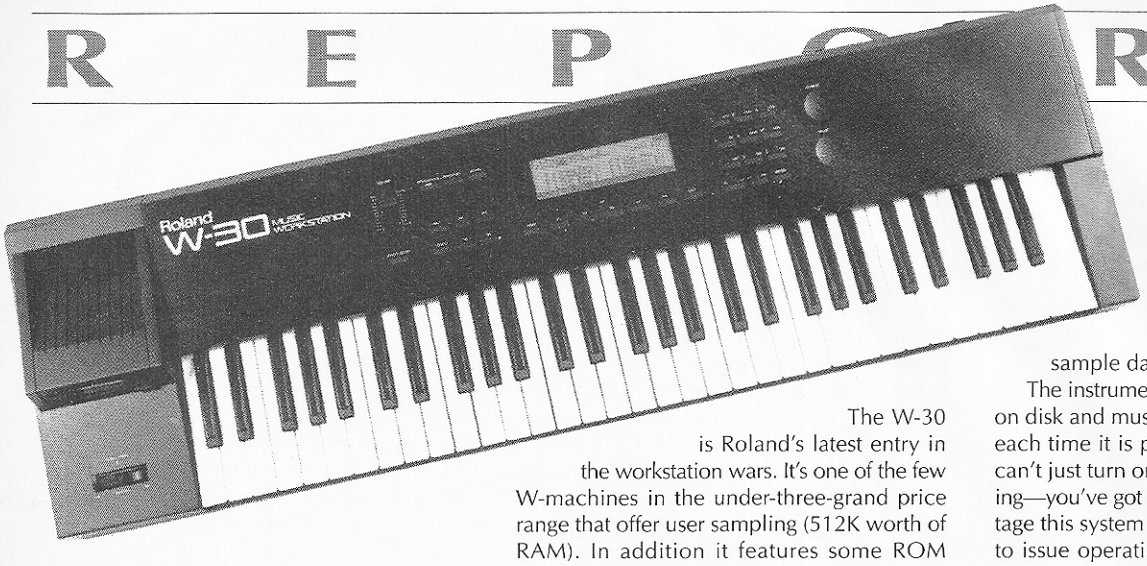

ROLAND W-30
MUSIC WORKSTATION

By Michael Marans

GATHER 'ROUND, GAME SHOW FANS. It's time to play, "What's in a word?" This week's semantic puzzler is *workstation*. Any guesses? (Tick-tock, tick-tock.) Come on now, you've been following the trends and the trades. You're up on the latest digital whatsits and whosits. (Tick-tock, tick-tock.) So what's a workstation? *Beep*. Time's up. Stumped ya. Small wonder. The 'W' word is one of those industry buzzes—the kind of word that's supposed to put steam in your stride and get you ready to trade up for something really special. But its meaning is hard to pin down.

You can trace the W-buzz back to high-end machines like the Synclav and Fairlight. These ultimate "do it all in one box" instruments combine sampling, sequencing, visual editing, massive hard-disk storage and on-board RAM, etc., etc., etc. These days, when talking workstations we're just as likely to think of affordable machines—Korg's M1, Ensoniq's SQ-80 and EPS, Yamaha's V50, Roland's D-20, to name a few—machines that tackle the "do it all in one box" concept in very similar yet very different ways. The M1 is a ROM-oriented machine (no user sampling, all waveforms are stored in Read-Only Memory) with built-in effects, percussion sounds, and a sequencer. The SQ-80: ROM sounds, a sequencer, and a disk drive. The EPS: user sampling, disk drive, and sequencer. The V50: ROM percussion sounds and FM synth tones, disk drive, effects, and a sequencer. D-20: L/A synthesis, ROM sounds (including percussion), a sequencer, effects, and a disk drive. What they all have in common is that they allow you to put together a complete musical arrangement with a minimum number of external devices.

The W-30 is Roland's latest entry in the workstation wars. It's one of the few W-machines in the under-three-grand price range that offer user sampling (512K worth of RAM). In addition it features some ROM sounds, a built-in 3.5" disk drive, an on-board 16-track sequencer, 16-voice polyphony, 8-part multitimbral capability, a large LCD display, on-board graphic editing capabilities, and the ability to read samples from the S-50/550/330 library. On the down side, it doesn't have built-in effects, the internal ROM sounds are—let's be frank—a real disappointment, and the operating system is somewhat muddled when it comes to dealing with ROM.

Overview. The W-30 looks a great deal like Roland's S-50 sampling keyboard. It's black, has a minimum of buttons and knobs, sports the familiar combo pitch-bend/modulation lever, and has its disk drive in the same location. The 61-note velocity- and aftertouch-sensing keyboard is a bit organ-like, so if you're looking for a weighted action, you'll have to look elsewhere. The most noticeable (and welcome) difference is the large 60 x 240-dot back-lit LCD. The display has adjustable contrast (hurrah!), so it may be viewed clearly from any angle. Two data-entry knobs are provided, one for moving the cursor to various locations in the display and the other for changing parameter values. (We wish that increment/decrement keys had also been included.) Alphanumeric data may also be entered using the 12-key pad, and the five softkeys located below the LCD are used to execute and/or access specific menu functions, and to call up new menu pages. Four tape-transport-style controls are dedicated to sequencer locate functions. Three others are used for sequencer record, tempo, and start/stop. Rounding out the front panel are three buttons for accessing the main areas of the software (sound, sequencer, and performance), and the volume slider.

The back panel features eight polyphonic outputs (one of which doubles as the mix out), and jacks for footpedal, footswitch, and sample input. The knobs for adjusting the LCD contrast and the sample record level are also located on the back—an inconvenience that becomes more irritating each time you take a sample. A plate labeled "option" covers the port where a SCSI interface may be installed. The SCSI option allows you to connect a hard disk or Roland's CD-ROM player to the W-30, affording you quick access to large amounts of sample data.

The instrument's operating system is stored on disk and must be loaded into the machine each time it is powered up. This means you can't just turn on the machine and start playing—you've got to load a disk first. The advantage this system offers is that it allows Roland to issue operating system enhancements on floppy disk. The down side is that you have to wait 30 seconds to boot the system and *then* load a sound disk—more like a computer than a typical sampler. (Be sure to make backup copies of your system disk. Remember, disks can fail at any time, and a W-30 without a system disk is completely non-functional.) Unfortunately, not all of the system is loaded into memory during the initial boot, and frequently the user is prompted with an "insert system disk" message when accessing various functions. This isn't a problem if you always leave the system disk in the drive, but we found that in our normal working mode we frequently had a sound disk or a sequencer data disk in the drive, so we had to perform a lot of disk shuffling.

The W-30's operating system syntax is relatively confusing. Sometimes the keypad can be used to enter data or call up a new menu page, sometimes it can't. Sometimes the "alpha" data-entry wheel can be used to enter data, sometimes it can't. And just to make things trickier, there are various functions that work only for RAM sounds and not for those in ROM. For example, let's say you want to load from disk a single tone that uses a RAM wave. (More about tones in a minute.) First you press the *Sound* button, then the softkey *Disk*, then the softkey *Load.T(one)*. Simple, right? You bet. The problem is that an entirely different procedure is used for loading ROM tones. You're required to execute numerous keystrokes and to access functions that you wouldn't normally associate with loading a tone. We wish all of the tone loading functions were grouped in one place, or, at the very least, accessed with consistent commands.

Moving to main menu pages (61 in all, and most pages have sub-menus and/or pop-up windows) is accomplished by first pressing the *User* button, then entering the page number, then pressing the *Enter* key. The five softkeys may be user-programmed with the menu page numbers you'll be accessing most frequently, which will save you some keystrokes.

As mentioned above, the instrument's func-

tionality is divided into three main areas: sound, sequencer, and performance. Since you can't sequence or perform without sound, we'll begin our in-depth tour with the two areas of the instrument that deal with RAM (user sampling) and ROM (on-board factory sounds).

RAMblin' On. Easily the biggest bonus offered by the W-30 is its ability to read sound disks that have been created on the Roland S-50 and S-330. This gives you access to the considerable library that already exists for these instruments—a real plus for those who prefer loading and playing to programming. We loaded sounds from both samplers with nary a hitch. The W-30 manual warns that some parameters may be changed due to differences between instruments, but we encountered no problems—at least no sonically detectable problems—during our tests. We suggest that if you decide to purchase a W-30, try to arrange with the music store for access to their Roland sample library. There is a wealth of sounds available for the S-series instruments, both from Roland and from third-party developers, and considering the less-than-optimum quality of the W-30's ROM sounds, you'll almost certainly find yourself wanting to check them out.

For those of you who prefer to roll your own, the sampling section of the W-30 is modeled after the S-330 sampler, so Roland S-series fans will feel right at home. The usual assortment of utilities is provided for recording samples, including graphic level metering and pre-threshold sampling, which starts the recording process a few milliseconds before the threshold level is reached, thus insuring that all of the attack transients of the incoming signal are captured. Samples are recorded with 12-bit resolution, and up to 14.4 seconds of sound may be recorded at the 30kHz sampling rate. Sorry we couldn't perform our sampling spec tests on this machine. As with the ADS (reviewed on page 136), we ran into a technical roadblock: Digidesign hasn't yet released a Sound Designer driver for the W-30. And like Roland's other samplers, the W-30 doesn't read standard MIDI sample dumps.

Sampled sounds are stored in two blocks, each containing 7.2 seconds of data. The blocks are divided into .4 second sections, and although sounds may be truncated to as short as four sample words, the memory occupied by the sample is only recovered to the nearest .4 second increment. A work-around is available, however: You can avoid wasting memory by combining two or more samples into a single, longer soundfile. The individual sounds in this file may then be accessed by assigning the file to multiple tone slots, and selecting the appropriate playback start point for each tone.

Sampled sounds may be truncated, looped (forward and alternating modes), and played out backwards. A graphic waveform display with several levels of magnification is provided to aid in the location of loop points. When you are using the loop display mode, the parameter that you have selected in the alphanumeric loop screen remains active, which allows you to simultaneously see and hear the changes to your loop points as you edit them. Very handy. Oddly enough, in the truncate display, the selected parameter does not remain active, so you'll find yourself switching back and forth between the graphic and alphanumeric displays. Very unhandy.

Two loop functions—autoloop and smooth—are provided to help eliminate glitches. We found that using them produced erratic results, and the smooth function would always put our sound in the forward mode, even though the alternating mode had been selected. Overall, we didn't have too much success with these two utilities, although the autoloop function was useful for creating single-cycle loops. One really nice feature is the loop tuning utility, which allows you to adjust a loop's pitch ±1/2 step in very fine increments. Pitch problems can occur when the loop length of a single cycle is not a whole number of samples, or when the sustain portion of a sample is pitched lower than its attack portion—a common phenomenon in plucked-string instruments. The W-30's loop tune utility provides a very effective remedy when you encounter these situations.

Samples may also be mixed, combined (spliced), and digitally filtered. Unlike the digital filters found in the TVF (Time Variant Filter) section, these filters permanently alter the data. Either lowpass or highpass filtering may be performed, and there is no limit to the number of times a sound may be passed through the filter. The amount of filter resonance may also be selected, and the overall amplitude of a sample may be increased or attenuated.

One small gripe concerning these otherwise useful functions: There are no "are you sure?" warning messages when they are accessed. (These messages do appear in other areas of the software.) Considering that your data is going to be changed forever, this is a relatively serious omission. Since the display prompts are also a bit more cryptic than one might hope for, you should never enter this section of the operating system without first having your data backed up on disk.

When In ROM . . . You guessed it, do as the ROMans do. From all indications, however, the designers of the W-30 have never been to Italy. The unit's ROM wavedata (a full megabyte) is resident in the machine, but before any of the ROM wavedata can be played, the tone and patch information must be loaded from disk into memory. Tone information includes the settings for virtually all of the parameters that control the way a given waveform will sound, such as its Time Variant Filter (TVF), Time Variant Amplifier (TVA), LFO, loop points, and tuning. Patch information includes, among other things, where the tones are mapped on the keyboard, how they respond to velocity (for example, crossfade or cross-switch), and pitch-bend range. The instrument only allows 16 patches (any combination of ROM and RAM sounds) to be in memory at any given time, so if you decide to audition a musical passage using a sound that's not currently in memory, you must first load in the new sound.

Okay, we can live with that. But things aren't quite that simple. First, you'll need to delete (or overwrite) a patch if all 16 locations are filled in order to provide a place for the new sound. Second, ROM sounds are allocated to a finite number of tone slots (64 maximum), and if the sound you wish to load requires more slots than are available, you'll need to delete some existing tones. This, of course, means any patches that used these tones will no longer sound in the keyboard ranges where the tones were mapped. The display very kindly informs you of the tone memory allocation before you attempt to load new sounds, so you are spared the frustration of repeatedly viewing the "Can't Execute" message, but hey, this is ROM! You're not supposed to have to worry about memory allocation in ROM.

Pros & Cons

Pros: Excellent sequencer. Real-time sound mixing. Individual polyphonic outputs. Compatible with S-50 and S-330 sound disks. Large back-lit LCD.

Cons: Poor ROM sounds. Difficult operating system. No on-board effects. Restrictive user sampling memory architecture.

Roland W-30

Description: Sampling keyboard with built-in sequencer and ROM sounds.
Keyboard: 61-note velocity- and aftertouch-sensing. Layer and split modes.
Memory: Keyboard: 16 patches, 64 ROM tone slots, 32 RAM tone slots, one Mb ROM wavedata (128 waves), 512K RAM. Sequencer: 20 songs, 16 tracks per song, 9,998 bars per song, 15,000 notes total.
Features: 16-note polyphonic, eight-part multitimbral operation. 16-track MIDI sequencer. Built-in 3.5" disk drive. User sampling with 12-bit resolution. One Mb ROM wavedata including drums and percussion. Eight individual programmable polyphonic outputs. 60 x 240-dot back-lit LCD.
Interfacing: MIDI in/out/thru. Eight 1/4" audio ouputs. Headphone output. Sample input. Footswitch (sustain/punch-in/sequencer start) input. Foot controller input (transmits MIDI controller numbers 0 through 95). Optional SCSI interface.
Dimensions: 39-5/16" x 11-7/8" x 4-3/16". 21-1/2 lbs.
Suggested Retail Price: $2,795.00
Contact: RolandCorp US, 7200 Dominion Circle, Los Angeles, CA 90040. (213) 685-5114.

ROLAND W-30

Most ROM-based synthesizers and sample players (Korg M1, Kawai K1, E-mu Proteus, for example) allow virtually unlimited access to their wavedata and offer numerous patches that can be instantly recalled. But the W-30 only allows the first 16 factory patches to be loaded in as a set. Patches 17 through 32 must be individually loaded by the user. The best solution is to load in the patches—one by one—that you think you'll be using most frequently, and save these as a set. This will provide you with a basic palette of sonic textures that can be block-loaded for future sessions. Loading a sound disk, however, wipes the current patches from memory, so you'll need to reload the ROM patches one at a time after every sound disk load. By the way, over 128 different waveforms are provided in ROM, but the factory patches use only the first 64. If you want to create patches using the other 64 waves, you'll need to load the pointers for the waves from disk into the tone slot memory one at a time, map them to the keyboard, adjust the various parameters to your liking, and save them as a patch to disk (yawn).

And now for the bad news. The ROM sounds themselves, with the notable exception of some very punchy drums, a nice fretless bass, and a couple of fat synth pads, are just plain bad. No acoustic instrument waveforms are provided in ROM (except for drums), so you'll have to use RAM memory if you want piano, strings, or the like. The waveforms cover the gamut from wimpy (AnalogStrngs) to practically useless (Steamer) to downright obnoxious (GrungoClav). Almost every patch consists of only a single sample stretched across the keyboard range. This results in three rather unfortunate sonic artifacts. First, in the lower ranges of the keyboard, the sounds are often mushy and dull due both to their attack transients being stretched out and to the loss of high frequencies as they are pitch-shifted downward. Second, depending on the pitch of the original sample, its maximum upward tuning range may not be great enough to cover the uppermost notes of the keyboard, resulting in numerous patches that cover only a 3-1/2 to 4-1/2 octave playing range. Third, a number of the sounds exhibit a ring modulation type of effect when played in their upper ranges that renders the sound virtually unplayable when it is present. In case you're having trouble reading between the lines, we feel you could dump the entire ROM section of this instrument, and, except for the percussion sounds, never feel the slightest loss.

The Sequencer. The W-30's sequencer is easily the most powerful built-in sequencer available on a mid-priced keyboard instrument. It's modeled after their MC-500 series (see Keyboard Report, Nov. '86 and Dec. '88) and it will read sequence data disks from the MRC and SYS-series sequencers. Up to 20 songs may be recorded in a single bank (maximum 15,000 notes total), each song containing up to 16 tracks of 16 channels of MIDI data. A 17th track is dedicated to tempo (range is 5 to 250 bpm), and new tempos may be inserted at any clock pulse. (Alas, there are no macro commands for easily creating accelerandos or ritards.) MIDI sync is supported, and song position pointer is both sent and received.

As we mentioned earlier, tape transport-style controls are used to control sequencer record and playback functions. Fast forward, rewind, go to start, and go to end buttons are also included. Just to make your life a little easier, there are eight user-definable locate points that can be accessed using the "jump to" utility.

Prior to recording, you select the record track, the auto-correct value (the highest record resolution is 96 ppq), which MIDI channel is to be recorded, and whether the channel accesses an internal patch—now called a *part*—or an external MIDI sound module. Those of you whose writing occasionally strays from the pop song formula will be happy to learn that the time signature may be different for each measure in a sequence. (Numerators range from 1 to 32, and denominators may be set to 2, 4, 8, or 16.) Once a measure has been recorded, its time signature may be easily changed. You simply create a measure with the new time signature, and copy it to the desired location on the tempo track. All existing bar boundaries will be adjusted accordingly. The W-30's metronome may be programmed to use any two sounds that are in memory (one for normal and one for accent), and the metronome may be set to off, record, record and play, or always on. When recording, the graphic display shows the measure and beat number, the active record track, and the status—either on, mute, or solo—of all 16 tracks.

Several different modes of recording are implemented including normal, key start (which initiates recording when a key is pressed), loop (which allows drum machine-style sound-on-sound recording), auto punch-in, punch-out, punch-in/out, and manual punch-in/out. Unfortunately, there is no step-recording mode. The only other thing we found missing was a record countdown feature. This was easily overcome by simply recording silence for the first two bars of our sequence, then erasing them after we were finished with the composition.

Once your sequence has been recorded, it may be edited in a number of ways. On the bar level, tracks may be cut, copied, pasted, merged, and deleted. Tracks may also be swapped, shifted by a user-programmable number of clock pulses, and assigned to a new MIDI channel. An extraction utility allows you to move specific data from one track to another. This is very useful for isolating particular instruments in a group, such as a snare drum from a complete drum kit track. Quantizing may be performed to the whole track or limited to specific bars. Note-on, note-off, and gate time may be quantized to values ranging from a quarter-note to 64th-note triplets and referenced to an offset value. Three other functions—transpose, gate time adjust, and change velocity—allow you to select the specific note ranges that are to be processed. All three provide a nice assortment of parameters for achieving just the right effect.

And then there's event editing. This is one of the areas where we really appreciated the W-30's large LCD screen. In the micro editing screen, you can select what type of data you wish to view, scroll through it one event, beat, or measure at a time, and change values to your heart's content. Data may also be erased, created, or moved to another location. Up to 500 bytes of sys-ex data may be written, and the W-30 automatically provides F0 and F7 start and end bytes, just in case you forget to. A routine for calculating the checksum is also included, and the value can be automatically written into the last byte of the message.

One really nice—not to mention powerful—feature is that virtually every parameter pertaining to tone or patch data may be accessed while the sequencer is running. This means you can tweak a bass tone until it sits just right with the kick drum, retune the guitar, balance the levels of the piano's low and high note ranges, and on and on. The control this affords you over your mix is exceptional, and we give Roland high marks for implementing this outstanding capability.

Voice Allocation. The 16 voices that the W-30 is capable of simultaneously playing may be allocated in several different ways. Voice Auto Mode uses either VAL, which is a last-note priority scheme that "steals" the oldest note when the 16-note maximum is exceeded, or VAF, which gives priority to the first 16 notes played and ignores later note-ons. Voice fixed mode offers 22 different allocation schemes that affect parts only. The assignments range from all 16 voices reserved for part A, to parts A through H each receiving two notes. This is handy when you're sequencing multitimbral arrangements, as it allows you to have particular sounds steal only from themselves. One drawback in the design of the W-30's voice architecture is that voice channels are always output in pairs. This means that you can't make sounds assigned to different keys cut one another off—as would be desirable in the case of a hi-hat—because there will always be a second voice channel available for any given note. You can work around this by assigning two sounds to the same key and enabling the velocity cross-switch mode. This mode affects the entire patch, however, so it's not the most ideal way of doing things.

Tones, patches, and parts may also be assigned to specific outputs—very handy for sending individual sounds to external effects devices and/or independent channels of a mixing console. When outputs are assigned at the tone level, however, which you might want to do if you have several percussion tones in a patch, each note uses up two of the instrument's voices, which reduces the polyphony.

Documentation. We remember the first Roland manual we ever saw, for their then-state-of-the-art Jupiter 8. Fortunately, the

wounds we got from scratching our heads have healed. Since then, Roland's manuals have radically improved. For the most part, the W-30 manual continues the forward momentum toward clarity. It's divided into five sections: basic hookup and playing, a general overview of the instrument and how it operates, step-by-step procedures, screen functions, and reference. We found the screen section to be the most helpful, but we consulted the other sections regularly. Our only real gripe with the manual is that it's sometimes difficult to find what you're looking for. While there is an index, quite often multiple page numbers are given even if a particular page contains only a brief reference to the desired function. This makes it difficult to determine which page you should turn to.

We're familiar with S-series samplers so we knew how to assign tones to the keyboard when creating a patch. But just as a test, we thought we'd see how easy it would be for first-time user to figure it out. Trusty manual in hand, we started digging. The index showed that page 58 was where we wanted to look, and sure enough, there it was—albeit in tiny print at the bottom of the page. The information was presented as a flow chart—not the "lead me by the hand" format we had hoped for. But nonetheless, it was there.

Conclusions. To paraphrase Shakespeare, a workstation by any other name would sound as sweet. So we're not going to quibble because the W-30 has a slightly different lineup of features from other instruments that are being positioned in the W-word category. Considered as a mid-priced sampler with a built-in sequencer, it has a few nice features, even if it isn't a real profound innovation in product design. Our main reservations have to do with the ROM sounds: Except for the drums, they're not likely to be of much use, and they're hard to access with the operating system.

Virtually every parameter relating to tone or patch data may be edited while the sequencer is running. You can retune the guitar, balance the levels, and on and on.

The sequencer outshines by far any built-in sequencer we've seen to date on a mid-priced keyboard. And we loved being able to edit our sounds while the sequencer was running—quite possibly the W-30's most outstanding feature. On the other hand, it's not easy to navigate through the W-30's operating system, though our frustration was somewhat lessened by the large LCD display. The sampler offers the same sound quality and many of the features found on other Roland S-series instruments, but we do wish that more than 32 tone slots were provided for samples and/or the processed copies of samples. Chances are, you'll run out of locations to place tones before you run out of sample memory. On the plus side, the W-30 is compatible with sound disks for some other Roland samplers, so a vast library is available.

To paraphrase Shakespeare again, "To W or not to W, that is the question." Musicians who have been around for a while are likely to have sequencers or samplers already, or both, which means that a sampler with a built-in sequencer may not be their top-priority purchase. Newcomers, who are likely to find the package more attractive, are more likely to be put off by the convolutions of the W-30's operating system, and by its lack of built-in effects. Clearly, the W-30 was designed to appeal to a relatively small niche in the market.