

Adam Andre

Ann Harris

GT-2920 Moving Image and Sound: Basic Issues and Training

30 November 2016

VX and the Quasar VR-1000 “Great Time Machine”

In the 1970s and 1980s, video technologies were evolving and changing rapidly. Electronics companies were trying to balance good technology with what consumers used and liked most. Because of all of this experimentation, new formats were created, launched, but then quickly replaced by a newer, better, more user-friendly format. Some formats stuck around but most were thrown by the wayside and forgotten, becoming obsolete. The VX videocassette and its corresponding playback/recording machine VR-1000 “Great Time Machine” certainly reside in the graveyard of forgotten (and abandoned)



video technologies.

The VX videocassette is a 1/2 inch magnetic tape video format that was launched in 1975 in Japan. It was created by the Matsushita Electric Industrial Company (now known as Panasonic) for the consumer market.¹ Like the 1972 predecessors Video Cassette Recording format (VCR, not to be confused with the VCR machine) and Cartrivision format, the VX is designed with two reels of 1/2 inch tape stacked on top of one another, with a loop reel at the opposite end of the cassette.² The stacked reel/take-up reel design gives the VX an enunciated size and shape. The cassette itself 8"x5.5"x1.75"³, making it about twice as thick as a Video Home System (VHS) cassette.⁴



The housing of the cassette is indented on two corners of the same side. This was an ergonomic feature so that the cassette could be gripped when loading and unloading it from the VR-1000 machine. On the top of the cassette, at the same end as the indentions, there is a transparent panel that allows you to see the take-up reel. On the panel are markings that

¹ The Museum of Obsolete Media is run by Jason Curtis. On his site, obsoletemedia.org, is a timeline of many of the now obsolete video formats. Each format has its own page with a history and specifications. The site is extremely easy to navigate and became quite a helpful source.

² See Mr. Betamax source, which provides a terrific picture gallery of the VR-1000 machine with arrows pointing to each of the machine's tiny parts that would be hard to identify otherwise.

³ I couldn't find the exact dimensions of the cassette elsewhere, but my instructor Ann Harris graciously gave me an actual VX video cassette which she purchased off of ebay.com. Being able to actual hold and play with one was an invaluable resource.

⁴ A Youtube user by the name of VICNASTY1989, one of my two video sources, demonstrates this comparison of thickness to the VHS cassette.

correspond to the amount of time (in minutes) that has already been recorded onto the tape. The loop opening is almost completely enclosed in the housing for reasons that are crucial to how the VX cassette and VR-1000 “Great Time Machine” operate.

The VX’s distinct features are located on the side and bottom of the cassette. On one side of the cassette, there is a sliding spring-loaded door labeled “do not open”. When the tape was inserted into the deck, a pin would pull the door open to make room for a roller. This roller would help advance the tape. The door exists and is labeled so that no dust or dirt can get inside of the housing. The two large circular holes on the bottom are the cavities of the loop and the stacked supply/take-up reels. The loop reel opening is 2 1/2” in diameter and the stacked reel opening is 3” in diameter. On the loop reel side is a series of smaller, oddly shaped holes that are unique to the VX. These

pins, and heads inside of



holes correspond to the guides, the VR-1000 machine.

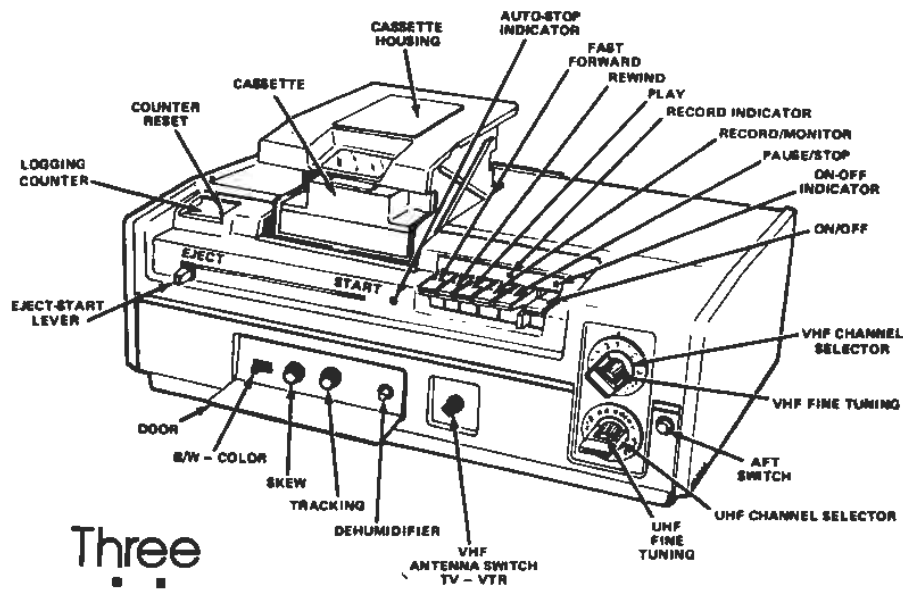
For the tape to be recorded or played, it is lowered down into the machine and the pins, guides, and heads are perfectly inserted into their respective holes on the bottom side of the cassette. So, the tape never leaves the housing of the cassette. It is this feature that makes the VX so special. On other players, like a VCR for instance, the tape is pulled completely out of the tape and is normally threaded across a significant width of the machine to be run across the video drum. With the VX and VR-1000, the video drum is inserted directly into the loop reel opening. The

tape on the loop reel is pre-formed in a spiral so that it runs across the video drum at the correct azimuth so that signal is recorded or played back properly.

Because of this particular design feature, the VX video cassette was dependent on the Quasar VR-1000 “Great Time Machine”. VX is incompatible with any other machine and the VR-1000 was incompatible with any other video format. If you had one, you had to have the other. The two were designed for one another so the VR-1000 machine had to have specific technical features that allowed it to play such an oddball⁵ format.

The VR-1000 “Great Time Machine” was a VX videotape recorder/playback deck introduced in 1976 by the Quasar Electric Company. Quasar was an American brand of the Matsushita Electric Industrial Company that had a manufacturing plant and offices located in

Park, Franklin Illinois.



⁵ John Free, in his 1977 article in *Popular Science*, refers to the VX and Sanyo’s V-Cord II deck as “oddball” because of their incompatibility.

Compared to competitor decks of the time, it's size was average at 22.5"x 8" x 12".⁶ Located on the front panel was a lever, a drop-down door that revealed a switch, two knobs, and a button, and two dials. Once the cassette was inserted into the deck, the lever could be slid to the right. This activated a cable that was attached to what is called the video head collar which simultaneously removed the plug that covered the loop opening and inserted the video drum. The switch allowed the user to record in either black and white or color. The first knob adjusted "skew". There was a playback timing error involving the starting frame on the tape that occurred every once in a while on older tube televisions and the "skew" knob allowed you to adjust the top of the picture left or right to correct the image on the screen. The second knob was a common feature called "tracking" that allowed the user to adjust how the tape made contact with the video head to correct the video signal. The button controlled a dehumidifier fan inside of the machine. The fan would be used to remove any dew or moisture that accumulated on the tape or video heads. If there was moisture present, the machine would refuse to play any tapes. The two dials were Very High Frequency (VHF) and Ultra High Frequency (UHF) channel selectors.

To the front-right of the machine were "piano key" style buttons that consisted of on/off, fast forward, reverse, stop, play, and monitor. If the user pressed the play and monitor button at the same time, it would start recording whatever was on the user's television to the the VX tape. The tape carrier is located on the top of the machine. To open the carrier, the lever at the front of the machine had to be pressed down when it was in the left position. The carrier would spring open vertically for the tape to be inserted. The carrier had to be manually pushed down into the machine. The tape is then automatically lowered into place, with the pins, guides, and heads now

⁶ radiomuseum.org proved to be an important resource because it was the only location of the dimensions of the VR-1000 that I could find. VR-1000s are nearly impossible to locate. I presume very few are left in the world, especially in working order.

inside of the tape housing.⁷ A carrier panel could be removed to have easy access to the inside of the tape deck. The video drum could be quickly removed by unscrewing a nut, releasing it from the deck. This feature was very uncommon amongst other competing tape decks. Being able to remove the video drum made it extremely easy for a user to clean the heads and conduct any maintenance necessary.⁸

The VR-1000 tape deck was referred to, and marketed as, the “Great Time Machine.” It received that name because the VT-100 Mechanical Timer that was sold separately as an attachment. The Quasar VT-100 Mechanical Timer consisted of a clock and a timer. This device was used to record specific time periods for the user. To program it, the user had to remove the plastic cover on the timer, place two plastic pins on the start and stop record times, and that’s all. The VT-100 would record to the tape during those times. It even had the ability to turn the VR-



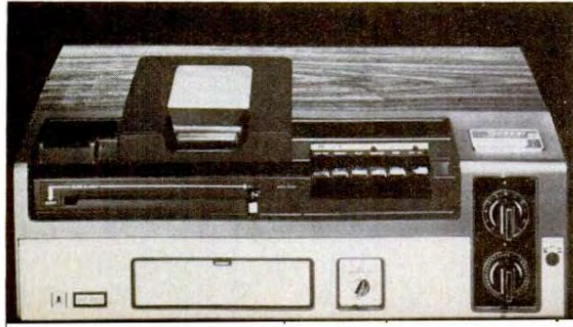
1000 on to begin recording. If the pins were not removed or reset to a different time by the user then it would record at the same time everyday. A remote was also sold separately. The remote

⁷ Mr. Betamax goes in to incredible detail about the VR-1000. A step-by-step guide on how to use the deck, specifications about components of the machine, and how each little part works is given in the description. A photo gallery with close-up photos of the inside of the deck with arrows and labels for each important piece is also available on the site.

⁸ The author at labguysworld.com mentions that this feature is easy and uncommon. Included on the site is a picture gallery of the removed video drum with exposed video heads. The site does mention that these pieces are extremely fragile and should be treated with great care.

had only one function though, to stop the recording. This allowed users to edit out commercials if they were watching while recording.

Quasar's VR-1000 VCR costs \$995 and records two hours on a single \$25 cassette. Tape speed is two ips. Dubbed The Great Time Machine, the 1000 has one video head that spins twice as fast (3600 rpm) as the two heads in other decks. An optional timer is \$50, and an add-on \$10 remote pause switch can be used instead of the keyboard pause function. Unlike other decks, tape remains in the cassette during play and the video-head drum operates inside the cassette. The rear panel has audio/video input and output jacks for camera/mike recordings or supplying a video monitor.



The VX format and the VR-1000 “Great Time Machine” were most definitely designed for the consumer market. By eliminating variables, it made it an extremely easy to use machine for its time. The price of the machine was comparably user friendly, too. In 1977, the VR-1000 was sold for \$995 with 60, 100, and 120 minute VX tapes sold for \$19, \$28, and \$34 respectively. The VT-100 Mechanical Timer was sold for \$50 and the remote was sold for \$10. The competitors’ models were much more expensive. Sanyo’s V-Cord II model 8200 sold for \$1290 with a \$70 timer and Sony’s SL-7200 sold for \$1260 with a \$40 timer. Also, neither of those machines had tapes that record up to 120 minutes like the Quasar VR-1000 did.⁹

But by late 1977, the competitors’ technologies got better and cheaper than Quasar’s. RCA’s VBT 200 tape deck sold for \$1000, had a built in timer, and sold a four hour cassette for

⁹ An advertisement in *Popular Science* from April 1977 compares the abilities and prices of these 3 machines. It also provides a labeled diagram of the VR-1000.

\$25. Sony's SL-8200, which used beta, sold for \$1300 but included an automatic cassette changer that extended record time to four hours. JVC's HR-3300U Vidstar boasted the most compact tape deck. It utilized the newer, less clunky VHS tape format and those two hour tapes sold for only \$20. By this time, Quasar had lowered their two hour tape price to \$25, but their technology hadn't changed at all.¹⁰ An article in *Popular Science* from November 1977 addresses the saturation of new technology:

RCA's VBT200 is one of about 16 different models of Japanese-made video decks that have suddenly appeared in stores. Despite different brand names and model numbers, though, the newest VCRs use one of two incompatible tape formats: Beta, or VHS (Video Home System.)

In a few short months Quasar was left in the dust. By 1978, the VX tape cassette and Quasar VR-1000 "Great Time Machine" were no longer being produced. They became obsolete just that fast. Competitors forced the Matsushita Electric Industrial Company and the Quasar Electric Company to switch gears. In the late 1970s, Beta and VHS began to take over the home video marketplace, and it's the prevalence of these two formats that led to the death of VX and the VR-1000.

¹⁰ An article in *Popular Science* from November 1977 compares the abilities and prices of several tape deck machines, but in effect, highlights how far behind Quasar now was.



To understand what truly happened in 1977, one must address the history of the Matsushita Electric Industrial Company (Panasonic) because they played a big role in the evolution and production of videotape technology. The company was started by a 23 year-old named Konosuke Matsushita on March 7, 1918 under the name Matsushita Electric Housewares Manufacturing Works. The company established itself by selling high quality electrical fixtures. Matsushita expanded the company over the next thirty years, making everything from bicycle lamps, to irons, to radios, and washing machines. In 1953, Matsushita produced the first Japanese National television set, the 17L-531. It was monochromatic, rectangular, and was produced just in time for the boom of national television broadcasting in Japan.

Matsushita also began researching videotape technology in 1953, releasing its first professional and commercial models in 1964, none making any kind of impact on the industry until the VX format in 1975. The Motorola plant in Illinois was bought by Matsushita in 1974 and made into the Quasar Electric Company plant. The VX-100 was launched in Japan in 1975, the VX-2000 was launched in Japan in 1976, and the Quasar VR-1000 was launched in the United States in 1977. VX and the VR-1000 only seemed to act as a place holder and an avenue into the American home videotape market. At the same time, Matsushita and the Japan Victor



Corporation (JVC) were secretly developing a new videotape technology, the VHS.¹¹

In 1977, the Matsushita Electric Industrial Company launched the “Maclord”, the first home VHS video tape recorder. In February of that same year, Matsushita signed a long-term supply contract with the Radio Corporation of America (RCA) for VHS which led to the RCA VBT 200 which was a direct competitor to the Quasar VR-1000. Matsushita deliberately killed

¹¹ All of this information comes from the Panasonic corporate history webpage. It provides a nice timeline with loads of specific company and product information. It’s quite comprehensive and even addresses the hardships and negatives that Panasonic endured.

their own technology for the sake of a newer, better one. VHS went on to become the dominant format in the videotape format wars. So, the Quasar plant narrowed their focus to manufacturing low-cost television sets.¹²

The VX cassette and the Quasar VR-1000 did two important things for the videotape industry as a whole. VX was one of the first formats to really push the boundaries of videotape recording length. It help to start the long-play videotape craze with its two hour recording time. The VR-1000 was Panasonic's initial entrance into the United States in the realm of videotape technology. It played a small, forgotten but significant part in bringing the VHS technology to America, a format that was used and loved by millions across the world for over thirty years. So for that, VX and VR-1000, we thank you.

¹² A *New York Times* article that addresses the acquisition of the plant in Illinois from Motorola. Includes quotes from employees about the impact, or lack there of, that the Japanese company Matsushita has made on their lives at the factory.

Annotated Bibliography

"Betamax PALsite : Betamax Features Guide." *PALsite*. PAL, n.d. Web. 29 Nov. 2016.

Provides details about the distinguishing features of Betamax as compared to other formats. Includes a detailed picture gallery of the betamax's features.

Curtis, Jason. "Video Formats." *Museum Of Obsolete Media*. Museum Of Obsolete Media, n.d. Web. 29 Nov. 2016.

An actual timeline of all of the major video formats, including VX. Allows you to easily see which format lead to the next. Includes links to each format with detailed descriptions.

Curtis, Jason. "VX (1975 – 1977)." *Museum Of Obsolete Media*. Museum of Obsolete Media, n.d. Web. 29 Nov. 2016.

Places the VX format into historical context by putting it on a timeline. Mentions the launch date of the product. Speaks on the technical specifications of the VX format, particularly its stacked coaxial reels. Also provides clear pictures of the VX cassette at a variety of angles.

"Film-Tech Forum: Anyone Here Familiar with Cartrivision?" *Film-Tech Forum*. Film-Tech, n.d. Web. 29 Nov. 2016.

A forum for self-proclaimed technology geeks with a post that mentions the price of the 2 hour VX cassette at \$34.99 and mentions the playback machine was bought in the summer of 1977. Includes a picture of the machine and cassette.

Free, John. "How Good Are They? New Long-Play Video-Cassette Recorders." *Popular Science*. Bonnier Corporation, n.d. Web.

Comprehensive article that compares playback machines from JVC, RCA, Zenith, Quasar, and Sanyo. Includes pictures of the machines with prices and a detailed diagram of how long-play tape is recorded. Also mentions that Quasar's machine is incompatible.

"Great Time Machine VR-1000." Great Time Machine VR-1000 R-Player Quasar Company, Franklin. *Radiomuseum.org*, n.d. Web. 29 Nov. 2016.

This website includes a picture gallery of "The Great Time Machine" playback machine and the VX cassettes. It also provides technical specifications of the playback machine including its manufacture date and site, size and shape, power type, and much more.

Hayes, Thomas C. "THE JAPANESE WAY AT QUASAR." *The New York Times*. The New York Times, 15 Oct. 1981. Web. 29 Nov. 2016.

A New York Times article about the acquisition of the Quasar manufacturing plant in Franklin Park, Illinois from Motorola. Provides detail about the sale and renovations to the plant. Includes interview quotes from the factory's employees. Compares what a Japanese company is doing to what an American company could have done. Comments on Quasar's competition and market share.

"Headquarters News." *Matsushita Electric Becomes Panasonic Corporation | Headquarters News | Panasonic Newsroom Global*. Panasonic, n.d. Web. 29 Nov. 2016.

Announcement of the name change of Matsushita Electric Industrial Co. to Panasonic Corporation. Gives a brief history with dates of the names of the company.

Kwan, Kim, Fumio Maki, Ryoshin Minami, and Joung-hae Seo. *Acquiring, Adapting, and Developing Technologies: Lessons From the Japanese Experience*. N.p.: Springer, n.d. Google Books. Google. Web.

Touches on all of the different companies and choices for magnetic video recording technology in the early 1970s, including Matsushita. Mentions statistics about television sets in the home.

"LabGuy's World: 1976 Quasar VR-1000 Great Time Machine." *LabGuy's World*. LabGuy's World, 9 Jan. 2005. Web. 29 Nov. 2016.

This website goes into the distinguishing features of the playback machine, mechanical timer, and VX cassette. The author tells you how to physically use the features of the machine and timer. The author gives specific measurements of some of the components inside of the playback machine. There are also detailed pictures of the playback machine, timer, VX cassette size, and video drum and heads.

"1977 - Corporate History." Panasonic. Panasonic, n.d. Web. 29 Nov. 2016.

Panasonic's corporate history website that provides a timeline with descriptive information about the history of the company and its key products. Includes archival photos dating back to 1918.

"Quasar Great Time Machine." *Mr. Betamax*. Mr. Betamax, n.d. Web. 29 Nov. 2016.

Extremely detailed picture gallery of the inside and outside of the playback machine, mechanical timer, and VX cassette tape. Even includes a diagram of the threading pattern. Description goes into great detail about how to use the machine. Author provides bits of information about the history of the Quasar company as it pertains to the machine.

"Three Video Cassette Recorders For Your TV." *Popular Science*. Bonnier Corporation, n.d. Web.

Advertisement from 1977 with a brief description of the product that includes prices. Also includes a diagram and picture of the playback machine. Sanyo and Sony competitor playback machines are advertised just underneath it.

Traiman, Stephen. "Clearer Focus For Home Video Market." *Billboard*. Nielsen Business Media, n.d. Web.

Brief article titled about the new home video technology coming in 1977. Mentions "incompatible" Quasar VR-1000 amongst competitors.