



FAIRLIGHT

COMPUTER MUSICAL INSTRUMENT



With the Fairlight, you can sample natural and acoustic sounds from a microphone or tape and then play them musically. You can synthesize totally new types of sound, blend natural and synthesized sounds together, or create new composite sounds from a large range of favourites.

You can play the Fairlight live on its six-octave touch-sensitive keyboard, or on other instruments such as guitar. The Fairlight can play complete musical compositions itself, or perform part of a composition while you play other parts live.

You can record a fifty-thousand note keyboard sequence onto its 'floppy disk' memory, or you can TYPE the notes of a composition into the Fairlight via the typewriter-style keyboard. As a piece of music is played back you can add 'live' dynamics, or full expression can be written into a Fairlight score. You can build up patterns of rhythmic percussion and melodies with individual expression control for each note. Notes can be actually 'drawn' onto Fairlight's Video Display with a Lightpen or played on the keyboard, automatically corrected for timing if you like. You can play eight unique sounds together, and you can synchronize the Fairlight to tape, film and video.

New Standard for Operational Simplicity

Using the Fairlight is remarkably easy thanks to the flexibility of its Video Graphics display terminal and Lightpen. Most functions can be achieved simply by pointing the Lightpen to the relevant part of the screen.

The screen displays a variety of 'Pages', each is designed to be easy to understand and use.

One page loads sounds, another is for sampling external sounds. Three other pages allow you to synthesize, blend, edit, mix, merge, invert, reverse or reflect sounds. A 'Control Parameter' page sets all the performance characteristics of any type of sound including control of Attack, Vibrato, Glide, Sustain and Decay. Other pages are used for Music and Rhythm sequencing as well as a 'Music Composition facility'.

Each display page also has its own training programme. Type 'H' for help on the typewriter keyboard, and the full operating instructions are displayed.

A complete operating manual is held inside the Fairlight for your instant reference.



ANY SOUND

in theory AND in practice

When the Fairlight introduced the ability to sample Natural and Acoustic Sounds and perform them polyphonically, a new era in personal music development began.



Natural-Sampled Sounds

Take any sound, from a tape or microphone and type 'S' (for sample). The C.M.I. 'digitizes' the whole audio sound and stores it in memory. The sound can be saved onto the floppy disk for later use. Being digital, there's no loss of quality when saving or transferring Fairlight sounds. The sound can be played right across the six-octave touch-sensitive keyboard while under the control of a wide range of performance parameters such as Attack, Vibrato, Glissando, Portamento, Sustain Control and 'looping' of sounds and Damping.

For unlimited LIVE control, sounds can be mixed dynamically or merged into other sounds playing the same note. In fact, eight totally unique sounds can be played simultaneously from the one note, each with individual live control of its performance characteristics.

Synthesized Sounds

You're never out of touch with what's going on in the Fairlight. For example, you can draw thirty-two harmonic overtone profiles individually to digitally synthesize sounds from scratch. As you draw the profiles, the Fairlight computes the waveforms, and from there you can even re-draw waveforms with the Lightpen. Ask the computer to merge your drawing in varying degrees with the rest of the sound. Now, the complete sound can be viewed on a three-dimensional waveform display. Every sound has its own appearance, its own visual 'feel'.

Mixing, Merging, Editing

Getting the RIGHT sound for the job.

Often it's necessary to quickly create a sound for a special application if it's not already in your sound library. It may be possible to sample exactly the right sound from a tape or microphone, but if not, then a quick bit of creative editing or sound merging is usually the solution. You can merge and mix sounds together on the Fairlight, whether synthesized or natural.

In fact, you can take a piece from one sound and do a quick 'edit' or merge with another one. You can even synthesize individual segments of the sound's waveform by winding thirty-two 'harmonic volume' faders up and down with the Lightpen.

Of course, you're always free to re-draw parts of the waveform which the Fairlight can automatically merge into the rest of the sound.

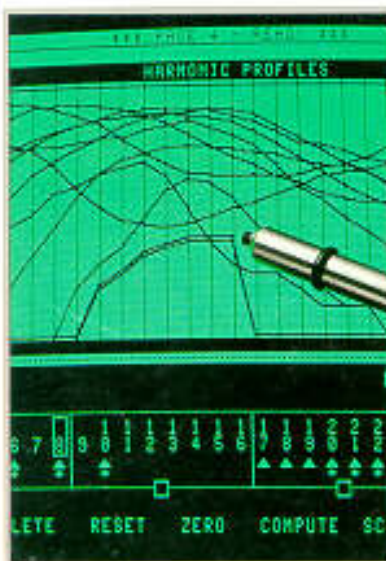


Type the music in

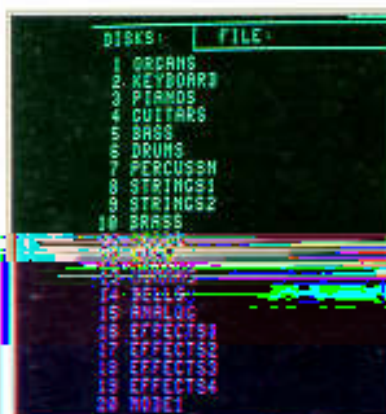
For another method of music input, the Fairlight has a powerful Music Composition Language (M.C.L.). Note, line, octave, volume, effects such as portamento, vibrato, attack, decay and voice-looping can actually be 'typed' into the C.M.I.'s memory. Extensive facilities and commands are available to edit or change any amount of music. By 'typing' in the music you can now specify any complex poly-rhythms and poly-tonalities that would be impossible to perform by any other means. Incorporating multi-level repeat and 'nesting' facilities and a powerful video screen editing feature, the Music Composition Language minimises typing required for complex musical pieces. Whole blocks of music can be moved, transposed, changed in tempo and copied. Simple macro-instructions enable you to make complete overall changes to the music with only a few keystrokes.



The Lightpen can be used directly to draw waveforms or alter those already in the memory.



Sounds can be synthesized by drawing individual harmonic curves. From these, the sound's waveform (see above) is automatically computed.



The Library facility keeps track of about two thousand sounds and musical sequences.

Save expensive studio time

Using the Fairlight's sequencers or composition facilities, time in the recording studio can be little more than the length of the music. There are no missed queues, wrong notes or timing problems. Fairlight's ability to synchronize to the outside world means you can relax when the tape is rolling, knowing that everything from timing to pitch is being controlled with quartz crystal accuracy. Just plug in the C.M.I. — each of its eight channels is available separately and can be individually treated for equalization, reverb and effects.

HARD and SOFT

Your Fairlight has two sides; its Hardware — the nuts, bolts and silicon chips, and its Software — an essay of digits with a difference.

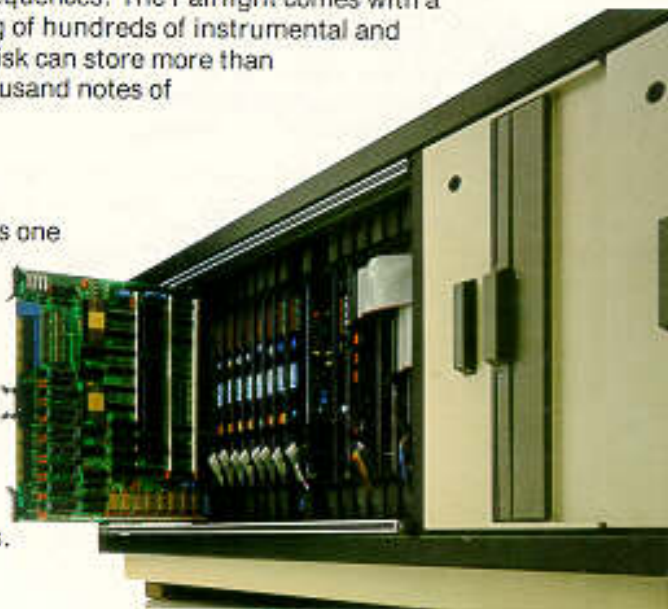


SOFTWARE comes on the floppy disks and stores the operating features, sounds and music.

There are two types of software: your personal library of sounds and compositions, and the 'SYSTEM' Software. The 'SYSTEM' Software is where most of Fairlight's design lies, and is written by Fairlight's design team. It's all on one disk, held permanently in one of the C.M.I.'s disk drives.

The second drive holds your disks. These contain sounds as well as music compositions and sequences. The Fairlight comes with a standard library consisting of hundreds of instrumental and special sounds. A single disk can store more than twenty sounds, or fifty thousand notes of musical sequences.

HARDWARE includes one or two music keyboards with live controls, a Video-Control console with Lightpen and the main cabinet, or chassis. The chassis holds eight digital-sound modules and a computing system with two floppy-disk drives.



What else can it do?

As well as Fairlight's astounding capabilities for sound and music production, we have taken advantage of its general purpose computer to help in other areas. For example, you can print conventional music score notation as composed using the 'Music Composition Language'. The 'Lightwriter' Word Processor System utilizes the Lightpen to edit and locate text in a fully professional word-processing facility.

Special Hardware Interfaces are also available such as the sixteen in/sixteen out Analogue Interface which enables the Fairlight to control analogue equipment and vice-versa. Using this card, and a special interface, the unlimited resources of the Fairlight are available to the guitarist.

This is the time of the dawning of new musical possibilities, of sensitivity and creativity, inspired by an unlimited resource, the Fairlight C.M.I.

Above anything, the Fairlight is a joy to use, and in fact, we have as much fun developing it as you will using it. That's our promise.

PRESENT FEATURES

- Plays effectively ANY sound musically
- Natural, Acoustic, Digitally Synthesized and Composite sounds
- Samples sounds from external sources
- Sounds can be mixed, and blended live
- Tuning and scale control
- Eight monophonic sounds can be played simultaneously
- Eight note polyphony
- All patching done via the video display
- Everything can be 'memorized' onto floppy disks
- Sounds cannot deteriorate by copying or transferring
- Over twenty sounds on a single disk
- Two six-octave touch-sensitive keyboards (slave is optional)
- Music composition via live keyboard playing
- Interactive rhythm and music pattern composition
- Music composition via lightpen sequence-pattern generation
- Music composition via the Composition Language — music can be typed in
- Previous computer programming experience is not required
- Operational 'Help' manual on disk for instant reference
- Eight independent balanced outputs for separate equalization and processing
- Inbuilt 20 watt RMS amplifier for monitoring
- Digital audio metronome click-track
- All audio inputs and outputs via balanced studio-compatible Cannon-type connectors
- Printer output — compatible with daisy wheel (letter quality), dot matrix and digital pen plotter (graphics) printers (RS 232C - 9 600 BAUD)
- External synchronization to another system, tape and film
- Open-ended design allows for future expansion
- All facilities under software (programme) control
- Continuous software development and update
- Continuous hardware development and update
- Software options include word processing. Hi-level languages such as BASIC, C, PASCAL and COBOL will be available with 6809 processor option
- Used by internationally acknowledged musicians, studios and educational institutions world-wide. Sounds and music compositions are transportable between users in standard Fairlight format
- Analogue interface available
- Guitar Synthesizer interface available
- Four micro-processors plus approximately 1,000 silicon chip-integrated circuits on exchangeable plug-in circuit modules for easy servicing and upgrade
- One megabyte of disk storage plus 210 kilobytes of Random Access Memory in standard configuration
- High-reliability. Temperature torture performed on all plug-in modules (0 to 70 degrees Celsius)
- World-wide service and distribution

Music production - Approaching the speed of inspiration

Fairlight's open-ended design means that you have the option of using the facility that best suits the occasion. Music composition and performance can proceed in the fastest possible way.

The Rhythm/Pattern Sequencer

It is possible, on the Fairlight, to enter notes into hundreds of unique patterns or rhythm sequences which can be linked together to play indefinitely. Being interactive, notes are displayed as they are played on the keyboard and the Fairlight recalls 'Touch Sensitivity' and pitch for every note. Playing inaccuracies can be automatically corrected and the position of each note is displayed on the screen. Notes can also be edited with the Lightpen (see cover photograph). This is probably the fastest and most interactive tool available for the rapid development of rhythmic and musical composition, as well as showing what's happening as the music proceeds. You don't have to be the greatest professional keyboard player to use it.

For 'live' playing, several facilities are available for putting your favourite sounds on various areas of the keyboard. A second touch-sensitive 'slave' keyboard can be added, allowing even more freedom. Up to eight completely different sounds can be allocated anywhere over both keyboards and tuned in 1/100th's of a semitone to $\pm$ six octaves, and saved for later use exactly as set up. Only two keystrokes are needed to set up your keyboards again.

In live performance use, a special command 'Keypad' located on the master keyboard can be used to load pre-arranged Sounds from the floppy disks.

When the Fairlight is performing a musical sequence or composition itself, you can still perform 'live' over the top. The Fairlight can provide the rhythm backing, for instance, while you solo.

Fairlight's 'Keyboard Sequencer' can capture and record live playing and subsequent takes can be merged together much in the form of over-dubbing. Being digital, there is no degradation in sound quality as subsequent tracks are laid. Each voice retains its integrity, while keytouch and control fader and footpedal movements are also recorded.

An external 'Sync' track, from tape for example, can be applied to the C.M.I. Up to fifty-six parts can be perfectly synchronized using an eight-track tape recorder. For greater precision, music can be recorded at a slow speed and then replayed faster without any pitch change. The Fairlight can also generate a 'click' track so live playing can be added.



Just for a moment, let some music come to mind . . .

What sounds can you hear — classical instruments, electronic, some sounds of nature perhaps, maybe a mixture of all these?

And Melody . . . a simple tune, a percussion backing, or sixty-part arrangement?

Expression, how does it feel; exciting, mysterious, monstrous or charming?

Of all the visions of musical expression that we have, only rarely can we actually realise what is in our mind.

This is the story about a new concept in music production. It goes well beyond the ideas of musical instruments as we know them.

It is a concept inspired by the wish to create literally ANY type of music, no matter how complex or difficult to express. To incorporate literally ANY type of sound — not only classical and modern instruments but sounds of the world; sounds reflecting the full spectrum of life, from the subtlety and force of nature to the sounds of civilization and synthesis.

Now that wish is a reality. An easy to use computer-based musical instrument with capabilities that were unthinkable only a few years ago.



FAIRLIGHT CMI

Computer Musical Instrument

DISK CONTROL		
SAXY	IN	31
ALTO	VC	32
BARI	VC	33
BASSOON	VC	34
CLAR2	VC	35
CLARH1	VC	36
CLARINET	VC	37
DELCLAR3	VC	38
DEUSEM	VC	39
HORN1	VC	40
HOCLAR	VC	41
SANAX	VC	42
SANAX1	VC	43
SAX1	VC	44
SAXT	VC	45

A BRIEF DEMONSTRATION

When the C.M.I. is turned on, the 'System' disk is inserted into the left hand Disk Drive, and the Display Index automatically appears. This is 'Display Page 1'.

'Display Page 2' is the USER'S 'disk control' page. The disk containing the required sound is placed into the right hand Disk Drive. Page 2 displays and controls the contents of the user's disk and can now be selected by touching the Lightpen to 'PAGE 2 — Disk Control' on the index.

Now Page 2 will appear, showing all of the Sounds (Voices or .VC's) that are available on that particular disk. Select the Voice name by touching it with the Lightpen. Touch the 'Load' command with the Lightpen and in a few seconds the sound is ready to play.

'Display Page 7' sets the 'control parameters' for all sounds. At present these include: Volume (Level), Attack and Decay (Damping) time, Portamento, Glissando, Vibrato and Sustain characteristics (Loop). From here you can connect Fairlight's live control devices — faders, footpedals, switches and Keyboard touch sensitivity — to any of these parameters for live expression. Not a single patch lead to pull or button to push. Other parameters can be 'fixed' by simply 'typing' a number into its 'box'. Once set and 'saved' onto the disk, the whole setup loads automatically when the Voice is next used.

'Display Page 3' is the Keyboard control page. On this page you can arrange up to eight voices to play. Voices can be tuned in separate 'registers', which can then be arranged to play in separate octaves of the keyboard. A wide range of musical scales can be used. Here, music sequences which come from the Music Keyboard Sequencer (Page 9), or the Music Pattern Sequencer (Page R), or the Music Composition Language (Page C), are directed to the right sounds. The Sequencers and Music Composer all produce note and 'touch sensitivity' information and even the movements of control faders and footpedals. The Sequencers think of themselves as (up to) eight music keyboards whose outputs arrive at the keyboard 'Map' on Page 3. From here, the desired voices are easily assigned to their respective players, keyboards 1 to 8. Keyboard 1 is also the master 'live' keyboard supplied with the Fairlight as standard, while keyboard 2 is an optional live 'Slave' keyboard. Every detail of this page can be saved onto the user's disk for recall at a later time. Once saved, the arrangement of Page 3 becomes an 'Instrument' file on Page 2 (a name ending in .IN) and can be loaded in the same way as the voice was loaded with the Lightpen. When an instrument file is loaded, it automatically loads all the desired voices with their Controls for Page 7.

**FAIRLIGHT
INSTRUMENTS**

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PLEASE NOTE:

The Fairlight C.M.I. incorporates the QASAR-DUAL PROCESSOR SYSTEM. Copyright and patents are held by Fairlight Instruments Pty. Ltd. and Creative Strategies Pty. Ltd. from whom licence is granted for manufacture of some components.

The Fairlight C.M.I.'s specifications are subject to continual change and enhancement and Fairlight reserves the right to alter specifications without notice.

All about Fairlight



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