



Richard Wright & Pink Floyd



Keyboard, Synthesizer & Electronics Equipment

- version 1.56 -



Richard Wright / Pink Floyd

keyboard & synthesizer equipment

version 1.56 by aZiMuTh :: Last updated: 29-Mar-04

Keyboard / Electronics / Synthesizer gear (through the years)

Farfisa Combo-Compact Organ (1964-1968) Early pre-Floyd days up until *Saucerful of Secrets*
Farfisa Compact Duo Organ (1968-1973) From *Saucerful of Secrets* up until *Dark Side of The Moon*
Mellotron M400 Mark II (1968-1971) Used in *Saucerful*, *Ummagumma*, *Atom Heart Mother*
Yamaha C-7 Acoustic Grand Piano (1968-1979) From early albums throughout the seventies
Hammond M-102 'Spinnet' Organ (1968-1972) From *Saucerful* until *Obscured by Clouds*
Harmonium (1970-1982) Used in *Madcap Laughs*, *Barrett*, *Meddle*, *Obscured By Clouds* & *The Final Cut*
Steinway & Sons Baby Classical Grand Piano (1971-) *Pompeii*, *Dark Side* and beyond...
EMS VCS3 'Putney' Synthesizer (1971) Used in *Meddle*
Fender Rhodes Stage 73/88 Mark I Electric Piano (1972-1973) *Obscured by clouds* & *Dark Side*
EMS VCS3 Synthi A Synthesizer (1972-1973) Used in *Obscured by Clouds* & *Dark Side of the Moon*
Hammond RT-3 Two-Manual Console Organ (1972-1973) *Dark Side Of The Moon* sessions
ARP Solina String Ensemble Synthesizer (1972-1977) Used in *Obscured...*, *Wish You...* & *Animals*
Wurlitzer EP-200 Electric Piano (1973-1975) Used in *Dark Side* & *Wish You Were Here*
MOOG Minimoog Synthesizer (1973-1977) Used in *Dark Side*, *Wish You Were Here* & *Animals*
EMS Synthi Hi-Fli Guitar Synthesizer (1973-1977?) Used in *Dark Side* tour and *Wish You Were...*
Hammond B-3 / C-3 Organ (1973-1994) From *Wish You Were Here* through to the *Division Bell* tour
EMS VCS3 Synthi AKS Synthesizer (1973-1994) Used in *Dark Side*, *Wish You...*, *Animals*, ... *p.u.l.s.e.*
Hohner Clavinet D6 (1975-1978) Used in *Wish You Were Here*, *Animals* & *Wet Dream*
Korg VC-10 Vocoder (1976-1977) Used in *Animals*
Rhodes Suitcase 73/88 Mark I Electric Piano (1976-) Used in *Animals*, *The Wall* and beyond...
Oberheim Four-Voice Synthesizer (1978) Only used in *Wet Dream*
SCI Prophet V Synthesizer (1979-1981) Used in *The Wall* sessions and live shows
ARP Quadra / Oddysey Mark III Synthesizer (1980-1981) One of them used in *The Wall* shows
Yamaha CP-70 Electric Grand Piano (1980-1981) Used in *The Wall* live shows
Fairlight CMI Series II Synthesizer/Sampler (1984) Only used in *Zee - Confusion*
Roland Vocoder VP-330 Plus (1986-1987) Used in *Momentary Lapse Of Reason*
Roland Super JX (JX-10) Synthesizer (1986-1989) Used in *Momentary Lapse* album & tours
Kurzweil K250 Synthesizer/Sampler (1986-1990) Used in *Lapse* album/tours & in *Knebworth '90*
Kurzweil MIDIBoard MIDI Controller (1987-) Used in *Lapse* & *Division Bell* tours & *Broken China*
Kurzweil K2000 Digital Synthesizer/Sampler (1993-) Used in *Division Bell* & *Broken China*
Kurzweil K2000VP Digital Synthesizer/Sampler (1994) Used in the *Division Bell* tour
AKAI S1100 Digital Sampler (1996-) Used in *Broken China*
E-mu Proteus/2 (Orchestral) Sample Playback Module (1996-) Used in *Broken China*
Hammond XB-5 Portable Dual-Manual Digital Organ (1996-) Used in *Broken China*

Richard Wright's gear (by album)

:: *Arnold Layne / See Emily Play / The Piper at the Gates of Dawn* (1967)

/ *Tonite Let's All Make Love in London* (1967)

Farfisa Combo-Compact Organ

Acoustic Piano

Celeste (*Piper at the Gates of Dawn* only)



:: *Apples and Oranges / It Would Be So Nice /* (1968)

/ *A Saucerful of Secrets / Point Me At The Sky*

Farfisa Combo Compact-Duo Organ

Hammond M-102 'Spinnet' Organ

Acoustic Piano

Mellotron M400 Mark II

Vibraphone



:: *Music from the film 'More'* (1969)

Farfisa Combo Compact-Duo Organ

Hammond M-102 'Spinnet' Organ

Acoustic Piano

Vibraphone



:: *Ummagumma* (1969) / *Zabriskie Point* (1970)

Farfisa Combo Compact-Duo Organ

Hammond M-102 'Spinnet' Organ

Acoustic Grand Piano

Mellotron M400 Mark II (*Ummagumma* only)



à *The Man and The Journey* (1969-70)

Farfisa Combo Compact-Duo Organ

Hammond M-102 'Spinnet' Organ

Acoustic Piano

Vibraphone

Trombone

Celeste



:: *Atom Heart Mother* (1970)

Farfisa Combo Compact-Duo Organ

Hammond M-102 'Spinnet' Organ /with Leslie 145 Cabinet

Steinway & Sons Baby Grand Piano

Mellotron M400 Mark II



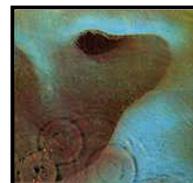
:: *Meddle* (1971)

Farfisa Combo Compact-Duo Organ

Hammond M-102 'Spinnet' Organ /with Leslie 145 Cabinet

Acoustic Grand Piano & Leslie Cabinet 145

EMS VCS3 ('Putney') Synthesizer

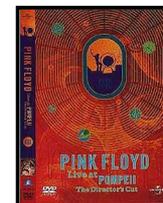


à *Live at Pompeii* (1972)

Farfisa Combo Compact-Duo Organ

Hammond M-102 'Spinnet' /with Leslie 145 Cabinet

Steinway & Sons Baby Classical Grand Piano



:: *Obscured by Clouds* (1972)

Hammond M-102 'Spinnet' Organ /with Leslie 145 Cabinet

Fender Rhodes Suitcase 73/88 Mark I Electric Piano

EMS VCS3 ('Putney') Synthesizer

EMS VCS3 Synthi A ('Portabella') Synthesizer

ARP Solina String Ensemble (model IV) Synthesizer



:: The Dark Side of the Moon (1973) à European & American Tour (1973)

Hammond RT-3 Two-Manual Console /with Leslie 122 Cabinet
 Wurlitzer EP-200 Electric Piano
 EMS VCS3 Synthi AKS Synthesizer
 EMS VCS3 Synthi A ('Portabella') Synthesizer (*not on tour*)
 Steinway & Sons Baby Classical Grand Piano
 MOOG Minimoog Synthesizer
 Fender Rhodes Stage 73/88 Mark I Electric Piano (*not on tour*)
 Farfisa Combo Compact-Duo Organ (*not on tour*)
 EMS Synthi Hi-Fli Guitar Synthesizer (*on tour only*)



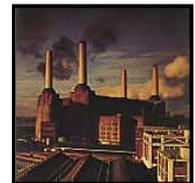
:: Wish You Were Here (1975) à European & American Tours (1974-75) / Knebworth '75 (1975)

Hammond C-3 Organ /with Leslie 122 Cabinet
 MOOG Minimoog Synthesizer
 ARP Solina String Ensemble (Model V) Synthesizer
 Wurlitzer EP-200 Electric Piano
 EMS VCS3 Synthi AKS Synthesizer
 EMS VCS3 Synthi A ('Portabella') Synthesizer (*not on tour*)
 Hohner Clavinet D6
 EMS Synthi Hi-Fli Guitar Synthesizer
 Steinway & Sons Baby Classical Grand Piano
 MOOG Taurus II Footpedal Synthesizer



:: Animals (1977) à Europe '77 & 'In the Flesh' Tour (1977)

Hammond B-3 Organ /with Leslie 122 Cabinet
 Rhodes Suitcase 73/88 Mark I Electric Piano
 MOOG Minimoog (Model D) Synthesizer
 ARP Solina String Ensemble (Model V) Synthesizer
 Yamaha C-7 Baby Grand Piano
 Hohner Clavinet D6
 Korg VC-10 Vocoder (*not on tour*)
 EMS VCS3 Synthi AKS Synthesizer (*not on tour*)



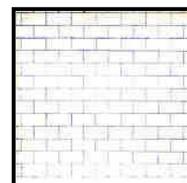
:: Wet Dream (1978)

Fender Rhodes Suitcase 73/88 Mark I Electric Piano
 Hammond B-3 Organ /with Leslie 122 Cabinet
 Oberheim Four-Voice Polyphonic Synthesizer
 ARP Solina String Ensemble Synthesizer
 Yamaha C-7 Acoustic Grand Piano
 Hohner Clavinet D6



:: The Wall (1979)

Hammond B-3 & C-3 Organs /with Leslie 122 Cabinet
 SCI Prophet V Synthesizer
 Yamaha C-7 Acoustic Baby Grand Piano
 Rhodes Stage 73/88 Mark I Electric Piano
 Farfisa Accordion



à The Wall Live [Is There Anybody Out There] (1980-81)

Hammond C-3 Organ /with Leslie 122 Cabinet
 SCI Prophet V Synthesizer
 Yamaha CP-70 Electric Piano
 Acoustic Grand Piano
 ARP Quadra Synthesizer
 Farfisa Accordion



:: The Final Cut (1983)

Hammond C-3 /with Leslie 122 Cabinet
Steinway Acoustic Grand Piano
Harmonium

:: Zee - Confusion (1984)

Fairlight CMI Series II Synthesizer/Sampler

:: A Momentary Lapse Of Reason (1987)

Roland Super JX (JX-10) Digital / Analogue Synthesizer
Kurzweil K250 Synthesizer / Sampler
Hammond B-3 & C-3 Organ /with Leslie 122 Cabinet
Kurzweil MIDIBoard Controller
Roland Vocoder VP-330 Plus

à Lapse of Reason Tours [Delicate Sound Of Thunder] (1987-89) / Knebworth '90 (1990)

Roland JX-10 (Super JX) Digital/Analogue Synthesizer
Hammond B-3 Organ & Leslie 122 Cabinet
Kurzweil MIDIBoard Controller
Kurzweil K2000 Digital Synthesizer

:: The Division Bell (1994)

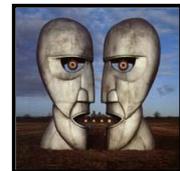
Kurzweil K2000 Digital Synthesizer
Hammond C-3 Organ /with Leslie 122 Cabinet
Rhodes Suitcase 73/88 Mark I Electric Piano
Steinway & Sons Grand Piano

à World Tour [p.u.l.s.e.] (1995)

Hammond B-3 Organ & Leslie 122 Cabinet
Kurzweil K2000 / K2000VP & K2000RS Digital Synthesizers
Kurzweil MIDIBoard Controller
EMS VCS3 Synthesizer

:: Broken China (1996)

Kurzweil K2000 / Kurzweil MIDIBoard Controller
Hammond XB-5 Portable Dual-Manual Digital Organ
Rhodes Suitcase 73/88 Mark I Electric Piano
AKAI S1100 Digital Sampler
E-mu Proteus/2 (Orchestral) Sample Playback Module



Rick Wright's Home Studio Equipment (1996)

Kurzweil K2000 Digital Synthesizer / Kurzweil MIDIBoard Controller
Hammond XB-5 Portable Dual-Manual Digital Organ
Rhodes Suitcase 73/88 Mark I Electric Piano
AKAI S1100 Digital Sampler
E-mu Proteus/2 (Orchestral) Sample Playback Module
Alesis D4 Drum Machine

Mackie 24+8-extension Multitrack Console
Apple Mac Performa 475 / Steinberg Cubase
Otari Radar 24-track Hard Disk Recorder
Tascam DA-30 DAT Recorder
Yamaha SPX990 20-bit Multi-Effects Processor
Lexicon LXP-5 Multi-Effects Unit
MXR Digital Delay (M-113) / Pitch Transposer (M-129) Rack Mount Effect Units

Yamaha REV7 Digital Reverb Unit
Studer 'Ampli' VSP Amplitude Panning Unit
Drawmer DL241 Dual Channel Auto Compressor
Urei 1176 Mono Solid-State Compressor/Limiter
Neumann U87 Microphones
ATC SCM-16 Monitoring Speakers

ACOUSTIC PIANOS

The acoustic piano has always been an element of the Floyd's sound and -unlike other groups of the time- Wright insisted on carrying acoustic pianos (although not always grand) on tour throughout the '70s, as opposed to replacing the piano parts with an electric piano; the way Genesis' Tony Banks did on stage. It is difficult to say which make of piano is featured on each album. It has been suggested that there are many different makes used by Wright through the years, however there seem to be a couple of favourite brands: **Steinway & Sons** and **Yamaha**. Piano parts on *Dark Side of the Moon* were recorded with a classical **Steinway & Sons Baby Grand Piano**, which can be seen in the Abbey Road studios during the 'documentary' sections of *Live At Pompeii*. The Pompeii live recordings also featured a Steinway Grand ("A Saucerful Of Secrets"). Wright has also been a fan of **Yamaha** pianos and has used the **Yamaha C-7** Acoustic Grand Piano for some of the early albums and then for *Animals* and *The Wall*.

From 1987 onwards, Wright has been using the **Kurzweil K2000** digital sampler series (see SYNTHESIZERS and SAMPLING & SEQUENCING sections below) for their sampled piano sound -as opposed to real pianos- when playing live. Piano samples were used in *Momentary Lapse/Another Lapse of Reason/Delicate Sound Of Thunder* (1987-89) & *Division Bell* (1994) tours. Sampled piano was also used during the *Division Bell* sessions, although the two songs on the album where piano was dominant subsequently had the parts replaced by real piano; "*Marooned*" was originally recorded with a **K2000** and Gilmour's original demo of "*High Hopes*" was played on a sampler, but was replaced by real piano played by Jon Carin. Wright performed the piano parts of "*Wish You Were Here*" on a **K2000** for the band's induction to the Rock n' Roll Hall of Fame. Rick's current grand piano in his home studio is a **Steinway**.

ELECTRIC PIANOS

WURLITZER Electric Piano (1972-1975) - Wright's use of the Wurlitzer piano is one of the defining elements in Floyd sound. Rick used the **EP-200** series model (vanilla white) in the studio and a black **EP-200A** on tour. The funky vibe and tremolo of the 'Wurly' introduced an electric vibe that sat somewhere between the jazzy piano and the vibraphone -two of Wright's loves. The Wurlitzer was first used in *Obscured by Clouds* (1972) but the real showcase has been in *Dark Side* (1973) and *Wish You Were Here* (1975), more specifically in "*Breathe*"; during the funky staccato counter-rhythm sections against Gilmour's guitar in "*Time*" (1973); in "*Have a Cigar*" (1975); and in the jazzy solo in "*Shine On You Crazy Diamond*" Part 8 (1975). Wright used a wah-wah pedal to great effect in "*Money*" (1973) making it one of his more characteristic moments. The same treatment was also used in "*What Do You Want From Me?*" (1994), but Wright was either using his **Rhodes** (see below) or the sampled sound of his **Kurzweil K2000** by then (as in the 1994 tour).

(FENDER) RHODES Stage/Suitcase Electric Piano (1977-1981) - The intro to "*Sheep*" (1977) is Wright's most obvious example of the 'Rhodes'. The Rhodes produces a 'jazzier' vibrating sound and is used mainly for leads and melodic passages, as opposed to the more rhythm-oriented Wurlitzer. While Wurlitzer was mainly used in *Dark Side* (1973) and *Wish You Were Here* (1975), Fender Rhodes was used in "*Mudmen*" from *Obscured by Clouds* (1972), in *Animals* (1977) and *The Wall* (1979); in "*Hey you*", for example. Wright used a **Rhodes Suitcase 73/88 Mark I** for the studio and on the road, along with his favourite two **Fender Twin Reverb** amps. He has also used a **Fender Rhodes Stage 73/88 Mark I**.

Since 1987, a custom **Kurzweil K2000** with 64Mb of RAM is used for samples of **Rhodes** and **Wurlitzer** Electric Pianos, when Floyd performed live, however Rick still has a Rhodes as part of his home studio, which was last used for the recordings of *Broken China* (1996). A Suitcase model was also used for Rick's guest appearance in Gilmour's 2002 concerts in Royal Festival Hall.

The **Rhodes** sound has grown to become a 'Floyd trademark' through the years, although it was, in fact, the sound of the '73-'75 era **Wurlitzer** that most people would be referring to, which is of course very similar to that of the Rhodes. Many would argue that this can also be attributed to the band's durability and the relative timelessness of their work. Floyd were certainly pioneers and on the edge of technology up until a certain point in the seventies and managed to formulate a 'trademark sound'; and sounds like that of the Rhodes, the Hammond or the lush synth strings became staples of that 'Floyd sound'. So, in a way, bands like Pink Floyd, which managed to sustain -if not increase- their popularity from generation to generation, are largely responsible for the post-'90s revival and popularity of many 'vintage' instruments and sounds, including that of the Rhodes and Wurly, both of which have become staples in most trip-hop, funky and electronica acts since the 1990s.

Hohner Clavinet D6 (1975 - 1978) - The Clavinet is a bass-type keyboard distinctive for its staccato sound and its quick attack & decay and has been indelibly associated with funk. The riffs from Stevie Wonder's "*Superstition*" and Led Zeppelin's "*Trampled Underfoot*" are two known examples of Clavinet use. The 'Clavi' was not very often used by Wright, however he owned a **D6** woodgrain model (which can be seen in the Photo Gallery Appendix) and toured with it in '75 and '77. It is unmistakably featured in "*Have a Cigar*" (1975) for the rhythm bass line heard during the guitar solo, as well as in Part 8 of "*Shine On You Crazy Diamond*" where Wright plays the funky riff on top of **Wurlitzer** chords, accompanied by **VSC3 Synthi** sweeping effects. It is also -very discreetly- used in *Animals* (1977), however this cannot be easily verified just by listening to the album; a Clavi is buried somewhere in the mix during the complex rhythm section of "*Pigs (3 different ones)*". Wright also used it in "*Funky Deux*", "*Waves*" and other tracks from *Wet Dream* (1978), his first solo album.

Yamaha CP-70 Electric Grand Piano (1979 - 1981) -The **Yamaha CP-70** was prominently used in *The Wall* live shows, albeit not by Wright himself, but mostly by the late Pete Woods. In the more 'straightforward' electric piano parts, *i.e.* where no **Rhodes** was used, the **CP-70** was used instead, although this only applies to the live shows and not to the studio album. It was the **CP-70** that was used in the extended solo passages like the ones played by Woods during the live renditions of "*Young Lust*" and "*Another Brick in the Wall Part 2*".

ORGANS & KEYBOARDS

Farfisa organ (1965-1972) - The 'Farfisa' is a two-manual organ console. In comparison to the more popular **Hammond** organ (see below), the **Farfisa** produces a more 'classic' organ sound. Wright included a **Binson Echorec** device for echo as part of his combo and managed to produce many unusual sounds out of it, by experimenting with the **Echorec** and the organ's tone and pan settings. The **Farfisa** was Wright's main keyboard in the early years, when he was playing with Waters, Mason, Barrett, Klose et al. as *Sigma 6*, *The (Screaming..., Architectural..., etc.) Abdabs*, *T-Set*, the *Pink Floyd Sound*, etc. and was used almost exclusively up until *The Piper At The Gates Of Dawn* in 1967. Between 1967-72, the Farfisa organ played a crucial role in Floyd's sound and was used for many of Rick's leads, which he often panned around the auditorium using a special joystick (an 'azimuth co-ordinator' pot) stacked on top of the **Echorec** unit. Wright used the Farfisa for virtually every solo up until that point, *e.g.* "*The Embryo*", "*Fat Old Sun*", "*Cymbaline*". He can be seen playing one in *Live at Pompeii* (1972) and in the studio it was last used for *Dark Side* (1973). On stage, Floyd kept touring with a Farfisa as part of their equipment while they were still performing live their pre-*Dark Side* set (*e.g.* "*Careful with that axe, Eugene*", "*Echoes*" and "*Set the Controls for the Heart of the Sun*"). This organ's sound has been strongly associated with certain tracks. In the last ever live performance of "*Careful with that axe, Eugene*" (in 5 May 1977) the absence of the Farfisa sound was clearly heard. Wright employed his Hammond (see below) and his array of MiniMoog synthesizers (see SYNTHESIZERS section) to play that rendition and the synth sound was somewhat alien to the piece. The organ in the intro of "*Time*" is the last time the Farfisa was featured in a Floyd recording.

Hammond organ (1967 to date) & **Leslie cabinet speakers** - The 'Hammond' is a two manual console (**RT-3**, **B-3**, **C-3**) or 'spinet' (**M102**) *tonewheel* organ. The **Leslie** cabinet is a speaker with rotary components which gives the organ sound a very distinctive swirling effect (tremolo) that sets it apart from other organs, like the **Farfisa** (see above). Wright has used several different kinds of Hammonds & Leslies. He started with the **M-102** (1968-1972) that was featured in the early Floyd albums up until *Obscured by Clouds*. The **RT-3** Model (1972-1973) was used in the *Dark Side of the Moon* recording sessions and is also featured in *Live at Pompeii* during "*A Saucerful of Secrets*". The **B-3** (1973-1994) and its twin sister, the **C-3**, were the most popular of all Hammond models and were used in every Floyd album from *Dark Side* onwards -depending on the recording studios (check *Equipment List by album* for details). As for the Leslie cabinets, his most commonly-used **Leslie** model, since *Dark Side*, was **Model 122**. Prior to that, Wright had been using a Leslie cabinet **Model 145** for *Atom Heart Mother*, *Meddle* and *Obscured by Clouds*. Wright has used the Hammond in a variety of distinctive ways: for its 'aggressive swirl' overtones (*e.g.* "*Mudmen*", "*Sheep*"); as a basic organ layer on top of which other keyboard sounds (or Gilmour's guitar) were stacked *e.g.* in "*Mudmen*" (1972), "*Shine On You Crazy Diamond*" (1975) or, for a more recent example, "*Keep Talking*" (1994). With the gradual advent of synthesizers and other keyboards from 1972 onwards, the Hammond gradually became the dominant organ in Rick's gear and eventually replaced the Farfisa altogether. Wright still uses Hammonds to this day, and it has been the only 'vintage' keyboard he refused to substitute with latter-day samplers, as its rotor sound and timbre simply cannot be accurately imitated. A **B-3** was used in the 1987-89 and 1994 tours; and a Hammond/Suzuki **XB-5** Digital Organ Emulator -a more recent digital incarnation of the portable classic- was used in the recording of *Broken China* (1996) and is now part of Wright's home studio gear.

MELLOTRON (1968-1971) - The Mellotron is a keyboard, which is -loosely speaking- an early magnetic-tape-operated 'sampler'. A black **Mellotron M400 Mark II**, one of only 6 black models made along with the machine once owned by Princess Margaret (presumably for decorative purposes!) belonged to the Floyd between 1968-71 and was exclusively used in the studio. Floyd never gigged or toured with it and, after *Atom Heart Mother*, it was put into storage, where it ended up fairly badly damaged before being rescued, repaired, and subsequently sold. The photo seen in the Photo Gallery Appendix features Floyd's very own model and was taken while the specimen was being repaired at *Streetly Electronics*.

Floyd's use of the 'Tron' has been sporadic. It has also been somewhat unusual, in that they did not always use it in a conventional and easily recognisable way -true to their 'experimental' label. Wright has used the **flute tape set** in early recordings, such as the single "*Julia Dream*" (1968); the studio version of "*The Embryo*" (1969-70); and in sections of "*Atom Heart Mother*" (1970), most notably the beginning of "*Remergence*" (the sound reminiscent to the intro from The Beatles' "*Strawberry Fields*"). Rick preferred to use the mellotron with ample reverb and effects that added depth and gave a slightly different dimension to the sounds, so some of the mellotron in Floyd recordings does not immediately become apparent, which is why it is quite original among other '60s outfits. The **strings set** has been used in the closing section ("*Celestial Voices*") of the title track from *A Saucerful Of Secrets* (1968); in the "*Atom Heart Mother*" (1970) suite; and in "*Sisyphus*" (1969). Despite the suspicious resemblance of some of Rick's Farfisa 'pads' with mellotron strings, in certain 1970-72 performances, "*Careful With That Axe, Eugene*" did not feature any mellotron. The Wright-penned single "*It Would Be So Nice*" (1968) also features a mellotron, as does "*See-saw*" (1968). Recordings that have made use of **choir tapes** include Gilmour's "*Narrow Way Part 2*" and -most prominently- "*Sisyphus*" from *Ummagumma* (1969). **Brass tapes** and -speculatively- some other 'stranger' tape sets may have also been used in *Ummagumma* (1969) and perhaps in the studio version of "*Syncopated Pandemonium*" from the *Saucerful Of Secrets* title track (1968).

Another serious mellotron candidate -but subject of debate- is the 'trumpet' solo in "*Summer '68*" (1970). According to various sources the lead is assumed to be produced by an 'early synthesizer' but there are sufficient reasons to discard this possibility. In a mid-90s interview, Wright said that the first synthesizer he ever used was the VCS3 (see SYNTHESIZERS section below). Although he is not renowned for his good memory about such facts, the track was recorded in July 1970 and the very few analogue (and monophonic) synths that existed then, could not have possibly produced that timbre anyway. Another (wild) guess was that the Floyd may have used the Moog (probably available in the Abbey Road studios, left there from the Beatles' recording sessions of the album with the same name), but this is again very unlikely. Cliff Jones' controversial (and subsequently withdrawn after Gilmour's own request) book, suggests a fairly plausible, yet unconfirmed, scenario: that the *Abbey Road Session Pops Orchestra* (who had already played brass on the album's title track) also performed in "*Summer '68*". So, for all we know, the solo could have been a mellotron -perhaps EQ'ed slightly- although nobody has yet denied the possibility that the band may have used real brass instead. More on the Mellotron can be found in the SAMPLING & SEQUENCING section.

OTHER ASSORTED INSTRUMENTS

This document is focusing on 'keyboards, synthesizers & electronics', hence this section serves as a brief overview of some of the 'unusual' instruments Wright has used during the first years in Floyd, including some he has been assumed to have played but never actually did. Most of the following have only sparsely been used on a handful of occasions during recordings and gigs.

CELESTE (1967-1969) - Wright has played Celeste on a few occasions. "*The Gnome*" from Piper (1967) feature Celeste, and most probably the studio recording of "*A Saucerful Of Secrets*" (1968); "*Quicksilver*" from *More* (1969); and "*Sisyphus*" from *Ummagumma* (1969).

PENNY WHISTLE & KAZOO (1968) - According to several sources, Rick played the **penny whistle** heard during "*Jugband Blues*" from *A Saucerful Of Secrets* (1968) during the syncopated middle section which also features the *Salvation Army Band of North London* on brass. Other members also played some unusual instruments, most notably Nicky Mason who opted for a remarkably cacophonous performance of **kazoo**. Whether it was also him, Rick, Syd or Roger playing the peculiar 'lead' in "*Corporal Clegg*" still remains unknown to the author.

VIBRAPHONE (1968-1970) - The vibraphone has been used in “*Set The Controls for the Heart of the Sun*” and in the title track from *A Saucerful of Secrets* (1968); in the studio recording of “*Careful with that axe, Eugene*” (1968); in the “*Crying song*” and “*Quicksilver*” from *More* (1969) and in “*Sisyphus*” from *Ummagumma* (1969). It was also part of their touring equipment during 1969-1970, as can be seen in the back cover of *Ummagumma*, and was featured on several tracks of *The Man and The Journey* live suite (1969-70), like in “*Sleep*”, for example. Since the early 70s Wright started relying solely on the ‘vibe’ sound produced by his Rhodes and Wurlitzer electric pianos

GONG (1968-1972) - The gong has been part of Floyd’s set since the early days and was mostly (and infamously) used by Roger, during the crescendo of “*A Saucerful Of Secrets*” and “*Set The Controls for the Heart of the Sun*” (1968). Rick has (ab)used the band’s gong for the recording of his “*Sisyphus*” (1969) suite, along with various other cymbals, tympani, snare drum, piano/tape treatments, and even Gilmour’s slide guitar. The gong was also featured in *More* (1969) on the “*Main theme*” and “*Quicksilver*”.

FLUTE (1969) - It seems that Floyd themselves (*i.e.* a Floyd member) never actually played a flute on a record (or gig for that matter) however flutes are featured in some of their recordings. Despite Rick’s love for and brief affair with wind/brass instruments (see more on trombone below), he was *not* the one who played flute, neither on “*Party sequence*” from *More* (1969) nor on Mason’s “*Grand Vizier’s Garden Party*” from *Ummagumma* (1969). Flute was apparently played on both occasions by Nick Mason’s then wife, *Lindy Mason*, who happened to be an accomplished flutist. Other flute-resembling sounds heard in early albums and singles were, in fact, mellotron flute tapes played by Rick, notably “*Julia Dream*” (1968) and “*Embryo*” (1970).

TROMBONE (1969-1970) - Rick played the trombone in the studio recording of “*Biding My Time*” (1969) and in its live renditions during “*Work/Afternoon*” (from *The Man and The Journey*) in 1969 and 1970. There is a picture of Rick playing the trombone in a 1970 Champs Elysées concert (while sitting in front of a vibraphone) that can be seen in the Photo Gallery Appendix. Still, it is highly unlikely that Rick could have performed/overdubbed the brass solo in “*Summer ’68*” (1970), more about which you can read in the Mellotron section above.

HARMONIUM (1970-1972 & 1982) - The Harmonium is a keyboard-based organ, with a small (usually three to four octaves) keyboard and knobs (usually three to seven), that also features something like an air ‘pump’, not dissimilar to the philosophy of the **accordion**. It has been written that Rick played an harmonium during the 1970 sessions for Syd Barrett’s solo albums: *The Madcap Laughs* and *Barrett*. It has also been suggested that Rick used a Harmonium in *Obscured by Clouds* (1972), with the most likely candidate tracks being “*Mudmen*” and “*Absolutely Curtains*”. However, this is also subject to debate. For example, in the section of “*Mudmen*” during the pedal steel guitar solo it is possible that Rick has used a **VCS3**, through which he may have patched his e.g. Farfisa to alter the sound’s decay and produced that wah-like effect. Michael Kamen also played harmonium in the Wright-less Final Cut (1983).

SYNTHESIZERS

ELECTRONIC MUSIC STUDIOS (EMS) VOLTAGE CONTROLLED STUDIO Model 3 (VCS3) (1971) - The band’s association with their first ever synthesizer was established when Gilmour himself visited its inventor, Peter Zinovieff, in the latter’s laboratory in Putney, London. The VCS3 was a portable synthesizer with 3 voltage controlled oscillators, a noise generator, a ring modulator and other modules interconnected by means of a matrix patchboard. The oscillators generated sine waves, square waves and saw-tooth wave signals, which could be programmed through the ring modulator or a series of the other filters in different combinations. The **Synthi A** (formerly *Portabella*) had the same specifications as the original VCS3, but fitted in an attached briefcase. So, technically, it is not accurate to credit the **Synthi A** as the ‘VCS3’, because the original VCS3 was actually an earlier model produced two years earlier (1969). The VCS3/Synthi range was the British answer to the (American) Moog, also used by Wright two years later. According to various sources (including the EMS archives) the **VCS3** was used in the *Meddle* (1971) sessions, so it is almost certainly a VCS3 used in the middle (‘Dr Who’) section of “*One Of These Days*” (for the record, the *BBC Recording Workshop* did actually use the VCS3 for the original theme of the *Dr Who* TV series). Another VCS3 ‘candidate’ from *Meddle* could be the melody towards the crescendo in the final part of “*Echoes*”. The Floyd’s **Synthi A** offered a wide range of possibilities but it took the band another year to discover what they could really do with it. They clearly liked the *wind* noises it produced, though!

EMS VCS3 Synthesizer Model A Keyboard Sequencer (VCS3 Synthi A KS) (1972 - present) - A later "suitcase" version of the **VCS3** with attached sequencer and keyboard, also referred to as '**Synthi A KS**'. The **Synthi A KS** had the same specifications as the **Synthi A** (see paragraph above), but it also included a blue capacitive touch-sensitive *miniature keyboard* and an integrated *sequencer*. First used in the title track of *Obscured by clouds* (1972) and in "*Free Four*" (1972) for the single-note drone that accents the verses. The same single-note drone is also featured in the intro of "*Time*" (1973). Its first noteworthy utilisation, and what set it apart from the earlier **Synthi A** model, came by experimenting with its integrated sequencer compartment, to create the sequence for "*On The Run*" (originally laid down by Gilmour, later replaced by Waters'). It was also used as part of the layers in the 'orchestra'-like intro of "*Shine On You Crazy Diamond*" Part 1 (where four separate VCS3 parts were recorded to form the 4-note seventh chord) and the sweeping effects in "*Shine On You Crazy Diamond*" Parts 8-9 (1975); for the live versions of "*Obscured by clouds/When you're in*" (1973-74) and for "*Raving and drooling*" (1974-75) and "*Gotta be crazy*" (1974-75). **VCS3** was heavily featured in "*Welcome To The Machine*" (1975) and was also used for various effects in *Animals* (1977). It is a common misconception that the strict drum patterns heard in the intros of "*Obscured by Clouds*" (1972), "*Childhood's End*" (1972) and "*Time*" (1973) were simple 2-step octave sequences programmed with the VCS3, however they were in fact Roger's Fender Precision Bass pickups being picked by Waters. Floyd kept the two VCS3 synths and used them concurrently in the studio, as can be seen in the Photo Gallery, by all of them except Mason. They carried a **Synthi A KS** (with the blue-lit keyboard) in the 1994 tour, which can be seen -in action- in the recent *Dark Side Of The Moon - Classic Albums DVD*. Gilmour -not Wright- still keeps it in his studio to this day.

MOOG Minimoog Synthesizer (1973-1977) - The Minimoog was the world's most popular analogue synthesizer at some point, so it was just a matter of time for the Floyd to get their hands on one. Wright used the Minimoog for many years mainly as a solo lead instrument and in the *Dark Side*, *Wish You Were Here* and the 1973-75 tours, and used it as his main synthesizer in the *Animals* (1977) album and tour. According to his own admission, Wright used the Moog for the first time in "*Any Colour You Like*" (1973) by overdubbing the echo-heavy synth leads. He started touring with a Minimoog in the *Dark Side Of The Moon* 1973 tour (the '72 tours did not feature a Minimoog). A Minimoog was also famously used for the synth 'horn' sound in "*Shine On You Crazy Diamond*" parts 1-9 (1975). Wright also used **Moog Taurus Footpedals** for additional bass drones in the complex introduction of "*Shine On You Crazy Diamond*". A Minimoog was used for the main synth melody of "*Have a Cigar*" (1975) and in the live versions of "*Raving and Drooling*" (1974-5) and "*Dogs*" (1977). There is some ambiguity as to which synth leads are played with a Minimoog and which with a **VCS3**. As a rule of thumb, the sweeping synth effects and drones are made with a VCS3, whereas most post-*Dark Side* leads are played with a Minimoog. Floyd's gear during the '77 tour included no less than three(!) Minimoog units. It is believed that the parts that were originally recorded with a VCS3 for the studio version of "*Welcome to the machine*" were recreated with the Minimoog in the '77 Tour, and that Rick did not actually carry a VCS3 on tour with him in 1977. Parts that featured the VCS3 (e.g. the intro of "*Shine On You Crazy Diamond*" and the middle section of "*Dogs*") were played back by the Front-Of-House engineer who triggered tapes (specially prepared from the multitrack recordings) that contained some synth layers and other noises and effects, so that Rick could play Hammond and Minimoog on top of them. A certain amount of debate covers the use of the Minimoog during *The Wall* recording sessions. The solo of "*Run like hell*" sounds like a Minimoog but it is more likely that Wright used the polyphonic **Prophet V** instead (the Prophet was also an *additive analogue* synthesizer, capable of producing very similar sounds to the Minimoog but could do much more). The distinctive Moog lead sounds were also used in latter years, for the solos of "*Wearing the Inside Out*" and "*Keep Talking*" (1994), which Wright performed with a **Kurzweil K2000** instead (see separate section).

It has been suggested that a Moog synth may have been used for the recording of "*The Narrow Way*", but it is quite unlikely that the Floyd would have access to one during April-June 1969. George Harrison had one especially made for him and used it in *Abbey Road*, which was recorded before August 1969, and Floyd were recording in Studio No 2 'next door' so, in theory, an engineer may have 'allowed' Gilmour to use some of the equipment from No 2. On the other hand, it has been well documented that the Floyd only met the Beatles (while still a recording unit) once, during *Sgt Pepper*, and that Studio No 2 was known as the Fab Four 'shrine', and hence not that much of a 'free access' area. So, it is rather unlikely that a Moog is featured in *Ummagumma* and the fact that a 'Moog' was mentioned probably stems from the latter's popularity later in the '70s than an actual fact. However, the question remains: were the effects heard during "*Narrow way part 1*" manipulated guitar effects? Was it, indeed, a Moog? Or did Abbey Road studios have access to an early VCS3 (the model also used by the *BBC Radio Workshop* for *Dr. Who*) in 1969? The most likely assumption is that Gilmour fed his guitar signal through some of the studio's modulation/frequency-altering devices, thereby achieving a similar effect without using a 'proper' synthesizer unit (yet).

ARP SOLINA STRING Ensemble / Odyssey / QUADRA Synthesizer (1972-1981) - The ARP (acronym for the company's founder, *Alan R. Pearlman*) synthesizer series became popular, especially in the US, primarily for their string sounds. The 'Solina String Ensemble' (model IV) otherwise known as the 'String Synthesizer' was apparently first used in *Obscured by Clouds* (although it was definitely not part of Rick's keyboard rig yet) during "*Absolutely Curtains*" (1972) and by Gilmour in the intro to "*Childhood's End*" (1972). The **Solina String Ensemble** model V was probably the first ARP synth to become a part of Wright's rig, from 1974-75 onwards, and it was unofficially dubbed as 'The Floyd's String Machine'. Other British artists started recording with an ARP in '75, including Mike Oldfield whose album *Ommadawn* (1975) also featured the same string sound. Wright undoubtedly left a mark by using it for the high-string layers in "*Shine On You Crazy Diamond*" and in all of the tracks of *Wish You Were Here* (1975), as well as on "*Dogs*" (backing the guitar harmony section), "*Pigs*" and "*Sheep*" (1977). The string sounds are also prominent in *The Wall* 1980-81 live shows, e.g. during the "*Almost Gone*" improvisation (officially titled "*Last Few Bricks*"). It is, however, a subsequent ARP model that was used in *The Wall* sessions (it is debated whether it was a **Quadra** or the more popular **Odyssey** -possibly a Mk III).

EMS Synthi Hi-Fli Guitar Synthesizer (1973-1977?) - The 'Hi-Fli' (originally named *Sound Freak*) was the first British guitar synthesizer, a concept/device that was very innovative at the time (1973) and was bound to appeal to Gilmour, given his aptitude for experimenting with his guitar sound back then (also see section on MiniMoog above about the effects in "*Narrow Way part 1*"). According to EMS' description, the **Hi-Fli** was 'a guitar treatment unit built as a console on a stand with two pedal controllers which could be routed as control voltages to any of the slider functions.' The Hi-Fli could be used to apply treatments to the guitar signal that were also found in other analogue synthesizers, like a ring modulator, phasing, 'waw-waw' (*sic*), fuzz, octave- and frequency-shift sliders, etc. Following the success of *Dark Side*, Gilmour acquired one and used it to great effect on stage, on the post-'73 tours. It often caused puzzlement to the audience and journalists who could not figure out what this curious 'spacey' device was doing on stage. There are certain '74-'75 performances of "*Echoes*" that feature some interesting frequency-shifting effects coming from the Hi-Fli. It is not clear if a Hi-Fli was used in *Animals*.

Korg VC-10 / EMS Vocoder 5000 (1976-1977) / **Roland VP-330 Plus Vocoder** (1987) - Although not a typical synthesizer as such, the *vocoder* is nonetheless a voice-synthesising device, activated through voice input, to add a 'robotic' quality to vocals. Floyd first used a **Vocoder** in *Animals* (recording during 1976) for Roger's lead vocals in "*Pigs*" and for the bastardised psalm on "*Sheep*", as well as for the treated barking sounds and other effects in "*Dogs*". Rick's keyboards were also fed through the Vocoder, notably during the middle section of "*Dogs*". Although it is not documented which particular model was used in Britannia Row studios for the recording of *Animals*, it is reported that they used the -now classic- **Korg VC-10** model. However, it may be possible -through Floyd's established association with the UK-based EMS and because of the production date (1976) of EMS' vocoder device, that Floyd might as well have used the EMS **Studio Vocoder** (also known as *Vocoder 5000*). Another Vocoder device was also used, ten years later, for the recording of "*A New Machine*" (1987) presumably the -extremely popular then- **Roland VP-330** model. It was Waters and Gilmour respectively who mainly operated the Vocoder device -not Wright. Yet Wright's vocoder-processed keyboards during "*Dogs*" had a most chilling effect and have become a classic Floyd moment. Being on the subject of vocal-synthesising devices, Gilmour also used a 'talk-box' device (also referred to as a 'voice-box') that has been used by Peter Dinklage and Frank Zappa among others, to manipulate his guitar signal through his mouth; in "*Pigs*" (1977) and again in "*Keep Talking*" (1994).

YAMAHA GX1 Polyphonic Synthesizer (197?) - The GX1 (also known as the **GX-1** -with a dash) was a polyphonic synth with the distinction of being extremely rare among the synthesizer community. Wright is mentioned in various sources as having *owned* a GX1 (presumably for a brief period of time) but it is not clear *when* that was. It had an official production date of 1975 so Wright may have actually used it before the (also polyphonic) **Oberheim**. The GX1 was a legendary machine that looked more like a silver space-age cathedral organ and offered features unheard of at the time: it was polyphonic, multitimbral, had multiple (3) keyboards, nearly every note was duophonic, offered patch storage, and even had a primitive beat box. Its 'tone-cartridge' architecture and sound synthesis were (and still are) unique, which added to the fact that it was not at all straightforward to program and operate. It was developed by Yamaha as a test bed for later consumer synths (the **CS50**, **CS60** and **CS80** were its descendants) so only about 50 were produced and few of them actually left Japan. ABBA's Benny Andersson had one, Stevie Wonder had two; and Keith Emerson had at least two, one of which he bought from Led Zeppelin's John Paul Jones and one recently sold to Hans Zimmer. If, indeed, Rick ever used one, it was probably a transitional instrument before he switched to the other cheaper and lighter polyphonic synths. The GX1 weighed nearly a tonne and was incredibly fragile, so a likely assumption is that Rick could not cope with the logistics of storing it and handling it, let alone touring with it (although ELP famously did).

Overall, the GX1 was a technically outstanding and highly expressive instrument that came very close to simulating the nuances of an acoustic instrument. It featured probably the only keyboard ever built that offered three modes of touch sensitivity: *velocity* sensitivity, which controlled the sound's initial attack rate and pitch; *pressure* sensitivity, which controlled pitch, volume and a full set of parameters; and, thirdly, a side-to-side 'wobble', which controlled vibrato, wah-wah and resonance. Additionally, it supported polyphonic portamento, variable sustain and modulation, which could be controlled by a *knee controller*, and a *ribbon controller* that played the pitch of each key, not unlike a fretless bass or a cello. All that is impressive even for today's standards. It is remarkable then, that there are no known recordings of GX1 in the Floyd (or Wright's solo) canon, despite Wright's name persistently appearing in the lists of those who have owned one.

OBERHEIM FOUR-VOICE Polyphonic Synthesizer (1977-1978?) - It is certain that Wright used an **Oberheim** synthesizer, but not which model exactly; and this was probably the **4-Voice**, the first *polyphonic* synthesizer to be announced at the time -along with Moog's *Polysynth*. All of the synthesizers mentioned above (except from the **GX1**) were monophonic, *i.e.* capable of producing only one note at a time. It is possible that an Oberheim was part of the equipment in Floyd's *Britannia Row Studios*, where both *Animals* (1977) and *Wet Dream* (1978) were recorded, but it was almost certainly not used in *Animals* at all. The credits of *Wet Dream* (1978) mention "Oberheim synthesizer" so it is safe to assume that Rick got his hands on one circa 1977-8. The familiar synth horn lead in "*Mediterranean C*" is played with the Oberheim, harking back to the brass melody of "*Atom heart mother*" and "*Summer '68*", a sound he would try again, in 1994, for "*Wearing the inside out*". Rick probably did not use the Oberheim for too long, favouring the superior **Prophet V** (see below) which appeared a year later.

SEQUENTIAL CIRCUITS (SCI) PROPHET V Polyphonic Synthesizer (1979-1981) - Wright acquired this polyphonic synthesizer when it first came out and used it for *The Wall* sessions and live shows. **Prophet V** was the first fully programmable analogue synth that offered unsurpassed (until then) polyphony, could play multi-sounds & effects with echoes & repeats, and had extremely flexible analogue filters, envelopes and LFOs. The **Prophet** quickly became the de facto '80s analogue classic, inevitably favoured by the synth pop bands of the 'romantic' era, but its sound and programming flexibility (notwithstanding its *instability*) made it a favourite among people like *Rick Wakeman*, *Peter Gabriel*, *Laurie Anderson* and *Richard Barbieri* (who uses it as his main synthesizer with *Porcupine Tree* to this day) as well as to synth pioneers like *Vangelis*, *Jarre* and *Tangerine Dream*. Even now, Wright refers to the Prophet as his 'favourite synth'. This poses a bit of an argument regarding the debate about how much of the keyboards/synthesizers heard in *The Wall* (which was -by Floyd standards- not that much anyway) was actually played by Wright, as opposed to session musicians. The keyboard/synth credits for *The Wall* has been a very 'sticky' issue, indeed. Through the years, it has been assumed that most of the keyboard duties were not handled by Wright, but by Bob Ezrin, Pete Woods, Freddie Mandell and Michael Kamen (even Gilmour claims to have played some). Yet, this might be a slight exaggeration, for all we know. It is unanimously accepted that Rick did not 'pull his weight' during the recordings. However, it is also known that Wright *did* play keyboards up until the point when Roger made it clear that neither him nor Mason would receive a production credit. It is well-documented that, once Ezrin was established as the arbiter of the sessions, Wright lost interest and got himself infamously 'sacked' after the summer of '79. Therefore, several keyboard parts were left unfinished including the finishing overdubs (obligatory, because of the way the Floyd demoed the material), and keyboards for tracks that were only finished later in the process (e.g. "*Nobody Home*"). James Guthrie, who co-produced and engineered the sessions, has said that 'Rick did some great playing on that album, whether or not people remember it - some fantastic Hammond parts'. It would then be fair to say that Wright did contribute up to a certain point in the album's development. Generally speaking, the keyboards in *The Wall* assumed a role very different to that of previous Floyd albums. There was a lot of material, the tracks had to be 'tighter', so there was not much space for extended sections and solos. The overall production (heavily influenced by seasoned hard-rock producer Ezrin) called for guitars that were harder, full of delay and flanger and keyboard parts that suited the mock-heavy rock style of tracks like "*In The Flesh*", "*Young Lust*" and "*Waiting for the worms*", so inevitably the focus was on 'rock organ'-type Hammond parts and piano that was quite different to Rick's usual jazzy style. Several sections were orchestrated and had to be precise, something that Rick -an improvisation fan and not the most competent pianist- could never really cope with; whereas session keyboardists could. On demand and on the spot; exactly the way Waters and Ezrin would like. Synthesizers were relatively subdued in the album and nowhere near as prominent as in previous albums: adding a certain 'edge' in places (e.g. the piano-complementing synth sweeps in "*Thin Ice*" or the synth-behind-the-vocal melody in "*Goodbye blue sky*"); providing atmospheric 'embellishments' (like the unmistakably "*Sheep*"-reminiscing passages of "*Don't leave me now*" or the synth in "*Is there anybody out there?*") and complementing some orchestral parts. All in all, a far cry from the band's adventurous keyboard arrangements. So, assuming that several of Rick's Hammond parts were actually used, surely

some of the synth parts were also played by him; otherwise why would Rick say that the Prophet was his favourite synth? The synth solo in “*Run Like Hell*” (1979) is the only prominent synthesizer spot in the album, along with the intro of “*Empty Spaces*” and the ending chords of “*Another brick in the wall, part 1*” and were all most probably played by Rick. The synth sound in “*Run like hell*” -which harks back to the MiniMoog- he would use again, fifteen years later, in “*Far from the Harbour Wall*” from *Broken China*. The remaining keyboard parts and overdubs were, indeed, played by others: most -if not all- piano parts were played by Woods and Kamen; Woods also played electric piano; some Hammond parts (e.g. “*In the Flesh*”, “*One of my turns*”) were played by Freddie Mandell; and the synthesizer overdubs were probably handled by Ezrin; a keen keyboardist/synth player in his own right.

As soon as *The Wall* shows came to an end, Wright went sailing in the Greek isles. With the exception of his brief involvement with the **Fairlight**, as part of the ill-fated Zee duo in 1984, Wright missed out most of the synthesizer development of the 1980s, until his lukewarm ‘comeback’ in ‘87.

ROLAND Super JX (JX-10) Analogue/Digital Synthesizer (1986-1989) - This Roland synth was a popular digital/analogue hybrid model. It was used in *Momentary Lapse Of Reason* by Jon Carin, Pat Leonard, Bob Ezrin et al. It has to be said that -despite the **Super JX** being one of the most acclaimed and programmable synths of its time- it did not, in hindsight, suit the band’s sound at all. The keyboards throughout the ‘87-’89 tour, as heard in *Delicate Sound of Thunder* (1988), were perhaps appropriate for the band’s latest offering at the time (*A Momentary Lapse of Reason*) but definitely did not do justice to older tracks, such as “*Echoes*” (only performed a handful of times in 1987), “*Welcome to the machine*” or even the staple “*Shine On You Crazy Diamond*”. Unfortunately, Wright, Carin and the late-80s touring technicians fell into the trappings of ‘modernising’ their synth gear, which resulted in an ‘80s-sounding’ sound that has dated quite badly. Wright and Carin used the **Super JX** in the 1987-89 tour, until Floyd decided to switch exclusively to **Kurzweil** synths/samplers. This largely improved the situation and for the 1994 tour Andy Ledbetter, the band’s keyboard technician, took great care to program the Kurzweil series so that the band’s vintage synth sounds could be faithfully reproduced, despite being played by digital samplers. Jon Carin, the band’s second (or as some argue, main) tour keyboardist, should also be given credit for this, as he aptly demonstrated in Floyd’s 1994 tour and in Roger Waters’ 1999-2000 tours. The synth textures in Waters’ “*In the Flesh*” tour were extremely faithful to the vintage sounds -perhaps even more than on *p.u.l.s.e* (1995)- with “*Shine On...*” and “*Dogs*” (live 2000) being two cases in point.

KURZWEIL K250 / K1000 Sampler/Synthesizer (1986-1988?) - The specifics of the synth equipment used for the recording of *Momentary Lapse* (during 1986-87) are a bit hazy. With the exception of the **Super JX** (see above) which is verified, Floyd (*i.e.* Gilmour, Ezrin, Leonard and Carin, rather than Wright) also used a ‘Kurzweil’ and they even explicitly mentioned it on the credits (something unheard of since the explicit mention of the VCS3 in the *Dark Side* sleeve). Wright again had very little involvement in the recording (he joined Gilmour & Mason towards the end of the sessions) so he mostly played Hammond parts and piano on a few tracks (“*On the turning away*”, “*Terminal Frost*” and “*Sorrow*”). It is also likely that the ‘Kurzweil’ used in the *Momentary Lapse* sessions was a **K250** and not a model of the **K1000** series that was also available at the time. For the live tour, Floyd’s rig also included the **Kurzweil MIDIBoard** MIDI Controller. Floyd switched to Kurzweil synths and samplers exclusively, on their latest tours. As a trivia sidenote, the Kurzweil series came with a built-in PINKFLYD program as a preset, which used 31 Layers and almost every single parameter available to simulate “*On The Run*”. All of the sequence was created by means of triangle waves, square waves, and white noise and was programmed by Daniel Fisher (who got employed by Kurzweil because of that!). This was later demonstrated to Floyd, who were sufficiently impressed to consider using the equipment on the road. To their own (and the audience’s) amusement, during the ‘performance’ of “*On The Run*” in 1987-89, the band blatantly left the Kurzweil playing the sequence on its own (with a red spotlight on it) while they disappeared from stage.

KURZWEIL K2000 / K2000RS & K2000VP Digital Synthesizer (1993-to date) The first all-digital synthesizers used by Wright & Carin in the *Division Bell* and the subsequent 1994 tour, marked the point from which Wright and Carin fully embraced digital samplers/synthesizers. The **K2000** was used in the studio. For the live tour, Floyd’s rig also included the **Kurzweil MIDIBoard** MIDI Controller, the **K2000RS** rack units and the **K2000VP**. The **Kurzweil K2000** series was also used by Rick in *Broken China* (1996), along with the **MIDIBoard**, an **AKAI S1100** sampler and an **E-mu Proteus 2** **Orchestral** Sample Playback Unit (for samples of strings, cello and orchestral instruments) as part of his rig. Wright also used a **K2000** for the sampled acoustic piano sound, when he performed “*Wish You Were Here*” in the induction of Pink Floyd at the *Rock-n-Roll Hall Of Fame* in 1996. Rick seems to have settled at **Kurzweil** synths, a notion that is also reinforced by the fact that Wright, Carin & Wallis appeared on a Kurzweil magazine advertisement in the mid-90s. You can read more about the **Kurzweil** series in the SAMPLING & SEQUENCING section below.

SAMPLING & SEQUENCING

MELLOTRON (1968-1971) - Rick Wright's use of the Mellotron is more extensively discussed in the dedicated paragraph (above), but the 'Tron' definitely deserves a mention in this category, as it is essentially the first (analogue and manual) sampler in history. It reproduced pre-loaded sets of tapes, each with recorded notes for existing instruments (most famously strings, flutes, choir and brass). Mellotron has been notorious as a highly vulnerable instrument (Robert Fripp's comments on King Crimson's adventures while touring with a mellotron are priceless). It required constant tuning and was extremely volatile, which explains why it was exclusively used in the studio by Floyd. A black **Mellotron M400 Mark II** belonged to the band between 1968-71.

TAPE EFFECTS (1967-1983) - Not an instrument as such, but a crucial element of Floyd's sound nonetheless. Floyd have been using reel-to-reel tape recorders and loops of tape-recorded effects since day one, initially with the aid of their early producer Norman Smith, who had previously worked with the Fab Four (the latter being, among other things, pioneers of Stockhausen-influenced tape experimentation). In the analogue days, there was no other way to reproduce the bits of *musique concrète*, the spoken dialogues, voices and assorted sound effects used by the band. Almost every single record up until *The Final Cut* (1983) features some sort of effect, played back from multitrack tapes. In *Ummagumma* (1969) Floyd displayed impressive prowess with manipulated tape effects, whereas the *Dark Side Of The Moon* (1973) famously featured dialogues, clocks, heartbeats and tossed coins. Had the abandoned *Household Objects* (1974) project come into fruition, we would have been treated with a complete piece made of such taped sounds, but this was not to be, although "Shine On You Crazy Diamond part 1" (1975) famously features a taped recording of tuned wineglasses, taken from these sessions. From the early stuff of *The Piper at the Gates of Dawn* (1967) and its assortment of morse code, bike sounds and various squeaky noises; the animals in "Several Species..." and the bird sounds (almost a Floyd-trademark) in *Ummagumma* (1969) and *More* (1969); the breakfast-making noises from "Alan's Psychedelic Breakfast" (1970) as well as the horse and motorcycle sounds in *Atom Heart Mother* (1970); the 'footstep sequence' during the 1970-71 live performances of "Cymbaline"; the (VSC3-generated) wind in "One of these days" (1971) and the cheering crowd singing *You'll never walk alone* in "Fearless" (1971); the tribal chant in "Absolutely Curtains" (1972); to the instantly recognisable clocks in "Time" (1973); the cash register sounds in "Money" (1973); the bar noises in the coda of "Welcome to the machine" (1975); the AM radio wave scanning noises in "Have a cigar" (1975); the various animal sounds in *Animals* (1977), etc. By the time of the *The Wall* (1979), the subsequent *Music From The Film* (1982) and *The Final Cut* (1983) Floyd had been using a vast array of spoken bits, TV dialogue, cars, phone operator conversations, smashed objects, helicopters, explosions and assorted sounds and noises that were seamlessly incorporated into the music, to the point that they were featured as an essential instrument. Waters continued to rely even more on such effects in his subsequent solo releases, particularly in *The Pros and Cons of Hitch-Hiking* (1984) and *Amused to Death* (1992). But this tradition went strong in post-Waters Floyd releases as well, with the opening boat sequence in "Signs of life" (1987); the dialogue in "Terminal frost" (1987); the 'earth noises' in "Cluster One" (1994); the carousel in "Poles Apart" (1994); Stephen Hawking's voice in "Keep Talking" (1994); the boxing ring sounds from "Lost for Words" (1994); and the bee buzzing and bell tolling of "High Hopes" (1994). Tape effects have been used in Floyd records as if they were an extra musical instrument. Most of the effects heard on records, had to be played back in live gigs, by multi-track tapes especially prepared for the live shows, that were fired up at the appropriate time during the band's performance.

SAMPLERS & SEQUENCERS - (1986 - present) - During the band's absence from the recording circuit (under the Floyd banner) between 1983-86, the first commercially affordable digital samplers appeared from Fairlight, E-mu and AKAI and the recording industry was taken by a storm with all the new MIDI sequencing hardware, samplers, guitar synthesizers and digital effects pedals & machines available -despite the recent 'return' back to the 'vintage' analogue sound, since the 90s. Wright did use the **Fairlight CMI Series II** for his 1984 album with *Zee*, his short-lived duo with Dave Harris but -luckily for all of us- he has not used it since; at least not in public! It was during the 1986-87 sessions for *Momentary Lapse* that Bob Ezrin and Gilmour first made use of samplers and sequencers. *A Momentary Lapse Of Reason* (1987) was Floyd's first (and last) album to be recorded digitally, with the exception of the bass guitar, Tony Levin's Chapman stick and some guitar parts (such as the solo & the big guitar sound that opens "Sorrow"). For the first time in Floyd's recording history, **Simmons SD-55** electronic drums were used and a **Kurzweil K250** sampler was hooked to an **Apple Macintosh** computer running **Steinberg Cubase**, which served as the MIDI sequencer software. It should be noted that the term 'sequencer' is now used in a new context and refers to the sequencing of the tracks in the multi-track recording process -as opposed to patterns programmed in a synthesizer.

On tour, the Floyd crew used the **Kurzweil K2000** series exclusively (see below), mixed through **Yamaha DMP7** which, despite popular belief, were *not* running under MIDI command. So there were no sequencer patch changes calling up pre-set mix/mute/effects configurations on the **DMP7** via MIDI for each song or song part, during the *Momentary Lapse* or *Division Bell* tours. This way, Wright & Carin were responsible for what they used and when they use it, and the DMP7s 'simply served as conveniently compact, dependable sub-mixers, configured in rehearsals for the balance of each group of instruments.' According to Andy Ledbetter, Floyd's keyboard technician since the *Delicate Sound Of Thunder* tour, the post-1987 Floyd don't use any MIDI cues, because in the Kurzweils every separate sound has its own output, volume control and effects. However, they did use **Roland MC50** sequencers, where necessary, for some of the more complex studio parts, which are now sampled, so backings and timing tracks tend to be run from the sequencer. A standard click-track was fed across the stage where necessary, using an **RX11** whose pattern is set from the **MC50**. Because the stage is very wide, keeping the different members of the band in sync has become an increasingly difficult task, so Jon Carin was responsible for his own rig's **Roland MC50s** for roughly 30% of the 1994 show, on songs which have a central sequence. Whereas, in the '70s, all that used to be on backing tapes, handled live, with cues given by the Front-Of-House mixer and the live sound engineer. Many of the original special effects that were done on analogue multi-track have been upgraded to the newer formats, because of the convenience and reliability of the samplers. So, most of the effects were sampled during the last two tours and were not played from DAT tapes.

Both Wright and Jon Carin shared a number of different samplers, rack modules and keyboards made by Kurzweil, the **Kurzweil K2000** & **K2000VP**, controlled by the **K2000 MidiBoard**. Kurzweils were used on *Momentary Lapse* and *Division Bell* sessions but mainly on *Delicate Sound Of Thunder* and *Pulse* tours to sample piano and other keyboard sounds, as well as 'vintage' synth and other Wright-trademark sounds, which would otherwise not be easily duplicated (with the notable exception of the **Hammond B-3** organ, whose tonewheel sound is deemed irreplaceable). Custom **K2000** and **MidiBoard** racks and keyboards with 64Mb of RAM each (which were 'full to burst') were used to carry the samples (and were backed up daily on SyQuest tapes, when on tour!).

Finally, in the two last Floyd tours, as far as the synchronisation between sound & video is concerned, very few of the video sequences that are projected onstage were synchronised with the music. Floyd were originally using a click track for *The Wall* 1980-81 shows, which meant that the performance had to be rigid and strictly paced. The standard routine in the live music business since then has been the use of a (more accurate) SMPTE timecode track running on one of the two 16-track tape machines on the mix riser, however this was not used by the '90s Floyd either. Only the film at the beginning of "Money" was timecoded in the '94 tour, because of its synchronised sound with the cash-register quadraphonic effects; the films for all the other songs were just triggered by visual cues. In certain cases a click-track was used so that the timing of each band member's parts was more accurate, but even that was not absolutely critical because the films did not use any lip-sync (with the possible exception of the '87-'89 live performances of "Dogs of War", which featured Gilmour singing the opening line and had to be in sync). So the video-sound synchronisation aspect was dealt with in a relatively low-tech way, in order for the performances to keep being as varied as possible.

Of course that was back in 1994. Since then, the use of software has been extended to stage performances to the point where computers (even laptops) have assumed an increasingly important role in live gigs, outside the confines of the recording studio. Nowadays, Floyd members have all embraced software solutions in their respective studios: Gilmour's studio has been equipped with **Apple Macintosh G4s** running **DigiDesign Pro Tools**, whereas Rick Wright's own home studio (built with the help of Anthony Moore) had an **Apple Mac** running **Steinberg Cubase**, at the time *Broken China* (1996) was released. Roger Waters' latest portable studio (recently built by long-time Floyd/Waters engineer/producer Nick Griffiths) uses **Apple Macs** with **Emagic Logic Audio Pro**. All three studios have favoured **Mackie** consoles. Also of note is that it is not Rick Wright, but Bob Ezrin, David Gilmour, Jon Carin and Patrick Leonard who seem to take the credit for most of the sequencer and sampler use in *Momentary Lapse*, *Delicate Sound Of Thunder*, *Division Bell* and *p.u.l.s.e.* Since 1987, Jon Carin, Andy Ledbetter (on tour) and even Gilmour (for the *Division Bell* sessions) have been involved with the programming aspects -with Garry Wallis also being credited for drum and percussion programming). It was not until his latest solo effort, *Broken China* (1996), that Wright started catching up with modern samplers, digital sound processing and programming. Even now he freely allows, for instance, Anthony Moore to handle the programming duties, while he enjoys a more 'traditional' keyboard playing role. With a heritage so rich and seminal during the first 15 years of his career, who can blame him?

Pink Floyd Keyboard / Synthesizer & Electronics gear Photo Gallery

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Figure 1 - Farfisa Compact Duo Organ with Binson Echorec Unit & azimuth pan pot
(from the Paris *Interstellar* Exhibition)



Figure 2 - Azimuth co-ordinator 'quadraphonic' pan system (from the Paris *Interstellar* Exhibition)



Figure 3 - Rick 'setting the controls': Farfisa, Binson Echorec & Azimuth 'joystick' pot (Crystal Palace, 1971)



Figure 4 - Rick performing his 'Turkish Delight' solo during 'Set the controls' with his Farfisa (circa 1972)

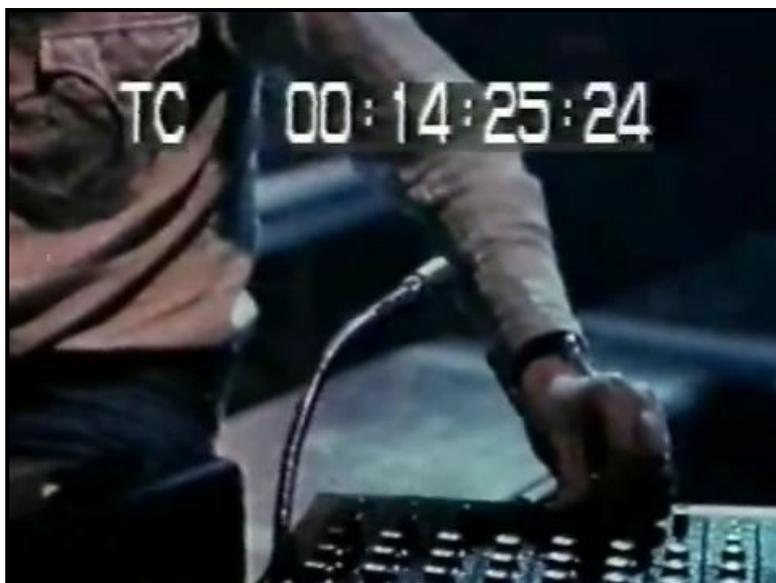


Figure 5 - Rick tweaking the knobs on what looks like a delay unit (circa 1972)



Figure 6 - Rick playing a Hammond RT-3. Farfisa combo (with Echorec) in the background (Pompeii, 1972)



Figure 7 - Rick's Hammond RT-3 (from the Paris *Interstellar* Exhibition)



Figure 8 - Black Mellotron M400 Mark II - Floyd's very own specimen (refurbished in the '90s)



Figure 9 - Another black Mellotron M400 Mark II model (donated to the Synth museum by Bob Fripp)



Figure 10 - Steinway & Sons Baby Classical Grand Piano - during 'A Saucerful of Secrets' (Pompeii, 1972)



Figure 11 - Rick plays the trombone during "Work/Afternoon" ("Biding my time") in front of a vibraphone (Les Champs Elysees, 1970)



Harmonium

Figure 12 - A typical 4-knob Harmonium (in wooden case)



Figure 13 - The EMS VCS3 - 'Putney' Synthesizer. First used in *Meddle* (1971)



Figure 14 - EMS VCS3 Synthi A - 'Portabella'



Figure 15 - Rick (left) with a VCS3 'Putney' and Dave (right) with a Synthi A 'Portabella' (circa 1971-72)



Figure 16 - EMS VCS3 Synthi AKS - Essentially, a Synthi A with a Keyboard & Sequencer compartment



Figure 17 - The modified VSC3 Synthi AKS model that Floyd use to this day (owned by Gilmour)
(from the Paris *Interstellar* exhibition)

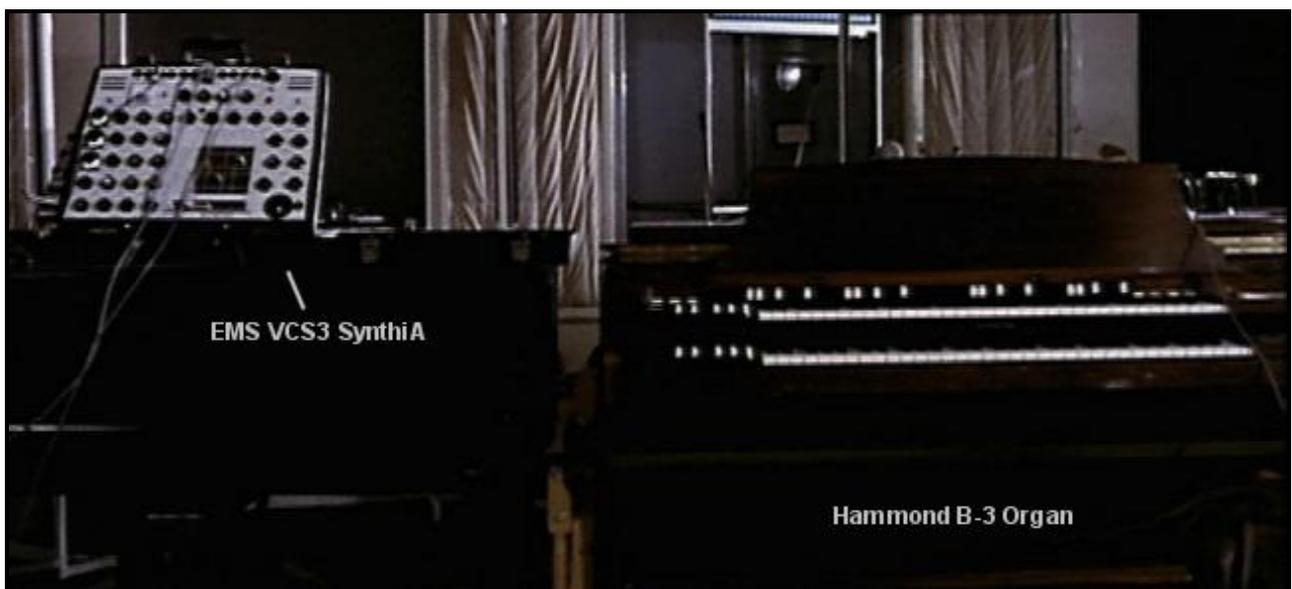


Figure 18 - Floyd Equipment in Abbey Road Studios (circa 1973): A VSC3 Synthi A & a Hammond B-3 organ



Figure 19 - Rick in Abbey Road Studios, circa 1973. (l-r): a Wurlitzer EP-200 white electric piano; a Steinway Baby Classical grand piano; a VSC3 Synthi A; and a Hammond B-3 organ (stills from the Pompeii video)



Figure 20 - A vanilla white Wurlitzer EP-200 electric piano. Used in the studio.



Figure 21 - A black Wurlitzer EP-200A. Used by Rick on tour.



Figure 22 - A Rhodes Stage 73/88 Mark I Electric Piano. Used from 1976 and since.

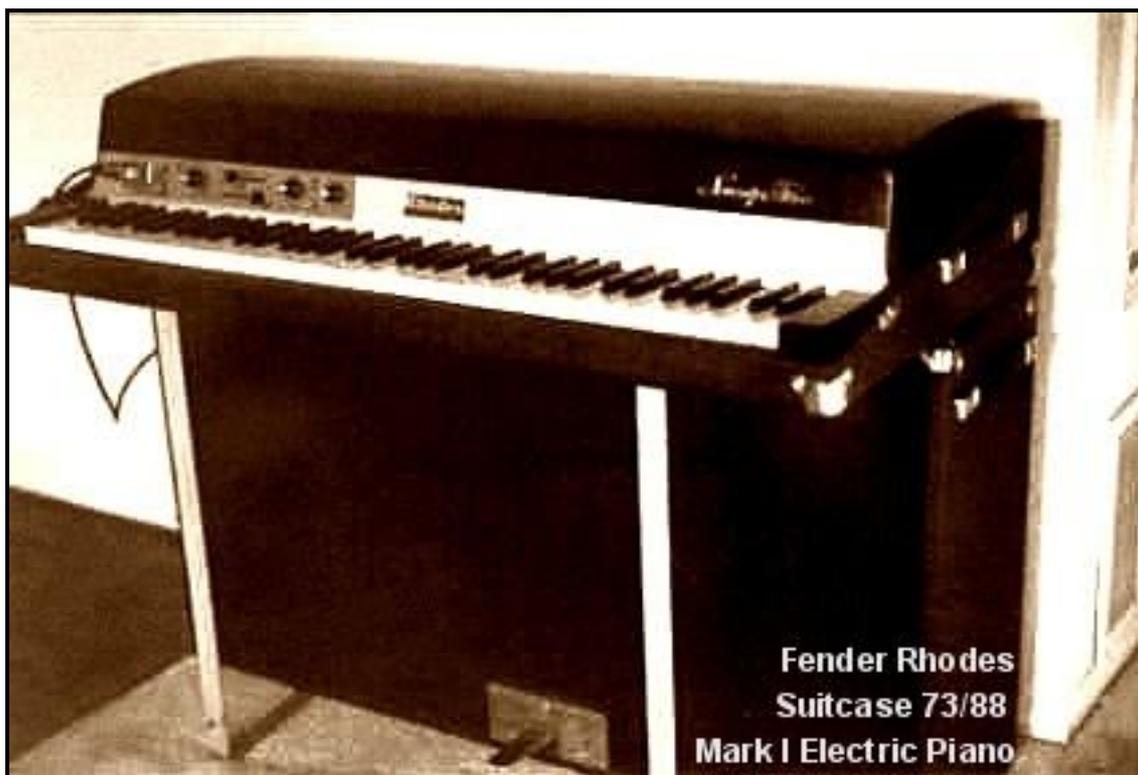


Figure 23 - A Fender Rhodes Suitcase 73/88 Mark I Electric Piano. Used in 1972-73.



Figure 24 - The ARP "Solina" String Ensemble Synthesizer



Figure 25 - The MOOG Minimoog synthesizer (from the Paris *Interstellar* Exhibition)



Figure 26 - EMS' own *Studio Vocoder* (a.k.a. *Vocoder 5000*) manufactured in 1976



Figure 27 - The EMS Synthi Hi-Fi guitar synthesizer. Used by Dave in 1973, 1974 and 1975 tours.



Figure 28 - Dave with his Hi-Fi, circa 1974



Figure 29 -Moog Taurus II Footpedal Synthesizer. Used by Rick in “Shine On You Crazy Diamond” (1975)



Figure 30 - Rick's Clavinet D6 used between 1975 and 1978 (from the Paris *Interstellar* exhibition)



Figure 31 - The Korg VC-10 Vocoder. Used by Roger, Dave and Rick in the *Animals* sessions (1976).



Figure 32 - One side of Rick's 1977 rig: 2 Minimoogs on top of a Hammond B-3 and a 3rd Minimoog (right)



Figure 33 -Rick on stage 1977: playing a Rhodes Stage 73/88 electric piano. His Steinway grand piano is also nearby. An APR Solina is close to the Minimoogs+Hammond stack (shown in Figure 32 above).



Figure 34 -The Yamaha GX1 polyphonic synthesizer. Rick has allegedly owned one.



Oberheim Four-Voice PolySynth

Figure 35 - An Oberheim Four-Voice Polyphonic Synthesizer. Used by Rick circa 1977-78.



SCI Prophet V

Figure 36 - A Sequential Circuits Prophet V polyphonic synthesizer (used by Rick during 1979-81)

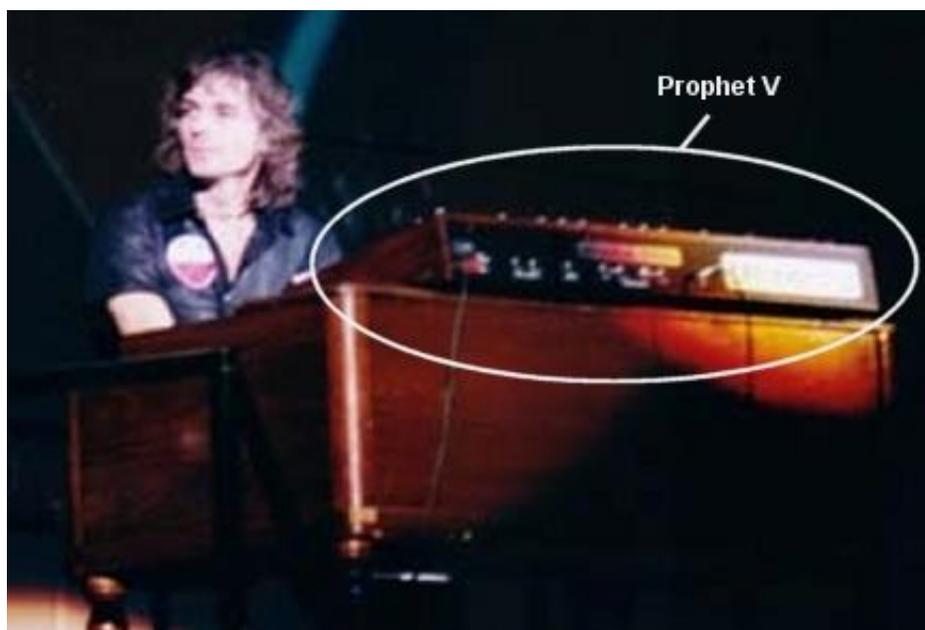


Figure 37 - Rick during *The Wall* shows (1980-81) behind a Prophet V stacked on top of a Hammond B-3

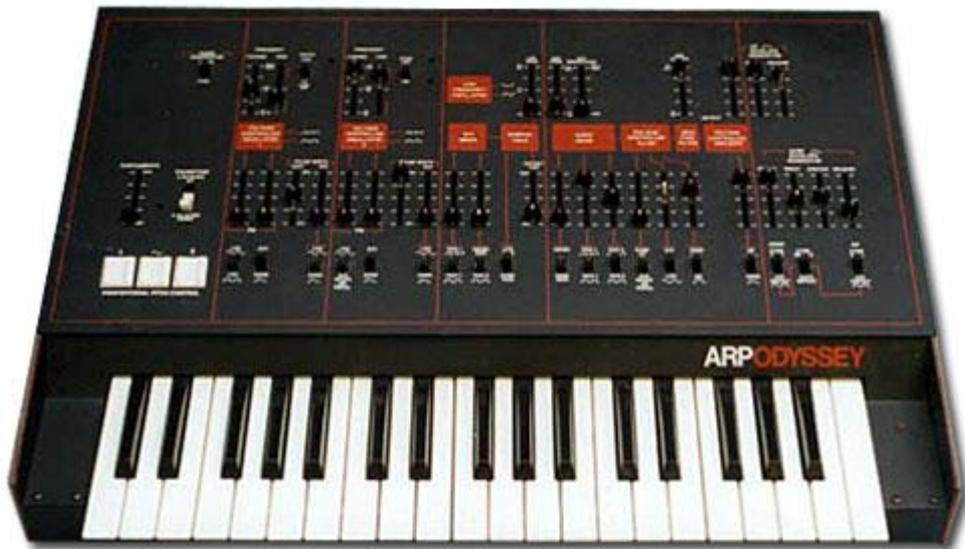


Figure 38 - An ARP Odyssey (mark III 1976-81) synthesizer (likely to have been used in *The Wall* shows)



ARP Quadra

Figure 39 - An ARP Quadra synthesizer (likely to have been used by Rick in *The Wall* shows)



Figure 40 - Rick during *The Wall* shows playing an Accordion, next to Roger singing 'Outside the wall'



Figure 41 - David (solo 1984) with a Yamaha TX7/DX7. Floyd never got to use the massively popular DX7.



Figure 42 - A Fairlight CMI (Series IIx) sampler/synthesizer. Only used by Rick in Zee's *Confusion* (1984)

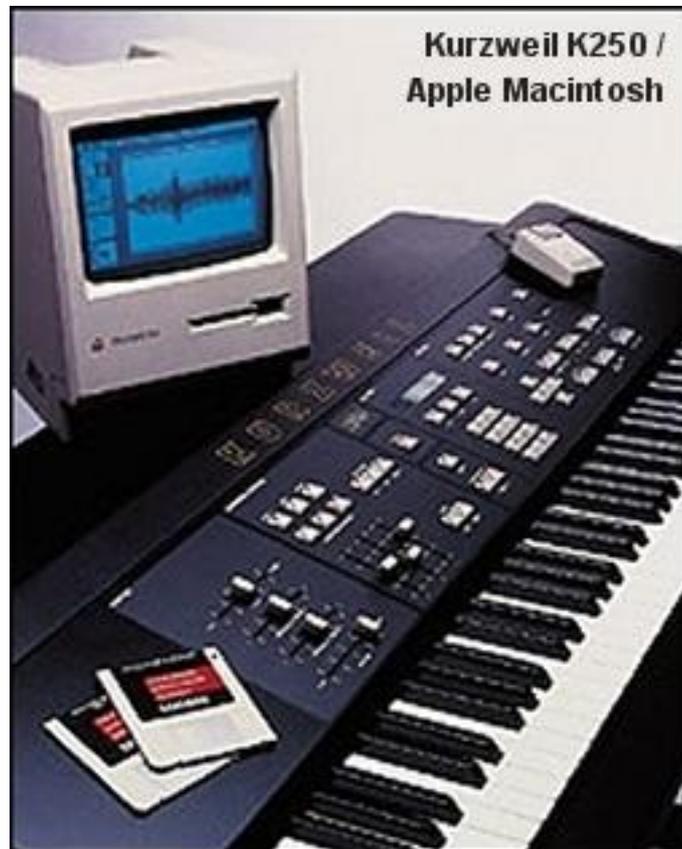


Figure 43 - Kurzweil K250 sampler with a Macintosh Pro running Cubase. Used in *Momentary Lapse* (1986)



Figure 44 - A Kurzweil MIDIBoard master keyboard. Used in *Momentary Lapse* (1986) and subsequent tours



Roland Vocoder VP330 Plus

Figure 45 - A Roland Vocoder VP330 Plus. Used in the *Momentary Lapse* (1986) recording sessions.



Roland Super JX

Figure 46 - A Roland JX-10 (Super JX). Floyd's main synthesizer during 1986-1989.



Figure 47 - Rick playing a Roland Super JX (Venice, Italy, 1989)



Figure 48 - Rick playing a Kurzweil. To his right, a Hammond B-3 organ (Knebworth, 1990)



Figure 49 - A Kurzweil K2000. Floyd's main sampler/synth in the 1990s.



Figure 50 - Rick live in 1994: playing a Kurzweil K2000VP. In the background, a Hammond B-3 organ.



Figure 51 - The Kurzweil K2000RS. The rack-mountable version of the K2000 used by Wright & Carin.



Figure 52 - A Hammond/Suzuki XB-5 Portable Dual-Manual Digital Tonewheel Organ.

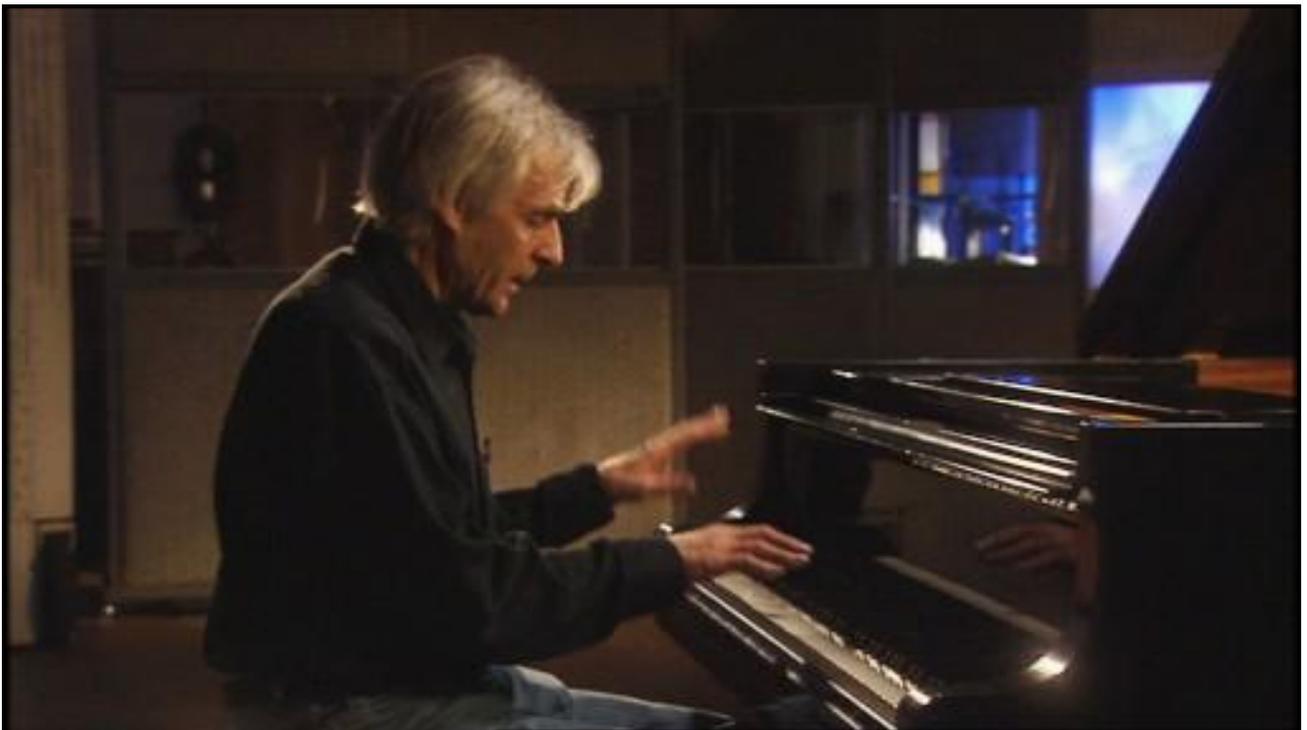


Figure 53 - Rick in 2002 demonstrating *Us and Them* on his Steinway & Sons baby grand piano.

Richard Wright's Home Studio Gear (circa 1996)



AKAI S1100 Digital Sampler



Tascam DA40 DAT Recorder



E-mu Proteus/2 Orchestral Digital Sample Playback Unit



Alesis D4 Drum Machine



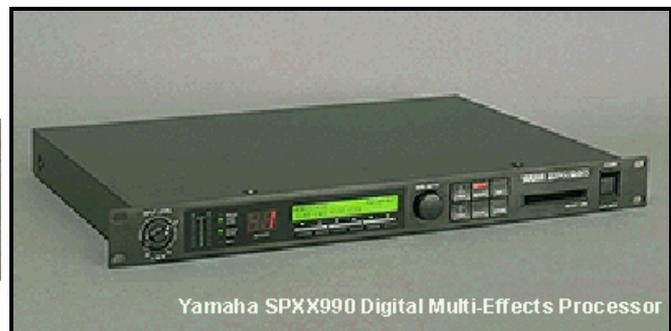
Drawmer DL241 Dual-Channel Audio Compressor



Urei 1176 Mono-Solid State Compressor



Lexicon LXP-5 Multi-Effects Unit



Yamaha SPX990 Digital Multi-Effects Processor

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'Trembling hand' graphic on first page by Storm Thorgerson, John Crossland and Peter Curzon.

Tables, listings and information contained in this document are only partially complete and are bound to be 'work in progress'. For additions/corrections please contact:

amazing_pudding@hotmail.com

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Due to the anarchic nature of the research conducted (notwithstanding the anarchic structure of the web itself), it would be difficult to accurately list every single online source. However, the following sources have played a major role in shaping this document :

- *Vintage Synth Explorer* – www.vintagesynth.com/
- *SynthMuseum.com* – www.synthmuseum.com/
- *Sound On Sound Online Archives* – www.sospubs.co.uk/sos/
- *Electronic Music Studios (EMS) Homepage* - <http://www.ems-synthi.demon.co.uk>
- *Echoes mailing list* – www.meddle.org
- *SpareBricks webzine* – www.sparebricks.cjb.net

The original draft of this document was based on a significant amount of information about the band's vintage equipment that was culled from the WatersFloyd.com website, where the content of posts submitted by **WrightKeys** to the *alt.music.pink-floyd* online forum was reproduced, as well as information courtesy of Mr Mike Kiker. These web pages have since been removed, so no exact link can be given at present. Those looking for the original *alt-music-pink-floyd* posts may search them manually in Usenet archives. New posts can also be searched in <http://forums.pinkfloyd.co.uk/>.

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 - Glenn Povey & Ian Russel – *Pink Floyd: In The Flesh, The complete performance history*, Bloomsbury, 1997
 - Joel Chadabe - *Electric Sound, The Past and Promise of Electronic Music*, Prentice Hall, 1997
 - MOJO magazine features & interviews (1993, 1999, 2001)
-

This document would have been grossly inaccurate without the information of WrightKeys. Many thanks are due for his posts on Rick's organs and electric pianos.
