RD-2000 Quick Reference

An attempt to summarize as much RD-2000 manual and learned information as possible into a few pages.

☛ Overview RD-2000 is a stage piano, and a fairly robust controller, with assignable knobs and sliders for hands on performance adjustments and quick program/scene recall, with mostly fixed sounds.
- Strengths are the keyboard, controls, and pianos.
- Through EXP-6, there are at least 341 piano tones, including all the significant pianos from RD 1000 / MKS-20, RD 500, RD 600, RD 700, RD 700SX, RD 700GX, RD 700NX, and the V-Piano.
- There are extensive editing ability for the V- and SN- pianos, some adjustments for all others.
- The RD-2000 is not an arranger, sequencer, mixer, synthesizer, sampler, multi-track recorder, drum machine, effects pedal, or external sound module, although it might have a some of these features.

☛ Pianos can seem somewhat dry on initial listen. Effects can really liven up the pianos. V pianos can have reverb, delay, and compressor. SN and other pianos also have all mod/fx and tremolo/amp sim effects.
- Turn on compressor with mid-boost for a quick sound enhancement until you have time to fine tune a piano to match your style, speakers & room, headphones, etc., with piano designer and effects settings.
- With so many pianos, don't just use one. Be extravagant — you have the polyphony. Start with a V-Piano in zone 1, with no expression pedal, for best solo playing. Add a second bold piano in zone 2, with some strings, pads, etc., in zones 3 & 4, with zones 2-4 on expression pedal. As you bring in the strings and pads, you also add additional piano power.

TONES are the basic sound building blocks.
- 1440 separate tones are currently available, through Axial EXP-6.
- Internal Tones are grouped into 10 categories, assigned to the *TONE* buttons, with subcategories.
- Tone parameters are only edited in context of a Program or Scene, and cannot be stored back into a tone
- When scrolling through tones, sub-category is shown at the display top. ←→ arrows jump subcategory.

PROGRAMs (300 locations) are where everything happens.
- Most of the time you are editing, you are modifying a scratchpad program.
- When you recall a tone by pressing one of the *TONE* buttons, *ONE-TOUCH PIANO* ✳, or scrolling the menu, you are recalling that Tone into zone 1 of the scratch pad-program.
    - Three additional tones are recalled in zones 2-4, but not selected. Default is Slow Full Strings (340), Wide Soft Pad (385), and Acoustic Bass (522). Zone 5 is enabled to transmit on MIDI Channel 1.
    - If you change the *ONE-TOUCH PIANO* program, these becomes the new default settings on tone recall.
- To save the scratchpad, you must *WRITE* it to a program (or scene - below)
- |EDITED| is shown in the display when there are unsaved Program (or Scene) changes. (But this might just be move of a controller.)
- If you save to a new Program location, the RD shifts to that location on save.
- Programs are recalled by the *PROGRAM* button, then using the *BANK/UP DOWN, SCROLL WHEEL,* or *INC/DEC* buttons, or recalled externally by MIDI bank / program change messages.

**SCENEs** (100 locations) are similar to Programs, with a few key differences:
- Faster recall for live performance — 10 banks of 10 buttons available (using the 10 *TONE* buttons)
- Press *SCENE* to change banks, *SCROLL KNOB* will cycle through all registered scenes
- 32 character memos, which can be more descriptive than 16 character program name
- Stored by holding down the *SCENE* button and choosing the desired *TONE* button (0-9)
- When you store a Scene to a different location, the RD-2000 does NOT shift to the new location
- Programs go from 01-20 per bank, Scenes go x0 through x9 in each bank
- Scene displays more detailed info for external zones — Channel, Bank and Program change settings
- Scenes can be copied to programs and reverse. Easier to accidentally change Scenes while editing.

SYSTEM memory holds global settings — the few items not included in programs.
- System settings include: tuning, program control channel, foot switch polarity, Program / Remain ✧ for controls and tones, Control Destination ✦ for controllers, USB Audio, USB Drivers, MIDI Out/Thru, USB MIDI, External Response on/off, System Compressor, Output parallel / mix, and Slider mode direct / catch.
- To save a SYSTEM change, you must press *WRITE*.
- Changing USB driver mode (Vendor / Generic) requires a RD-2000 restart.

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Controls: the strength of the RD-2000 as a stage controller is the number of controls, but this is also a challenge, since one knob can share five functions, a slider three functions, and target zones can change

The key to controls is the four sets of buttons below, plus related Program and System settings
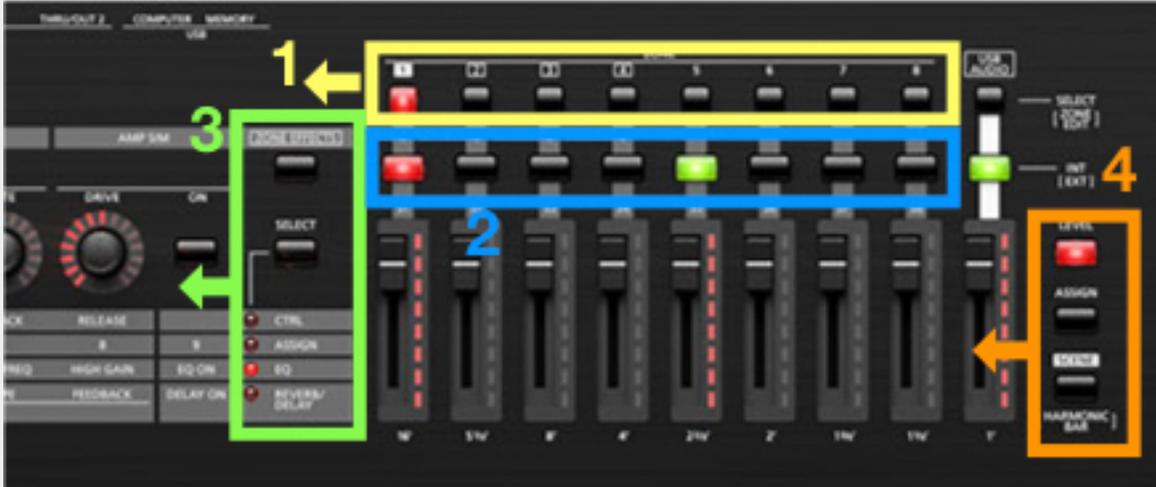
❶ Select zone to be controlled or edited
❷ Enable zones for internal sounds or sending MIDI to external devices
❸ Knobs/Buttons select: *ZONE EFFECTS, CONTROL, ASSIGN, EQ, OR REVERB / DELAY*.
❹ Sliders select: *LEVEL* or *ASSIGN*. *SHIFT+SCENE* for TW Organ drawbar control.

☛ **Summary of Control Settings**

Control	Function Assigned ✲	Zone(s) Controlled	How Many
Sustain pedal	Sustain (midi cc 64)		
FC1 / FC2 / Ext	In *Program Edit* or *Pedal Remain* ✧	Selected in *Program Edit*	All selected ❷ (up to eight)
Pitch Bend / Mod Lever	• Mod = CC1, in tone definition • Pitch Bend = MIDI Pitch Bend		
Mod Wheels	In *Program Edit* or *Mod Remain* ✧		
Knobs (1-8) and Button (9) - select function set with *Select / Zone Effect* buttons ❸			
Zone Effects	• Mod/FX Rate, Depth, Feedback in *Tone Designer - Mod/FX* • All others as labeled	*Control Destination* ◆ =	Single ✲
CTL	As labeled	*Select* - Selected by Zone Effects Pushbutton ❶	*Select* - single
Assign	In *Program Edit* or *Assign Remain* ✧	*Program* - Selected in *Program Edit*	*Program* ✲ - Up to eight
EQ	As labeled	Global	NA
Reverb / Delay	As labeled		
Sliders (1-8) - select function set with *Level / Assign* buttons ❹			
Level	Volume Level (MIDI CC 7	Each slider controls own zone when zone is enabled (red, green, or orange light on)	
Assign	in *Program Edit* (*Single function* for all zones)		

✲ A temporary popup will show affected zones at the top while changing values

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With practice, selecting the zone to control ❶ and the set of functions to control ❸ becomes natural. Current button settings are saved with Program and Scene settings.

✴ Parameter guide P8 shows the functions that can be assigned to the controls.

☛ In a few cases, there can be two levels of assignment. In Mod/FX, you can select what function to assign to the Depth and Rate knob. You can then assign these knobs to Assign Knobs (1-8), FC1 / FC2 / Ext, or Mod Wheels.

✧ *PROGRAM - REMAIN* (System settings) for controls that determines if a control stays on prior selection during program change, or shifts to the new program settings.
- *REMAIN* makes a Program setting behave like a System setting, but it may not be consistent.
- If you use *REMAIN*, create a program that contains the desired control settings, and save it as your *ONE TOUCH PIANO.* When the RD-2000 boots up, this default program should initialize all the *REMAIN* settings to your desired settings.
- If you use a mix of *PROGRAM / REMAIN* settings, post a cheat sheet on your rig to maintain sanity

✦ **Control Destination** (System setting) for *ZONE EFFECT, CTRL,* and *ASSIGN* knobs & buttons — determines if these are dynamically Selected by the panel pushbuttons or are fixed in the Program settings.
- In select, you have the feedback of lighted buttons to show which zone is selected, and you can dynamically change the target zone.
- In program, the target zone is fixed, less opportunity of button error, but without the lighted buttons showing which zone is targeted. The temporary popup will show the target zone when the control is changed.

PROGRAM Settings - one per program:
- Tempo, Rhythm Pattern, Rhythm Volume, Rhythm Output Main/Sub, Song/Rhythm
- EQ settings. Reverb and Delay master settings. Piano master Sympathetic Resonance settings
- Controller assigned functions (in Program mode) - pedals, wheels, knobs, sliders, button
- Key touch settings. Color, Mod/FX, & Tremolo Control Destination ✦
- V-Piano (one in zone 1)

PROGRAM Settings - one each for zones 1-8:
- Tone, Volume, Pan, Delay / Reverb send levels, main/sub output
- Keyboard range, transpose, Key velocity, sensitivity
- Pedal, wheel, assign knob enable / disable
- Internal / External
- External zone settings, similar to most above, MIDI channel, Bank/Program Select, etc

PROGRAM Settings - one each for zones 1-4:
- Sympathetic Resonance send level
- Mod / FX settings, routing normal / reverse
- V Piano (zone 1 only), supernatural piano, e-piano, and clav Piano Designer settings
- Piano individual key voicing — tuning, level, and character

PROGRAMs can have 1-8 internal tones selected. Remaining zones can be used to transmit external MIDI.

SPLIT - to choose split point between z1 and Z4, hold *SPLIT* and depress desired zone 4 top key. Zones 1-3 get the same upper settings, Default split point is F#3.
- When editing on the *Internal / KBD* page, press enter to store the split key.
- Turning off *SPLIT* also turns off zone 4.
- RD-2000 really prefers splits to involve zone 4. If you start the split on *Internal / KBD* page and set zone 1 bottom key, it will automatically split zones 2-4 with the default F#3 split point.
- For predictable results, always start with a 1/4 zone split, then allocate other zones as necessary.

TONE REMAIN - keep old tones sounding through program change - selected in System settings. Normally should be ON, but there are secrets to make it work. Behavior is different for key hold vs pedal hold.

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Key hold - works with exceptions below. However, if a tone in the old program has volume decreased by expression pedal, it comes back to full volume during hold. (See controller discontinuities ✭ for work around)

Pedal Hold: exceptions, plus works only if the held zone remains active in the new Program / Scene.
To keep a pad pedal sustain into a new program, where pad otherwise are dropped - in new program, have the same pad tone in the same zone, but specify a key range of A0-Bb0 (bottom two notes, or top two, etc.)

Exceptions: does not work when
- Shifting V-Piano tones
- Shifting from Virtual Tone Wheel to non-virtual tone wheel
- Effects settings shift immediately, so a particular effect may cause a tone to stop immediately

Disabling held zone: if you turn off the zone switch on a zone that has been decreased in volume, and is held with either key or pedal, that zone will come back to full volume. No work around except to avoid.

Tone Wheel Organ - differences between TW-1-10 and EXP-5 tone wheels:
- For TW 1-10, tone color functions as a crescendo control. Increase above 64, and all draw bars increase proportionally. Decrease below 64, and they decrease proportionally. Rotary kicks to fast near top.
- For EXP-5 tones, tone color only operates rotary slow/fast.
- For both, color is available on *Select / Assign / Knob 1* and by default on Mod Wheel 2 when the zone is selected. This assignment is internal, not CC24. The mod wheel can be reassigned to CC24 (MIDI tone color) to synchronize an external device. *Knob 1* cannot be reassigned.

TW Drawbars — the TW drawbars and percussion always send the assigned MIDI CC messages, even when no external zones are enabled. Zone 1 is fixed to Channel 1, etc.
- 16' = CC 102 up through 1' = CC 110
- Percussion tone and decay = CC114
- Perc volume = CC112
- Tone Color = CC24

EXP-5 tones with rotary programmed to fast — any change will return rotary to fast. (EXP-5 03, 04, 09, 17)

MIDI In - can respond on up to 16 channels. Zone 1 fixed to CH1, etc. External response can be enabled by zone (*Part Switch* in system). Settings for zones 9-16 must be selected by the external controller.

☛ **MIDI** Bank / Program Changes
- Program changes need to be sent on the program control channel (default = 16).
- *Tone* changes for individual zones are sent on the respective zone channel
- Spreadsheets are available on Roland Clan Forums with all bank & program changes for all programs and tones, including EXP.

MIDI In can be merged to USB MIDI, but not to MIDI OUT 1 or 2. MIDI 2 can be Out <u>or</u> Thru.

External Sync
- The RD-2000 does not recognize any external MIDI System Common or System Real Time messages.
- It will transmit Clock, and you can assign a Pedal or Button 9 to Start / Stop an external sequencer.
- Clock is enabled in System, and transmits regardless of internal or external start/stop status.

External Zones can be renamed in system settings (i.e., zone 5 to Logic Pro Ch 1).

☛ External control can enable zones for internal and external simultaneously, this shows an orange zone light.

Rhythms 201 patterns, including 16 metronomes.
- Each program can store one rhythm, volume, tempo, output.
- Patterns can be selected under external control, but start/stop must be done on the RD-2000.
- Patterns play to end before shifting to new selected pattern.
- The rhythm MIDI is also transmitted on external midi — port and channel setting in *SYSTEM*. Default is all ports, channel 10. Turn off transmit by selecting off for rhythm channel.

USB AUDIO
- *USB Audio* can be input, output, or both, with independent volume controls
- Lower button selects internal / external for volume control (slider) and enable/disable (upper button)
- Slider function is fixed (volume), although borrowed for TW drawbar control.

AUDIO IN (1/8") connector — does not have any volume control on the RD-2000. It passes straight through to headphones and main out at input volume. This is one of the few things not on the P13 diagram

Audio Recorder / Player uses .wav format, two channels (L & R), no onboard edit capability

Slider catch In *catch* mode, the slider does not transmit data until it passes through the current setting. This avoids abrupt volume changes.

System Compressor provides an additional set of EQ-like settings, with five presets. Mid Boost is a quick way to punch up a piano until you can spend time with more detailed settings. It affects all internal zones.

Equalization With many tones, you can use the Mod/FX EQ effects to adjust a single zone. 11: Equalizer is four band, 12: Spectrum is eight band, 13: Low Boost, 15: Enhancer, etc.

✳ **One-Touch Piano** assignment. Choose new tone or program, hold *WRITE* and press *One-Touch Piano.* If a program is assigned, the default program recalled with Tone buttons is replaced with this program's settings

EXP load — hold *Enter* while turning power on, with the USB drive inserted.

Keyboard Shortcuts

Quick Tone Recall
- Hold *SHIFT* and enter the tone number using the *TONE key* numeric values (0-9).
- V-piano — *SHIFT, ONE TOUCH PIANO*, then #s.
- Axial — *SHIFT, EXP (*once for A, twice for B) then #s

☛ **Quick Program Change** (with Program active)
- Hold *SHIFT* and enter 1 - 20 (Tone numeric keys) to change to that program in current bank

☛ **Quick Scene Change** (with Scene active)
- Hold *SHIFT* and enter 0 - 99 (Tone numeric keys) to change to that scene

☛ **Edit Menu** - press *SHIFT* and press / move a control to bring up the associated edit menu.

Tone Numbering. RD-2000 preserved the RD-800 numbering scheme.
- The new V-Pianos have S prefix.
- Other added pianos are numbered 2xxx.
- These #s are added to the RD-800 tone sequence.

☛ **Settings that cannot be saved:**
- Local on/off - defaults to on
- Settings for Recording - defaults to off

Some things to get used to:

TONE DESIGNER:
- With *TD active* — *BANK UP / DOWN* changes to a new program
- With TD active — *TONE* key changes the Tone in current program
- Program up / down via pedal assignment will turn off *Tone Designer*
- For predictable results, always turn off *Tone Designer* before any other action

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TW Drawbars:
- If you edit TW settings, and want to save back to Scene, first turn off Tone Designer
- You cannot select a Scene with *TW Drawbars* active
- Recalling a Program / Scene cannot bring up the TW organ with drawbars active - this is always an extra step.

Difference between Program *WRITE* and registering a Scene
- When you *WRITE* a program, the RD shifts to the new program
- When you register a Scene, the RD stays in the prior program or scene

Scene up/down and Program up/down are separate pedal assignments.
- If you copy a Program to Scene (or reverse), change the assignment.
- Selecting Program Up with Scene active shifts to the last Program +1 that was recalled.
- Selecting Scene Up with Program active gives error.

☛ **Parameter editing** - most Program and System settings can be controlled via MIDI messages.
- Most of these are sysex, with some hints in the *Parameter Manual* and *MIDI Implementation Guide*.
- External control only affects the scratchpad Program. Edits must be saved on the RD, if desired.
- Several **MIDI Designer** layouts are available that enable deeper control, plus a Windows editor.

✯ **Avoiding Controller Discontinuities**
- ex, Z1: piano, no expression, Z2: pads, exp pedal, Z3: strings FC2 pedal.
- You want the pads and strings initially off, but when you shift to the program, they come on max until captured by cycling the two pedals.
- If program A has the same expression pedal settings as program B, the controller settings will be remembered through the program change. You still have to capture the first time, but it will then follow through program changes. (Should work for all assignable controls.)

Standard Layout To survive some of the behaviors above, including tone remain, controller discontinuities, and inability to copy between zones in a program, a routine layout helps maintain sanity.
For example:
- Z1 - keep for pianos, esp V pianos, no exp pedal
- Z2 - backing #1, exp pedal
- Z3 - backing #2, on FC2 pedal
- Z4 - bass or other split, exp pedal
- When using multiple expression pedals, right pedal controls lower numbered zones, left pedal controls higher numbered zones.
This way you know the "normal" way your programs behave. You can then deviate when necessary.

Copy *Owners Manual* P13 and *Parameter Guide* P8, and post on your rig for quick reference.
- P8 is missing Scene up / Down, which can be assigned to FC1, FC2, and EXT pedals, but not Button 9.

Back up your settings frequently.

Limitations - many can be worked around with an external control, such as **MIDI Designer**.
- There is no way to transfer settings between zones in a program, so if you edit all 88 key individual tunings, there is no way to copy to another zone, but you can make a new program with the same zone settings.
- So, before you spend significant time editing individual keys in *Piano Designer,* think about which zone you want it in. Prolly zone 1, where you can use it for both V- and SN- pianos.