual. It is a deeper and faster
tremulant than the MAIN TREMULANT. Each independent tremulant is adjustable for both speed
and depth. It is recommended that these adjustments be made by **Authorized Personnel Only**.

EXPRESSION PEDALS
(C-445E)

The pedal on the right controls the overall volume of the Swell division. The pedal on the left controls the overall volume of the Great and Pedal divisions. These pedals are used to give variety of expression to the music played. Pressing the pedal forward increases the volume; drawing back decreases the volume.

GREAT TO SWELL EXPRESSION COUPLER

The Great to Swell Expression Coupler allows the Great and Swell divisions to be expressed by using the expression pedal on the right.
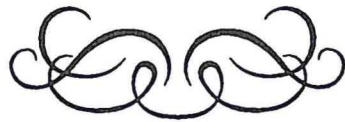
THE BASS COUPLER

This feature's name is derived from the ancient term "Basso Continuo," meaning thoroughbass. When this tilt tab is pressed, it will light. Any stops or couplers on in the Pedal division will sound from the lowest key being played on the Great manual. This provides a pedal bass without having to actually play the pedalboard with the feet.

In its normal setting, the Bass Coupler affects keys 1 through 24 of the Great manual, but its range is programmable.

❧ HOW TO SET THE RANGE OF THE BASS COUPLER:

1. Hold SET and press the BASS tilt tab, which will start flashing.

2. Release the SET piston.

3. While the BASS tilt tab is flashing, press a key which corresponds to the highest note the range is to extend. Any note from key 1 to key 61 may be selected. Keys above 32 will play external MIDI devices but will not play the Pedal stops. After the selected key has been pressed, the BASS tilt tab will shut off. (Note: When key is pressed to set the range, no sound will be heard even if stops are on, so no disturbance will be made if programming during a performance.)

4. To use the new range, press the BASS tilt tab.

THE MELODY COUPLER

When the MELODY tilt tab is pressed, it will light. Any stop or coupler of the Swell division will sound from the highest key being played on the Great manual. This allows a solo melody and an accompaniment to be played from the same manual.

In its normal setting, the Melody Coupler affects keys 25 through 61 on the Great manual, but its range is programmable.

❧ HOW TO SET THE RANGE OF THE MELODY COUPLER:

1. Hold SET and press the MELODY tilt tab, which starts flashing.

2. Release the SET piston.

3. While the MELODY tilt tab is flashing, press a key which corresponds to the lowest note the range is to extend. Any note from key 1 to key 61 may be selected. After the selected key has been pressed, the MELODY tilt tab will stop flashing.

TUNING KNOB

The C-445E is equipped with a TUNING knob. This allows the entire organ to be tuned easily and quickly to a piano or musical instrument not at standard concert pitch (A 440). If the TUNING knob is pushed in, the organ will remain at standard concert pitch, and turning the knob will have no effect. To alter the pitch, pull the TUNING knob out until it clicks, then turn the knob to set the pitch.

TRANSPOSER KNOB

Turning the TRANSPOSER knob will raise or lower the pitch of the organ up to four semitones (half steps). Many singers need a key change to accommodate their voice range. The TRANSPOSER is especially useful for accompanying soloists, eliminating the need to mentally transpose music on a printed sheet into a more suitable key. The TRANSPOSER helps the organist accomplish this effortlessly.

HEADPHONE JACK

The C-445E has a Headphone Jack located under the keydesk to the right. When a set of headphones is plugged into the jack, the speaker system shuts off, allowing the organist privacy when playing. It is recommended that you use a standard 8 ohm stereo headphone set. Your Headphone Jack is designed to run only ONE set of headphones at a time.
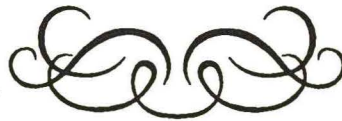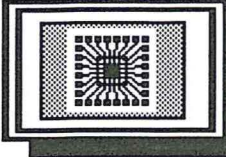
MIDI (Musical Instrument Digital Interface)

The Rodgers C-445E possesses some of the most advanced MIDI capabilities in the world. MIDI voices are activated via three MIDI coupler tilt tabs. The MIDI channels these coupler tilt tabs control are:

Great Channel	1*	MIDI ON GREAT
Swell Channel	2	MIDI ON SWELL
Pedal Channel	3	MIDI ON PEDAL

* May be changed to any of the sixteen MIDI channels.
To change this channel, see "Channel Reassignment."

SENDING A PROGRAM CHANGE

1. Hold SET and press the bottom of a MIDI coupler tilt tab. The tilt tab will flash, indicating the MIDI Set Mode is active. Release SET and the MIDI coupler.

2. Choose the desired Program Change (sound), and press the corresponding key (see the Program Change chart).

If SET is held while pressing a key to send a Program Change, the Program Change will be sent, but the MIDI Set Mode will be "locked on." Once this happens, further Program Changes may be sent by holding SET and pressing a corresponding key. This allows the organist to try several sound selections until the appropriate one is found. The MIDI Set Mode will remain active until the flashing MIDI coupler or General Cancel is pressed.

Once a Program Change has been sent on a MIDI coupler, that same Program Change will be sent each time the tilt tab is activated. The Program Change will also be saved on any combination piston including that MIDI coupler.

VELOCITY INFORMATION

As a default, the Great and Swell MIDI channels send detected velocity messages. The harder a key is played, the louder the MIDI sound will be. The Pedal always sends a fixed velocity.

It is possible to have the Great or Swell MIDI coupler send a fixed velocity message. To change the Great or Swell MIDI coupler from detected velocity to fixed velocity:

1. Hold SET and press the MIDI coupler to be changed. The coupler will flash. Release SET and the MIDI coupler.

2. Press the sustain switch (located to the left of the Great expression pedal) to the left. The coupler will stop flashing.

To change the coupler back to detected velocity, repeat steps 1 and 2 under "Velocity Information." The velocity status of the Great and Swell MIDI couplers will be stored in the combination action of the organ.

CHANNEL REASSIGNMENT

All MIDI couplers transmit on fixed channels except MIDI ON GREAT. To reset the transmit channel for this coupler only:

1. Hold SET and press the bottom of MIDI ON GT. It will flash. Release SET and MIDI ON GT.

2. Hold piston 1, and press any key on the Great manual between low C and tenor D# to signify the desired MIDI channel. Low C is Channel 1, low C# is Channel 2, etc. The MIDI ON GT coupler will stop flashing.

The new Great MIDI Channel assignment will be stored in the combination action of the organ.

OCTAVE TRANSPOSE

Normally, all MIDI couplers play at standard pitch (middle C = note 60). The Octave Transpose parameter may be reset to cause any MIDI coupler to play one octave above or below standard pitch.

1. Hold SET and press the bottom of the desired MIDI coupler. It will flash. Release SET and the MIDI coupler.

2. To transpose up one octave, turn the TRANSPOSER knob to +1, +2, +3 or +4.

3. To transpose down one octave, turn the TRANSPOSER knob to -1, -2, -3 or -4.

4. Exit this mode by pressing General Cancel.

5. Return the TRANSPOSER to the desired setting.

The Octave Transpose status of each MIDI coupler will be stored in the combination action of the organ.

ENABLING/DISABLING MIDI MASTER CHANNELS

The following MIDI channels are used to control the organ through MIDI:

Great Master Channel	12
Swell Master Channel	13
Pedal Master Channel	14

The organ sends and receives MIDI information on these channels unless they are disabled.

It is possible to stop the transmission or reception of MIDI information on these Master Channels.

To disable reception of information on a MIDI Master Channel:

1. Hold SET and press the bottom of the MIDI coupler corresponding to the channel to be disabled. It will flash. Release SET and the MIDI coupler.

2. While the coupler is flashing, press the top of the MIDI coupler (as if turning off). It will stop flashing.

To enable reception of information on a MIDI Master Channel:

1. Hold SET and press the bottom of the MIDI coupler corresponding to the channel to be enabled. It will flash. Release SET and the MIDI coupler.

2. While the coupler is flashing, press the bottom of the MIDI coupler (as if turning on). It will stop flashing.

When transmission on all MIDI Master Channels is inhibited, then no stop change (MIDI System Exclusive stop change) is transmitted.

To disable transmission of information on a MIDI Master Channel:

1. Hold SET and press the MIDI coupler corresponding to the MIDI Master Channel to disable. It will flash. Release the MIDI coupler.

2. While the coupler is flashing, hold SET and press the top of the MIDI coupler (as if turning off). It will stop flashing.

To enable transmission of information on a MIDI Master Channel:

1. Hold SET and press the bottom of the MIDI coupler corresponding to the MIDI Master Channel to enable. It will flash. Release the MIDI coupler.

2. While the coupler is flashing, hold SET and press the bottom of the MIDI coupler (as if turning on). It will stop flashing.

The send and receive status of all MIDI Master Channels will be saved in the combination action of the C-445E.

SAVING A COMBINATION MEMORY

The contents of any combination memory may be saved into a MIDI sequencer and later reloaded into the organ. To save a memory:

1. The Master Clock on the sequencer must be ON.

2. Select the memory to be saved.

3. Hold SET. Start the sequencer, and wait for it to begin recording.

4. Release SET to begin the transmission of memory information. Each piston will light as it is saved to the sequencer.

5. Stop the sequencer after all pistons have been saved.

To restore a memory from the sequencer:

1. Select the memory to be loaded into the C-445E.

2. Hold SET and start the sequencer playback. Each piston will light as it receives memory information.

3. Release SET after the final memory as been received.

RECEIVING A PROGRAM CHANGE

Registrations may be selected on the organ by sending a Program Change from another MIDI device. The following is a list of Program Changes the C-445E will respond to on Channel 12:

PROGRAM CHANGE	WILL SELECT
1	piston 1
2	piston 2
3	piston 3
4	piston 4
5	piston 5
6	piston 6
7	piston 7
8	piston 8
9	piston 9
10	piston 10
20	General Cancel
31	Memory 1
32	Memory 2

LOCAL ON/OFF

The C-445E are equipped with a LOCAL ON/LOCAL OFF control. When the organ is set to LOCAL ON, it operates normally.

When the organ is set to LOCAL OFF, none of the organ stops sound when keys or pedals are pressed. MIDI information is, however, generated on activated MIDI Master Channels and MIDI coupler channels. In addition, movement of the expression pedal generates MIDI volume information on activated MIDI Master Channels and MIDI Coupler Channels but does not affect the organ stop volume. An application for this is when sequencing, the volume of the organ may be sequenced one way, and the volume of the MIDI voices another way.

MIDI information received on the MIDI Master Channels will still control the C-445E when the organ is set to LOCAL OFF.

To set the organ to LOCAL OFF:

1. Hold SET, and press any MIDI coupler. It will flash.

2. Hold SET, and press and release General Cancel. The General Cancel light will go off, signifying LOCAL OFF is activated.

To set the organ to LOCAL ON:

1. Hold SET, and press any MIDI coupler. It will flash.

2. Hold SET, and press and release General Cancel. The General Cancel light will go on, signifying LOCAL ON is activated.

The Local On/Off status can be saved in the combination action of the organ.

RETURNING TO DEFAULT SETTINGS

To return to the default settings for Send Channel, Detected/Fixed Velocity, Octave Transpose, MIDI Master Send Channel, Primary Receive Channel and Local On/Off:

1. Hold SET.

2. Press General Cancel.

In addition, an All Notes Off message is generated to clear any problems with other MIDI equipment, so this can be used as a "Panic Button" should any other MIDI devices get confused.

COMMON MIDI CONNECTIONS

Organic with Sound Module

Organ with Sound Module

Organ	OUT — IN	Sound Module
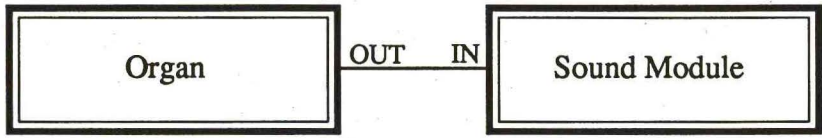
Organ with Sequencer

Organ	OUT — IN	Sequencer

IN ———————— OUT
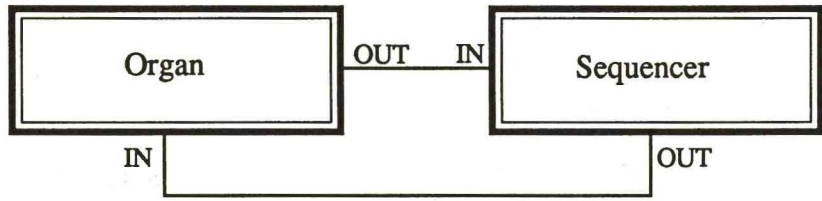
Organ with Sound Module and Sequencer

Organ	OUT — IN	Sequencer Soft Thru ON

IN   OUT

	Sound Module	
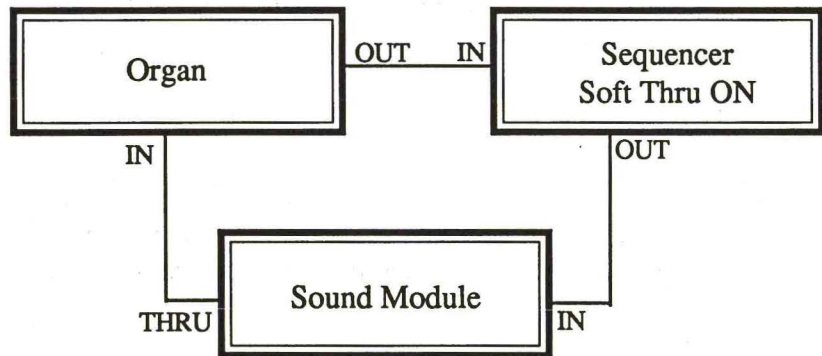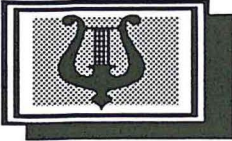
THRU   IN

GREAT ORGAN

Lieblich Bourdon 16'
Principal 8'
Rohrflöte 8'
Flauto Dolce 8'
Flute Celeste 8'
Octave 4'
Spitzflöte 4'
Super Octave 2'
Quintflöte 1 1/3'
Mixture IV
Cromorne 8'
Swell to Great

SWELL ORGAN

Bourdon 8'
Viola 8'
Viola Celeste 8'
Prestant 4'
Koppelflöte 4'
Nazard 2 2/3'
Blockflöte 2'
Tierce 1 3/5'
Plein Jeu IV
Contre Basson 16'
Trompette 8'
Hautbois 8'

PEDAL ORGAN

Principal 16'
Subbass 16'
Octave 8'
Gedackt 8'
Choral Bass 4'
Fagott 16'
Great to Pedal
Swell to Pedal

GENERAL

Tremulant (Great and Swell)
Swell Flute Tremulant Full
Bass Coupler
Melody Coupler
Great to Swell Expression
MIDI on Pedal
MIDI on Swell
MIDI on Great

ACCESSORIES

Transposer Knob
Tuning Knob
Headphone Jack
Headphone Volume Level
        Reverb Level
External Audio In/External Audio Out
Expression Pedal (Great/Pedal)
Expression Pedal (Swell)
10 General Pistons (dual memory)
Memory 2 Piston (lighted)
10 General Toe Studs
   (duplicate of thumb pistons)
Set
General Cancel

SUGGESTED REGISTRATIONS

The following pages of registrations are guidelines for selecting appropriate stops to match broad suggestions given in most printed organ literature. There will be variances of registration, depending upon the music, acoustics of the room, and the spirit of the performance.

GREAT ORGAN

Given Suggestions	*Appropriate registrations*
FLUTE	Rohrflöte 8'
SOFT FLUTE	Flute Celeste 8'
FOUNDATIONS *p*	Rohrflöte 8' Flute Dolce 8' Spitzflöte 4'
FOUNDATIONS *mf*	Principal 8' Spitzflöte 4'
FOUNDATIONS *f*	Principal 8' Rohrflöte 8' Octave 4' Spitzflöte 4'
FOUNDATIONS *ff*	Principal 8' Rohrflöte 8' Octave 4' Spitzflöte 4' Super Octave 2' Mixture IV
FULL GREAT	Lieblich Bourdon 16' Principal 8' Rohrflöte 8' Octave 4' Super Octave 2' Quintflöte 1 1/3' Mixture IV Cromorne 8'

SWELL ORGAN

Given Suggestions	*Appropriate Registrations*
STOPPED FLUTE	Bourdon 8'
STRINGS	Viola 8' Viola Celeste 8'
STRING ENSEMBLE	Viola 8' Viola Celeste 8' Bourdon 8' Koppelflöte 4' Tremulant
SOLO REED I *mf*	Hautbois 8'
SOLO REED II *mf*	Contre Basson 16' (play 8va)
SOLO REED *f*	Trompette 8'
CORNET	Bourdon 8' Koppelflöte 4' Nazard 2 2/3' Blockflöte 2' Tierce 1 3/5'
FOUNDATIONS *mf*	Viola 8' Bourdon 8' Koppelflöte 4'
FOUNDATIONS *f*	Viola 8' Bourdon 8' Prestant 4' Koppelflöte 4' Blockflöte 2'
FOUNDATIONS *ff*	Viola 8' Bourdon 8' Prestant 4' Koppelflöte 4' Blockflöte 2' Plein Jeu IV

FULL SWELL   Viola 8'
                                    Bourdon 8'
                                    Prestant 4'
                                    Koppelflöte 4'
                                    Blockflöte 2'
                                    Plein Jeu IV
                                    Contre Basson 16'
                                    Trompette 8'
                                    Hautbois 8'

PEDAL ORGAN

Given Suggestions   *Appropriate Registrations*

SOFT BASS   Subbass 16'

FLUTES   Subbass 16'
                                 Gedackt 8'

FOUNDATIONS *f*   Subbass 16'
                                 Principal 16'
                                 Gedackt 8'
                                 Octave 8'
                                 Choral Bass 4'

FOUNDATIONS *ff*   Subbass 16'
                                 Principal 16'
                                 Gedackt 8'
                                 Octave 8'
                                 Choral Bass 4'

FULL PEDAL   Subbass 16'
                                 Principal 16'
                                 Gedackt 8'
                                 Octave 8'
                                 Choral Bass 4'
                                 Fagott 16'

ENSEMBLE COMBINATIONS

SOFT PRAYER HYMN	Great:	Flute Celeste 8'
	Swell:	Viola 8' Viola Celeste 8'
	Pedal:	Subbass 16'
	Couplers:	Swell to Pedal Swell to Great
STRING CHORUS	Great:	Principal 8' Flute Celeste 8'
	Swell:	Viola 8' Viola Celeste 8' Koppelflöte 4'
	Pedal:	Subbass 16'
	Couplers:	Swell to Pedal Swell to Great
FULL STRING CHORUS	Great:	Rohrflöte 8' Flute Celeste 8' Spitzflöte 4'
	Swell:	Viola 8' Viola Celeste 8' Bourdon 8' Prestant 4' Koppelflöte 4' Tremulant
	Pedal:	Subbass 16'
	Couplers:	Swell to Pedal Swell to Great

SOFT FOUNDATIONS	Great:	Rohrflöte 8'
	Swell:	Viola 8' Bourdon 8'
	Pedal:	Subbass 16'
	Couplers:	Swell to Pedal Swell to Great
FOUNDATIONS 8' *mf*	Great:	Principal 8' Spitzflöte 4'
	Swell:	Viola 8' Bourdon 8' Koppelflöte 4'
	Pedal:	Subbass 16'
	Couplers:	Swell to Pedal Swell to Great
FOUNDATIONS 8' and 4'	Great:	Principal 8' Octave 4'
	Swell:	Viola 8' Bourdon 8' Prestant 4' Koppelflöte 4'
	Pedal:	Subbass 16' Gedackt 8'
	Couplers:	Swell to Pedal Swell to Great

FOUNDATIONS 8' *mf*	Great:	Principal 8' Spitzflöte 4'
	Swell:	Viola 8' Bourdon 8' Koppelflöte 4'
	Pedal:	Subbass 16'
	Couplers:	Swell to Pedal Swell to Great
FOUNDATIONS 8' and 4'	Great:	Principal 8' Octave 4' Spitzflöte 4'
	Swell:	Viola 8' Bourdon 8' Prestant 4' Koppelflöte 4'
	Pedal:	Subbass 16' Gedackt 8'
	Couplers:	Swell to Pedal Swell to Great

FOUNDATIONS 8', 4' and 2'

Great:	Principal 8'
	Rohrflöte 8'
	Octave 4'
	Spitzflöte 4'
	Super Octave 2'
Swell:	Viola 8'
	Bourdon 8'
	Prestant 4'
	Koppelflöte 4'
	Blockflöte 2'
Pedal:	Subbass 16'
	Octave 8'
	Gedackt 8'
Couplers:	Swell to Pedal
	Swell to Great

FOUNDATIONS and
MIXTURES

Great:	Principal 8'
	Rohrflöte 8'
	Octave 4'
	Spitzflöte 4'
	Super Octave 2'
	Mixture IV
Swell:	Viola 8'
	Bourdon 8'
	Prestant 4'
	Koppelflöte 4'
	Blockflöte 2'
	Plein Jeu IV
Pedal:	Principal 16'
	Subbass 16'
	Octave 8'
	Gedackt 8'
	Choral Bass 4'
Couplers:	Swell to Pedal
	Swell to Great

FOUNDATIONS,
MIXTURES and REEDS

Great:
Principal 8'
Rohrflöte 8'
Octave 4'
Spitzflöte 4'
Super Octave 2'
Mixture IV

Swell:
Viola 8'
Bourdon 8'
Prestant 4'
Koppelflöte 4'
Blockflöte 2'
Plein Jeu IV
Contre Basson 16'
Trompette 8'
Hautbois 8'

Pedal:
Principal 16'
Subbass 16'
Octave 8'
Gedackt 8'
Choral Bass 4'
Fagott 16'

Couplers:
Swell to Pedal
Swell to Great

**FOUNDATIONS, MIXTURES
AND REEDS**

Great: Principal 8'
          Rohrflöte 8'
          Octave 4'
          Spitzflöte 4'
          Super Octave 2'
          Mixture IV

Swell: Viola 8'
          Bourdon 8'
          Prestant 4'
          Koppelflöte 4'
          Blockflöte 2'
          Plein Jeu IV
          Contre Basson 16'
          Trompette 8'

Pedal: Principal 16'
          Subbass 16'
          Octave 8'
          Gedackt 8'
          Choral Bass 4'
          Fagott 16'

Couplers: Swell to Pedal
          Swell to Great

ENGLISH CATHEDRAL	Great:	Principal 8' Rohrflöte 8' Spitzflöte 4'
	Swell:	Lieblich Bourdon 16' Viola 8' Bourdon 8' Prestant 4' Koppelflöte 4' Blockflöte 2' Contre Basson 16' Trompette 8' Hautbois 8'
	Pedal:	Principal 16' Subbass 16'
	Couplers:	Swell to Pedal Swell to Great
CLASSIC CHORUS (FOR BACH)	Great:	Principal 8' Octave 4' Super Octave 2' Mixture IV
	Swell:	Bourdon 8' Prestant 4' Blockflöte 2'
	Pedal:	Subbass 16' Octave 8' Choral Bass 4'
	Couplers:	Great to Pedal
TRIO PLAYING	Great:	Rohrflöte 8' Spitzflöte 4' Quintflöte 1 1/3'
	Swell:	Bourdon 8' Blockflöte 2'
	Pedal:	Subbass 16' Gedackt 8'

CORNET

	Great:	Rohrflöte 8'
	Swell:	Bourdon 8' Nazard 2 2/3'
	Pedal:	Subbass 16'
	Couplers:	Great to Pedal

FIVE SOLO VOICES
(GREAT)

	Great: (1)	Rohrflöte 8'
	(2)	Spitzflöte 4'
	(3)	Rohrflöte 8' Spitzflöte 4'
	(4)	Cromorne 8'
	(5)	Cromorne 8' Spitzflöte 4'

FIVE SOLO VOICES
(SWELL)

	Swell: (1)	Hautbois 8'
	(2)	Contre Basson 16'
	(3)	Trompette 8'
	(4)	Bourdon 8' Nazard 2 2/3'
	(5)	Bourdon 8' Koppelflöte 4' Nazard 2 2/3' Tremulant

FOUR ACCOMPANIMENT VOICES (GREAT)	Great:	(1)	Flute Dolce 8'
		(2)	Flute Celeste 8'
		(3)	Rohrflöte 8'
		(4)	Rohrflöte 8' Spitzflöte 4'
FIVE ACCOMPANIMENT VOICES (SWELL)		(1)	Viola 8' Viola Celeste 8'
		(2)	Bourdon 8'
		(3)	Bourdon 8' Koppelflöte 4'
		(4)	Viola 8' Bourdon 8'
		(5)	Viola 8' Prestant 4'
TWO ACCOMPANIMENT VOICES (PEDAL)		(1)	Subbass 16'
		(2)	Subbass 16' Gedackt 8'
TRUMPET TUNE	Great:		Principal 8' Rohrflöte 8' Spitzflöte 4'
	Swell:		Trompette 8' Hautbois 8'
	Pedal:		Subbass 16'
	Couplers:		Great to Pedal Melody (optional)

Rodgers Electronic Model: 445	MIDI Implementation Chart		Version: 1.0

Function		Transmitted	Recognized	Remarks
Basic	Default:	1-3, 12-14　*1	12-14　　*1	12=Great　13=Swell 14=Pedal
Channel	Changed:	1-16		MIDI on GT only
Mode	Default: Messages: Altered:	Mode 3 X *******************	Mode 3 X *******************	
Note Number	True Voice	22-112	22-112	
Velocity	Note On: Note Off:	O O	X X	
After Touch	Key's: Ch's:	X X	X X	
Pitch Bender		X	X	
Control Change	7	O	O	Channel 12: Great Expression Channel 13: Swell Expression Channel 14: Pedal Expression
	64	O	X	MIDI on GT Channel
Program Change	True #	1-128 *******************	1-10, 20, 31, 32 *******************	
System Exclusive		O　　　　*2	O　　　　*2	
System Common	:Song Pos :Song Sel :Tune	X X X	X X X	
System Real Time	:Clock :Commands	X X	X 0　　　*3	
Aux Mes- sages	:Local ON/OFF :All Notes Off :Active Sense :Reset	X O　(123) O X	X O　(123) O X	

Notes:　*1　Able to choose between O and X.
　　　　*2　SysEx used for stop changes, combination memory dumps.
　　　　*3　Received Start sends current stop and expression status.
　　　　　　Received Stop restores expression to shoe positions.
　　　　　　Received Continue sets expression to values at last Stop.

Mode 1: OMNI ON, POLY　　　　Mode 2: OMNI ON, MONO　　　　O : Yes
Mode 3: OMNI OFF, POLY　　　　Mode 4; OMNI OFF, MONO　　　X : No

Rodgers organs use a subset of the Roland standard MIDI System Exclusive format. All Rodgers SysEx packets use the Roland "Data Set" command, listed under "One Way Transfer Procedure" in the Roland System Exclusive format specification. The first five bytes of this type of packet are as follows:

Byte	Function
F0H	Begin System Exclusive
41H	Roland/Rodgers SysEx ID
0	Device ID
30H	Model ID (30 = organ)
12H	Data Set Command

This header is then followed by the message body. The message body contains a *subcommand byte*, an optional *offset byte* and a variable number of *data bytes* followed by a *checksum byte* and a MIDI *End Exclusive byte* (F7). The checksum byte value is such that if all bytes beginning with the subcommand byte and ending with the checksum byte are added, the lower 7 bits of the result will be all zeroes.

The following messages are used by Rodgers as of 7/15/91:

1)   Stop Change

This message is transmitted each time one or more stops, couplers, or auxiliary controls changes state. The state of each control is represented as a bit in one of the message data bytes. The assignment of controls to specific bits is standardized for all Rodgers organs by use of the master code assignment list included herein. Controls which are on are represented by ones in the bit map. This message is transmitted on the Sequencer and Pipe ports only on organs which have a separate MIDI Instrument port. It can, however, be received on the Instrument port as well.

Subcommand byte: 01H

Offset byte: 00H - 22H   This byte indicates the offset of the first data byte from the beginning of the bit map. Normally, this will be zero, and the entire map (35 bytes) will be transmitted. It is possible, though, to send only part of the map beginning with the byte indicated by this value.

Data Bytes: dd, dd, ...   The data bytes represent the new state of the bit map beginning at the offset specified above. Any number of data bytes up to the full length of the bit map may be sent, although the entire map is usually transmitted. Refer to the included chart for stop map assignments.

2)   Memory Dump

This message is transmitted when the organist sends ("dumps") a combination memory to a sequencer. The body of the message contains a portion of the data from a combination memory; several such messages are usually necessary to transmit the complete contents of a memory.

<u>Subcommand byte:</u>   03H

<u>Offset byte:</u>   mm   This byte contains the zero-indexed number of the combination memory being dumped.

<u>Data Bytes:</u>   dd, dd, ...   The data for the memory is converted from one byte with 8 significant bits to two bytes with 4 significant bits each. The high order bits are contained in the low order nibble of the first byte. The low order bits are contained in the low order nibble of the second byte. The contents of the piston data structure is proprietary and not disclosed.

Table 1. Stop SysEx Code Assignments

STOP	BYTE	BIT	STOP NAME
	(GREAT)		
1	0	3	8' Principal
2	1	0	8' Rohrflöte
3	1	2	8' Flauto Dolce
4	1	3	8' Flute Celeste
5	1	5	4' Octave
6	1	6	4' Spitzflöte
7	2	1	2' Superoctave
8	2	3	1 1/3' Quint
9	2	6	IV Mixture
10	3	0	III Scharf
11	3	4	8' Cromorne
12	4	1	Chimes
	(SWELL)		
13	7	5	16' Lieblich Bourdon
14	8	0	8' Viola
15	8	1	8' Viola Celeste
16	8	4	8' Bourdon
17	9	3	4' Prestant
18	9	4	4' Koppelflöte
19	9	5	2 2/3' Nazard
20	10	0	2' Blockflöte
21	10	4	IV Plein Jeu
22	10	6	16' Contre Basson
23	11	1	8' Trompette
24	11	2	8' Hautbois

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(PEDAL)

25	21	3	16' Principal
26	21	4	16' Subbass
27	22	2	8' Octave
28	22	4	8' Gedackt
29	22	6	4' Choralbass
30	24	2	16' Fagott

(COUPLERS AND OTHER CONTROLS)

31	25	3	Great to Pedal
32	25	5	Swell to Pedal
33	26	6	Swell to Great
34	31	2	Main Tremulant (Great and Swell)
35	31	3	Swell Flute Tremulant Full