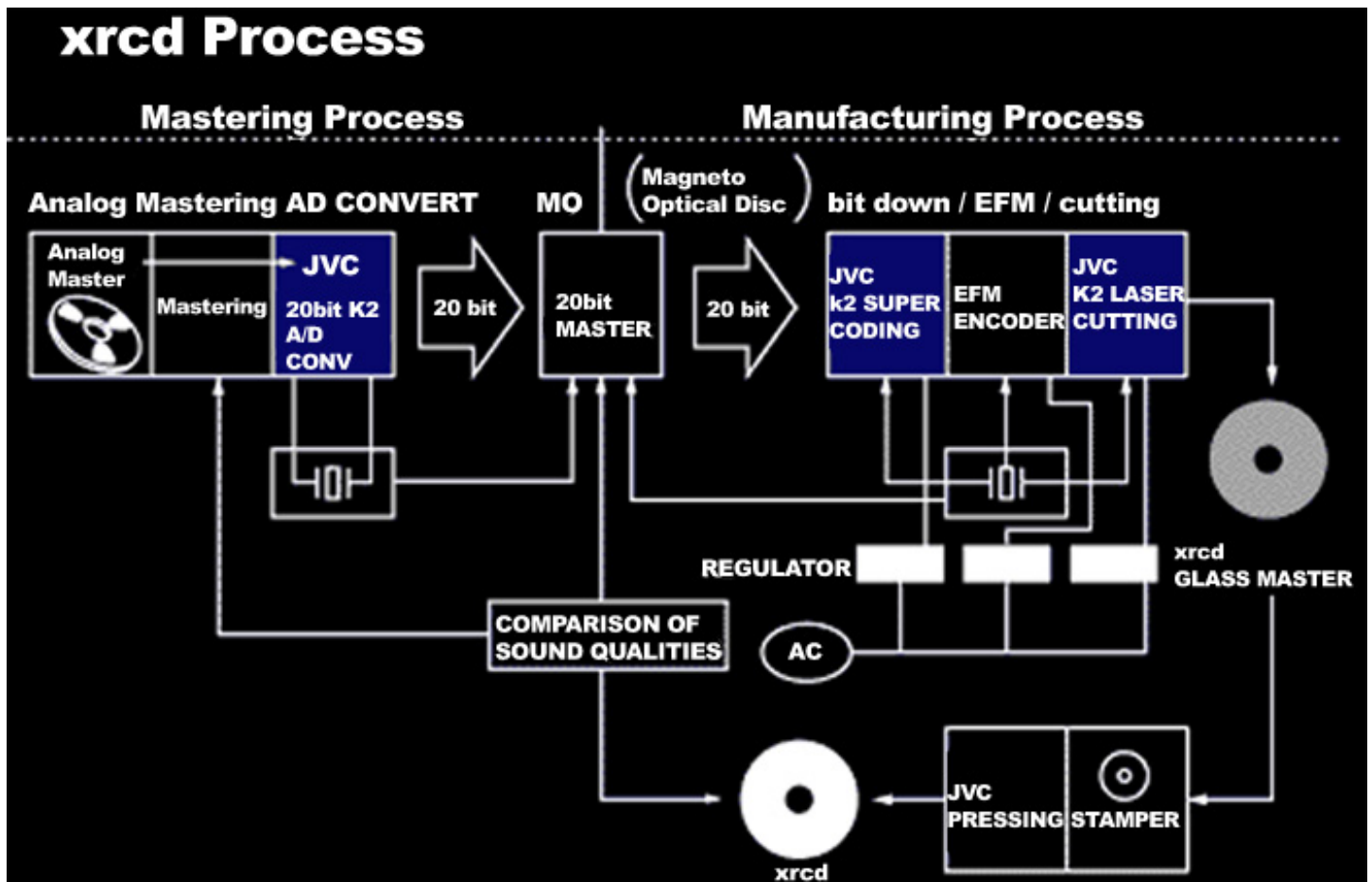


Learn About The XRCD Process!

The Extended Resolution Compact Disc (XRCD) from JVC brings the listener higher fidelity and improved audio quality! Every nuance of the performance is duplicated as it was recorded, with higher accuracy in both sound quality and imaging.

The Extended Resolution Compact Disc (XRCD) from JVC brings the listener higher fidelity and improved audio quality by enhancing the process of mastering and manufacturing compact discs. All of this is done within the current CD standard, so no special cd player or decoding box is needed to hear the benefit of the xrcd.

In most cases, after a record has been mastered, a U-matic 1630 format tape is prepared and shipped to the manufacturing plant. At this point the artist, producer, and engineers can only hope that their work will return to them in a relatively unchanged form. This manufacturing chain is not standardized, and while digitally correct, does not always reproduce the highest audio quality possible. Since the manufacturing process works as a number of components linked together in series, the overall performance can only be limited by each stage. This means that extreme care and attention must be paid to every aspect of mastering and manufacturing to get the most out of the process.



JVC has painstakingly gone through every step of the mastering and manufacturing process with the goal of retaining the highest sonic purity of the original music. This was accomplished not by just measuring the results, but in extensive listening tests to determine the best configuration. Every combination of equipment, connections, AC power regulation, word clock distribution, mastering format, delivery system and compact disc construction was tested. The result is the xrcd, a compact disc that offers clearer definition, more accurate imaging, and higher audio quality than any compact disc before.

The xrcd process starts at the mastering level. The analog signal is taken directly from the mastering console and digitized using JVC's 20 Bit K2 Super Coding. The K2 is a 20 bit, 128 times over-sampling analog to digital converter which provides a dynamic range of 108 dB, -96db THD, flat frequency response in the passband to within +/- .05dB, and a substantial reduction of harmonic distortion for low level signals. The K2 Super Coding also provides a bit down mode to convert 20 bits to 16 bits, and interface signal reshaping to eliminate time base jitter in the digital data stream.

These two functions are taken advantage of during manufacturing. The 20 bit digital signal is then transferred to a PCM-9000 using SDIF-2. The PCM-9000 stores the information on a magneto-optical disk instead of transferring it to the U-matic 1630 format tape. The xrcd process takes advantage of the stability of the magneto-optical disk, as well as its 20 bit capacity, by using it as the audio storage medium for delivery to manufacturing.

At the JVC manufacturing plant in Yokohama, the 20 bit PCM-9000 magneto-optical disk is converted to 16 bits using the K2 Super Coding in bit down mode, via a SDIF-2 connection. This stage resolves the high resolution 20 bit signal to 16 bits while retaining the integrity of the low level information, which insures a true 16 bit dynamic range without using noise shaping. The 16 bit signal is then EFM encoded.

Another K2 circuit, called the K2 Laser, is used to reshape the EFM signal right before going to the laser of the glass cutter. This last stage is the same circuit used for the K2 Super Coding interface, which eliminates any time based jitter that may be present in the data stream. Throughout this process, the word clock is amplified and distributed to the other stages to keep signal quality at a maximum. Similarly, all equipment is run off regulated AC power feeds to provide a pure base from which to work. All cables and connections between equipment use the SDIF-2 interface for sonic quality and music integrity. Tests determined the SDIF-2 offered a superior transmission of digital audio, far above the AES/EBU standard. A variety of materials, including 24K gold and pure copper were tested. Ultimately aluminum was decided upon after extensive listening tests. The end result of this manufacturing process is the highest quality digital transfer from mastering to compact disc.

All of this attention to detail allows the listener to enjoy the music just as the artists, producer, and engineers originally intended it. Every nuance of the performance is duplicated as it was recorded, with higher accuracy in both sound quality and imaging.

This is the Extended Resolution Compact Disc!