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Orach Technic CJK MANIFEST

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What is the Orach Technic CJK Manifest?

This manifesto does not simply mark the preparation of a new writing system
It marks the beginning of a shared vision.

The Orach Technic CJK project was conceived as a bridge between two worlds
the world of ideographs and the world of alphabetic letters.

Unlike many historical manifestos shaped by conflict, power or division,
this manifesto is based on cooperation, respect and continuity

It is an open invitation to shared responsibility, shared knowledge and a shared future
Through design, structure and precision, this project does not seek separation, but unity.

This manifesto represents the preparatory phase of the Orach Technic CJK expansion
It explains our goals, methods and reasons for undertaking this project
It also defines our responsibilities toward the Chinese, Japanese and Korean writing systems

This document outlines the scope and direction of the next major phase of the Orach Technic system
The article Continuity of the Orach Technic Pro Project explains why we originally created
Orach Technic Pro

At that time, there was no font that successfully combined technical drafting and graphic design within a single system.
Such a font still does not exist today.

Orach Technic Pro represents a structured approach to technical writing
and lettering and is used in education, training and engineering.

For the same reason, we decided to begin the Orach Technic CJK project.
A multilingual and multi-technical font system equivalent to Orach Technic Pro
does not currently exist in Chinese, Japanese or Korean.

The Unicode Standard currently defines approximately 100,000 CJK ideographs
While some large-scale CJK font projects contain 20,000 to more than 40,000 ideographs,
the vast majority of modern Chinese, Japanese and Korean texts rely on a much smaller
core set of frequently used characters.

As we will discuss later in this document, a relatively small number of carefully selected ideographs
is sufficient to cover the overwhelming majority of everyday communication,
education, technical documentation and professional applications.

CJK fonts also contain many historical characters that are no longer used in everyday writing
These include characters originating from the Han, Tang, Song and Edo periods.
Today, such characters are primarily used for historical and academic research rather than modern communication.

To understand which characters are actually required today,
we searched for a modern Unicode-based list of everyday-use ideographs.
No such public list exists.

We therefore examined educational requirements and literacy standards in China, Japan and Korea.
These programs define two, and sometimes three, levels of essential characters required for literacy and formal education.
All educational character lists were consolidated into three reference documents and aligned with the Unicode standard.

At the beginning of this project, we believed that ideographs sharing the same meaning and the same Unicode value
could also share the same visual form across Chinese, Japanese and Korean writing systems
However, after comparing a number of leading CJK font families, we discovered that many ideographs differ significantly
in their visual design despite sharing the same Unicode code point.

For this reason, modern professional CJK fonts are typically developed as three separate font families, each adapted to the typographic traditions of its language.

One of the main sources of confusion during our early research was Arial Unicode MS, a font containing more than 38,000 glyphs.

In this font, a single glyph was often used for the same Unicode ideograph across all three languages. Later generations of CJK fonts moved away from this approach and introduced language-specific glyph designs for Chinese, Japanese and Korean users.

After extensive research, we compiled all characters defined by educational authorities in China, Japan and Korea as necessary for literacy and formal education

This resulted in a combined set of 7,136 ideographs.

In addition, each font includes the 100 standard ASCII characters commonly found on a US keyboard.

Using our own resources, we estimate that the Orach Technic CJK project can be completed by 2028.

Its completion will mark forty years of continuous development of the Orach Technic system. Together, Orach Technic Pro (5,845 glyphs) and Orach Technic CJK (7,136 ideographs) form two complementary writing systems designed according to the same technical and visual principles.

It is as if a single person were writing the world's major scripts with one pen and one consistent handwriting style.

The complete project will contain 12,981 characters in four weights, representing a total of 51,924 glyphs. Its value for engineering, technical communication and education is something every reader may judge for themselves.

Continius of the Orach Technic Pro Project Introduction

Orach Technic Pro was created more than 35 years ago from a simple need: a reliable technical multilingual typeface suitable for engraving.

From that modest technical requirement grew a large typographic system a font that today supports more than 1,600 languages.

In its early years, Orach Technic Pro had neither a manifesto nor a protocol. Everything developed spontaneously during the work itself; construction methods, proportions and principles changed countless times.

Every new writing system required some reform of the existing one. When work on the Arabic script began, much of what had already been built had to be corrected.

With the knowledge we possess today in this field, the entire process could be completed much faster, but by nature, a person reaches the greatest clarity only at the end of the journey.

There is a great difference between developing letters within one or two related alphabets and working on completely different scripts, such as Latin, Arabic and Indic.

Large teams of designers normally work on such systems, and even then someone must synchronize them. That synchronization determines the quality of a multilingual typeface.

We would have finished Orach Technic Pro long ago had there been no need to harmonize so many writing systems.

All this shows how much work has been invested and why it took so long to reach the form the font has today.

Although this was not the original intention, over time it became clear that a single-line writing system is excellent for technical use and even as a primary script in education, which gives it much broader application than CNC and laser engraving.

The font was originally single-line and intended for our CNC machines and plotters, but in the mid-1990s three additional styles were added — Thin, Light and Regular able to satisfy the needs of technical drawing and graphic preparation.

One of its greatest advantages is the possibility of working symmetrically in both graphics and CNC machining, something unique in the field of technical lettering.

Since the mid-1990s, type design became our main activity, financed by our companies Uncijal and InfoFORM. Because the fonts were never sold, we did not present ourselves as a type foundry, although we were formally registered as one.

The reason is simple: we believed the font must be continuously improved. Here I must note something important: had this work been done by any of the major world type foundries (without naming them), we as a relatively small company would never have taken on such a task.

As stated in the FAQ on our website, type foundries do not employ mechanical engineers specializing in CNC engraving systems; therefore, this type of work lies outside their interest and expertise.

The most powerful technical program — AutoCAD — abandoned font development long ago, considering it the responsibility of designers.

Independent designers, on the other hand, are generally not interested in technical fonts. Strict rules apply, which they neither know nor wish to follow. All this strengthened my determination to carry the project to completion.

This must be stated, briefly yet clearly, to explain how the Orach Technic CJK Manifest came into existence.

Just as Orach Technic Pro has no equivalent on the world market, there is no comparable system in CJK (Chinese, Japanese and Korean) typography.

Although the Chinese script — the foundation of the CJK system — is more than 3,000 years old, it still does not offer a solution of this type. This is entirely logical. CNC machines capable of engraving (not counting prototypes and early experiments) began to be used around 1985, and after 1990 experienced rapid development.

Engraving fonts of that time were extremely primitive, so we had to begin our own development in 1988. In China, mass production of CNC machines truly expanded only after 2000, and after 2010 became a revolution of hyper-production.

From that period onward, we became owners of Engraving PORTAL, one of the most comprehensive engraving websites, presenting global manufacturers and more than 500 producers in China.

Today we maintain an archive of approximately 1,000 CNC and laser engraving manufacturers in China. Why is this important? In order to list these companies on Engraving PORTAL, we had to communicate with many of them and obtain machine and software catalogs.

This gave us the opportunity to ask about fonts as well. For most, the question was surprising: “We sell machines, not fonts.”

Their software usually included only a few basic fonts — the same situation found throughout the world. China has major type foundries such as FounderType, and Japan has Morisawa with its century-long history; but neither offers a system like ours — a font capable of engraving precisely what it displays, without additional conversion.

This is not simply a matter of visual form, but of the writing system and construction principles that make such functionality possible.

Everything previously mentioned encouraged us to consider developing a CJK font under the same principles as Orach Technic Pro — a separate typeface, yet familiar in its structural logic.

Practically, regardless of whether a text began in English, Arabic, Indic or another script and continued with the CJK extension, it would appear as if written by one person with consistent handwriting.

During 2022 these considerations grew into a serious study of the graphic structure of CJK writing, leading to this Orach Technic CJK Manifest — a presentation of our plan and protocol for constructing the font.

Unlike 1988, when our work was somewhat improvised, today we know exactly what we intend to create. We now have stronger computing resources and access to the world's best CJK fonts, which we will compare visually, without using their digital outlines, drawing everything manually as with Orach Technic Pro.

In typography it is often said that the best fonts arise from studying existing ones; this will greatly accelerate development.

We also state the following: The Unicode Standard defines approximately 100,000 CJK Unified Ideographs. However, when we analyze the characters actually used by 99% of the population in China, Japan and Korea, the practical number is approximately 7,136 characters.

These characters, developed in four styles, will form the foundation of the future Orach Technic CJK writing system. More details on this can be found on our page: “The CJK Unified Character Set”.

CJK Manifest – Dedication

This Manifest is dedicated to my dear friend, Aleksandar D. Nikolic, who passed away long ago (in the year 2000).

Aleksandar worked at the state printing house “Glas” in Belgrade and was a great lover of letters.

In the late 80s and early 90s we worked on font development.

Letters were pasted all over the walls, shelves filled with binders of fonts, and catalogs from the largest type foundries.

Whenever he had a free day, Aleksandar (Aca, as we called him) would come to our studio just to look at and admire the letters.

We would make him a large coffee, he would sit at a table in the corner, take out his graphic loupe...

he never asked anything, he never bothered anyone, he just looked at the catalogs and enjoyed the letters.

He wasn't interested in drawing anything or participating in the work of the company.

He simply loved to look at letters and satisfy that inner, spiritual need.

Who today would go to a company just to look at letters? They would probably think the man had completely lost his mind.

There was also a binder where I kept everything I had come across about Chinese writing — more as rarities

I couldn't throw away, even though I never imagined I would one day actually work on that.

Looking through that binder, Aca asked me: how many letters do the Chinese have, and how do they write with them?

I said they were not letters but symbols — ideograms.

“If they use them to write, then they are letters,” he replied.

“Well, all right, let them be letters,” I said.

We never contradicted each other, never had sharp arguments. If our opinions differed, we always laughed.

In the binder there was a picture of a Buddhist monk writing beautiful calligraphic characters with something unfamiliar to him.

“It's not a pen, it's not a reed... what is this the monk is writing with?” he asked.

It's a special calligraphy brush made of animal hair.

“And what kind of hair is that?”

Well, I truly didn't know then. What I *did* know was that the softest was made from rabbit,
and the hardest from the chest hair of a wild boar.
So we just guessed and laughed about it.
Now I look it up on the internet — an entire story about it.

"Why don't you give me this picture so I can put it under my pillow?"
"What do you need it for when we don't even know what it says?"
"It doesn't matter," he said. "Look how good it looks."
When you hear a good song, you don't know the words, yet you like it."

That sentence of his - Give me that picture (those letters) so I can put it under my pillow"
awoke the deepest feelings in me.
"There's my brother in letters," I thought to myself.

Such love for the letter I have never seen again in my life.
At that time, for every catalog we had to write a request, ask, pay, and sometimes wait for months.
And when it arrived — it was pure joy.
Of all those catalogs and type foundries, after so many years, two remained dominant in my memory:
the German H. Berthold and the Japanese Morisawa.

If I, today, after all these years, had to say whose letters I would put under my pillow
it would certainly be the letters of Morisawa.



Rest in peace, my dear friend.

This Orach Technic CJK Manifest I dedicate to you, as a declaration of the beginning of my work on a CJK font.
I don't know if I will manage to complete it, but I'm certain of one thing: I began it with love, thinking of you.

Branko M. Stevanović
2022.

About the Chinese Writing System

When the early peoples of the Western world began carving sounds into stone,
the ancient Chinese began inscribing words.

In this lies the fundamental difference between the two great approaches to writing.
For me, the exact dates are not of crucial importance; both traditions reach deep into pre-Christian times.

There are many fine descriptions of the history of Chinese writing and its system available online,
and there is no need for me to repeat them here.

Anyone can easily find that today, so I will focus only on what I consider most important for the reader.

For the Chinese, meaning was more important than sound — the word carried the essence and had to be preserved.
From this idea, Chinese characters emerged — symbols created to record meaning rather than pronunciation.

Across a vast empire where numerous dialects were spoken, written characters became a bridge.
People who could not understand one another in speech could still understand each other on paper.

This was possible because every character represents meaning
a stable idea that remains unchanged even as spoken language evolves.

The Chinese believed:

“If we bind a character to a single sound, we lose the wisdom of our ancestors.”

This is the essence of the Chinese — and later also Japanese and Korean — logographic tradition of writing.

While dialects changed across the empire, the written form remained unified, allowing literacy to cross linguistic borders.

Western cultures, on the other hand, chose the simplicity and speed of phonetic writing — systems based on sound.
And the Serbs went one step further: they created a fully phonetic alphabet, in which one writes exactly as one speaks.
“Write as you speak” became their guiding principle — practical and accessible to everyone.

Thus, two worlds of writing emerged:

one that preserves meaning through characters, and another that preserves sound through letters,
each with its own distinct wisdom.

And just as the old saying reminds us, “One cannot compare the advantages of one system with the weaknesses of another,”
in the same spirit we attempt the following:

Our Orach Technic system does not favor either of these two writing systems, nor does it oppose them as rivals.
We simply strive to harmonize them in style, size, and writing technique
as if they were all written by someone who truly understands them,
with a single, well-formed and confident hand.

This is the main reason for our decision to begin work on the Orach Technic CJK font,
which will be fully compatible with our already developed Orach Technic Pro font.

The CJK Unified Character set

All ideographic symbols of these three scripts are defined by the Unicode Standard,
while the number of characters included in a particular CJK font is determined by the font’s creator.

The CJK character set comprises the logographic graphemes of the Chinese, Japanese, and Korean writing systems, known as Hanzi, Kanji, and Hanja. Their shared historical origin has resulted in a large number of overlapping forms.

Contemporary standards unify these characters into a single CJK system, with complete normalization and the elimination of duplicates.

Unicode Standard defines approximately 100,000 CJK Unified Ideographs, which together represent the total historical and modern repertoire of these three scripts.

However, the vast majority of these characters are no longer used in everyday practice and are largely confined to classical literature, historical records, as well as personal and geographical names.

The national standards of contemporary usage include:

China — Simplified Chinese 3500 简体中文 (+600 Special Technical Ideographs)

Japan — Kanji 2136 常用漢字

Korea — Hanja 900 漢字 educational Hanja characters

After extensive research and long-term exploration, we developed our own character selection for the InfoFORM Orach Technic CJK standard by unifying these national standards into the CJK Set of 7136 characters, in four style, Total 28.544 Gluphs which serves as the foundation of the future Orach Technic CJK font project.

We consider that the standards prescribed for primary, secondary, and higher education in these three countries are fully sufficient for a font of this type, with the possibility of controlled expansion in accordance with future developmental needs.

While working on this selection, we also identified an additional approximately 3,000 symbols

Upon completion of this work, we will create an overview of all these characters with their visual forms and Unicode code points, as we previously did for Orach Technic Pro, which will, we hope, make the process of symbol selection easier for many designers who decide to develop their own version of a CJK font.

Not only will this simplify their work, but it may also encourage them to embark on this endeavor themselves.

Memorandum - Orach Technic CJK Set

The fundamental principle of the Orach Technic Pro font is based on the fact that each of its 5,845 characters can be engraved using the same tool in the Thin, Light and Regular styles.

This is precisely the key difference between standard Thin fonts and the Orach Technic Pro font.

For example, the symbols R (reprint), TM, as well as subscript and superscript characters, are slightly enlarged compared to their usual size in order to prevent the letterforms from becoming bold and “clogged.”

Otherwise, it would be impossible to constantly change engraving tools during the working process.

We are attempting to apply this same principle to the Orach Technic CJK font as well.

While this will certainly be achievable for the CJK font itself, the challenge lies in harmonizing it with the existing Orach Technic Pro font, as the engraving tool required for CJK would need to be approximately twice as thin.

There are several possible ways to resolve this issue, and we will address them in the course of development, seeking the best possible compromise.

Since this Memorandum is primarily intended for internal use, not every detail needs to be fully documented here we mention this only as an issue that still requires further analysis, despite having already conducted preliminary tests.

Another equally important matter, also primarily for internal consideration, is the following:

In both North and South Korea, the phonetic script Hangul is predominantly used today,

while Hanja, the ideographic script of Chinese origin, is used very rarely.

According to available data, Hangul is used in over 95% of everyday communication, while the use of Hanja is reduced to approximately 3%.

This leads to a certain dilemma.

The basic Hangul alphabet, as a phonetic writing system, is already included in the Orach Technic Pro font in the form of basic letters—however, not in all of its syllabic combinations, since it is a syllabic script.

On the other hand, CJK is conceived as an ideographic, sign-based writing system.

If Hanja, as the Korean ideographic script, is almost completely disappearing from use, it is logical that its development should be placed at the final stage of the CJK font, conditionally speaking—if time allows, possibly in Version 3 or 4

A similar dilemma exists with the Japanese Kanji script.

According to general information, script usage in Japan is approximately as follows:
Kanji about 45–50%, Hiragana about 30–40%, and Katakana up to 5–10%.

Hiragana and Katakana, as phonetic scripts, have already been fully implemented in the Orach Technic Pro font.

As for Kanji, apart from companies such as Morisawa, it seems unnecessary and impractical to pursue this field. The Japanese have exceptionally well systematized typographic solutions, and they deserve the highest respect in this regard.

The only reason to develop Kanji within our project would be to achieve a fully symmetrical CJK font, aligned with the world's most important writing systems.

When comparing China and Japan, the difference is enormous—both in terms of territory and population. Regarding single-line Japanese fonts, the Japanese already provide very well-developed solutions in this area as well, including for Kanji.

From everything stated above, it follows clearly that for the first version of our InfoFORM CJK font, the most essential task is to extract approximately 3,500 Chinese ideographs, organize them by radicals together with their Unicode values taken from any system font, and structure all of this in an Excel table with three columns:
1. Unicode value, 2. Ideograph appearance, 3. Meaning

This will serve as the foundation for the first version of the Orach Technic CJK font. This work has already been completed and printed as part of the preparations for this Manifest.

For the purposes of this Memorandum, this is sufficient for now.

Protokol - Orach Technic CJK

This chapter contains exclusively internal technical and development guidelines and is not intended for public presentation on the website.

Its purpose is to document the key decisions, dilemmas, and directions of development that stand behind the project, serving as a reference for future work and for later versions of the font.

This Protocol represents a comprehensive framework connecting design, technology, and the production process. Although this information is primarily of a working nature, it provides an important record of the way of thinking, the technological limitations, and the compromises that accompany the development of such a complex writing system within a unified typographic family.

between German engineering precision and Japanese graphic systematization,
between the machine and the sign, between the tool and the script.

The first thing we had to have before starting such an extensive project was the Unicode CJK character lists.

* Unicode CJK 2025

-  CJK - Compatibility Ideographs -- UF900–FAFF.pdf
-  CJK - Extension A -- U3400–4DBF.pdf
-  CJK - Extension B -- U170–20000.pdf
-  CJK - Extension C -- U170–2A700.pdf
-  CJK - Extension D -- U170–2B740.pdf
-  CJK - Extension E -- U170–2B820.pdf
-  CJK - Extension F -- U170–2CEB0.pdf
-  CJK - Extension G -- 30000–3134A.pdf
-  CJK - Extension H -- U31350–323AF.pdf
-  CJK - Extension I -- 2F800–2FA1F.pdf
-  CJK - Extension J -- U323B0–33479.pdf
-  CJK - Unified Ideographs -- U4E00–9FFF.pdf
-  CJK - Unified Ideographs Extension -- U2EBF0–2EE5D.pdf

These 13 Unicode lists have a total of about 2,000 pages and define 102,000 ideograms.
and they form the basis of every CJK Unicode number.

CJK Orach font Statement

This document outlines the design principles and reference materials used during the development of the custom Orach Technic CJK font family in accordance with global typographic standards.

The entire Orach CJK font was originally drawn as a single-line typeface intended for specialized font formats used in CNC and Laser-engraving workflows. From this single-line base, three fully compatible styles Thin, Light, and Regular were developed as .ttf fonts.

These styles share no common points with any existing CJK fonts.

During the design process, CJK characters from various professional typographic sources and systems were studied. This included reviewing the work of leading international type foundries to better understand the structural logic, proportions, and commonly used radicals found in Simplified Chinese, Traditional Chinese, Japanese, and Korean scripts.

No digital glyph outlines from any source were used in the creation of our fonts.
Every character was independently drawn as an original single-line construction.

The resulting font family consists of three proprietary styles - Thin, Light and Regular that maintain full geometric compatibility with one another.

This project represents entirely original design work and is not based on the outlines of any existing commercial typeface. All glyphs were manually constructed to ensure complete originality and technical consistency across the entire family.

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