

A GUIDE TO JAPAN'S PATENT SYSTEM

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for

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The practices as represented in this paper as of June 1995 are those that exist under the present laws of Japan and the United States. Recent agreements which have not yet been enacted into law may result in significant changes in the near future.

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FOREWORD

With the globalization of research and development, the collection and analysis of foreign scientific and technical (S & T) information have taken on added importance in the strategies of companies. Corporations must carefully weigh available information to determine the real costs and benefits of international scientific and technical cooperation.

In recent decades, Japan has emerged as a technological superpower, and is now the leading generator of patents worldwide. This is important since patents often figure prominently in U.S.-Japan corporate licensing agreements and technical alliances. As Japan continues to expand its basic research capability and open its R&D system to international participation, the importance to the United States of a better and more detailed understanding of the Japanese patent system is likely to increase.

Since 1987, the Office of Technology Policy's Asia-Pacific Technology Program has helped U.S. companies and researchers leverage Japanese science and technology through the publication of technical assessments and studies, and its many other activities. This *Guide to Japan's Patent System* continues this tradition and discusses:

- Characteristics of Japanese Patent Documents
- Differences Between the U.S. and Japanese Patent Systems
- Difficulties in Working with the Japanese Patent System
- Search, Retrieval and Translation Strategies
- Relevant Organizations and Information Sources

We hope that this *Guide to Japan's Patent System* will provide you with the information needed to make the best possible use of Japan's expanding S&T information.

Graham R. Mitchell
Assistant Secretary of Commerce
for Technology Policy

PREFACE

This *Guide to Japan's Patent System* is meant to be an introduction to understanding the issues and participants in Japan's patent process. It is an overview of the differences between Japanese patent practices and those in the West and some of the challenges in seeking patent protection in Japan. The resources outlined in this Guide will help you continue your research and point you to experts that can answer your specific questions about Japanese patents. The Guide is not a legal text. Nothing can substitute for a good patent attorney.

Patents are at the heart of the U.S.-Japan technology relationship. These technical documents provide more than legal protection for innovation. They give insight into technological developments, predict scientific breakthroughs, and show the effectiveness of government policies. Leaving aside the issue of Japanese inventiveness, patent information supplies fascinating competitive data on both technology and industry. As the past decade of trade disputes shows, serious scientists and corporate managers ignore Japanese invention and patenting at a considerable risk. It is hoped that this Guide will alert readers to the necessity of tracking Japanese patenting strategies and pursuing an active campaign to protect their own intellectual property.

Gathering information on Japan is demanding, especially on sensitive industrial and scientific developments. You must take a Japanese approach in your research on Japan: never be satisfied with one answer or one source. Patents are an important part of a successful information gathering program on Japan. The main objective of this Guide is to develop the reader's critical judgment about information from and about Japan.

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June 1995

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The staff of the Japan Information Access Project owe the following people and organizations a great deal of thanks for their help in preparing this report on the Japanese patent system. In the U.S. government, we hold a special debt of gratitude to Dr. Phyllis Genter Yoshida of the Department of Commerce's Asia-Pacific Technology Program, who helped see this project come to fruition. Without her support and guidance this book would not have been possible.

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Mindy L. Kotler
Director, Japan Information Access Project
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I. PATENTS AND INTELLECTUAL PROPERTY

Intellectual Property

Intellectual property (IP) is the broad definition for intangible assets owned or claimed by individuals, corporations, or other entities that are the product of innovation and knowledge. Intellectual property rights (IPR) are the legal rights that are provided by the various forms of intellectual property, including patents, copyrights, trademarks, mask works, industrial designs, and trade secrets. The World Intellectual Property Organization (WIPO) defines intellectual property as:

the rights relating to literary, artistic and scientific works; performances of performing artists, phonograms, and broadcasts; inventions in all fields of human endeavor, scientific discoveries; industrial designs; trademarks, service marks and commercial names and designations; protection against unfair competition; and all other rights resulting from intellectual activity in the industrial, scientific, literary, or artistic fields.

The United States is one of the 153 member countries of WIPO, which is an agency of the United Nations (UN).

What Is a Patent?

A patent is a legal right granted for a limited period of time by a national government or an international intergovernmental authority to individual inventors or applicants so that they may profit from their inventive labor. Patents can protect industrial and technical innovations.

A U.S. patent grants its owner the right to exclude others from making, using, or selling the claimed invention in the United States. Inventions covered by patents typically include products as well as processes for making or using new or existing products.

The Function of a Patent System

A patent system fulfills two roles. It provides legal protection for inventions while, at the same time, it ensures that knowledge of those inventions is available to the public.

The U.S. Patent Act of 1952 is a codification of common law, judicial precedent, and statute going back to 1790.

United States

In the United States, patent rights are protected by statutes authorized by the Constitution, Article I Section 8, that states

The Congress shall have the Power...To promote the Progress of Science and useful Arts, by securing for limited Times to Authors and Inventors the exclusive Right to their respective Writings and Discoveries.

The legal framework established by the above quoted section of the Constitution emphasizes the rights of the individual inventor. The U.S. patent statute is contained in Title 35 of the United States Code and is interpreted and applied by the federal courts. The U.S. Patent Act of 1952 is a codification of common law, judicial precedent, and statute going back to 1790. The patent statute has been revised substantially on several occasions since it was created in 1790, the most recent of which occurred in 1952.

The U.S. Patent and Trademark Office (USPTO) administers the examination and granting of patent rights in the United States. The USPTO is a largely self-sustaining agency under the jurisdiction of the Department of Commerce. The Commissioner is nominated by the President and confirmed by the U.S. Senate.

Japan

In Japan, patent rights are protected by the Patent Act of 1959, which has been frequently amended. Japanese patent law, first codified in 1895, was patterned after the German [Prussian] Code of Civil Procedure, but borrowed aspects from the French Civil Procedure. Although judicial precedent is considered, statutory law prevails. Administrative guidance and discretion influence decisions.

The Japanese Patent Office (JPO) administers the examination and granting of patent rights in Japan. The JPO is an agency of the Ministry of International Trade and Industry (MITI) and is under the direct supervision of both MITI's Machinery and Information Industries and Trade Policy Bureaus. The Patent Commissioner is a senior, career MITI official appointed by the MITI Minister. After a two- to three-year term he usually retires to a position as an adviser to private industry.

Why Patents Are Important to the United States

There are economic and political reasons for the importance of patents. Patent protection encourages domestic innovation, helps determine corporate strategies, and provides access to international scientific and technological information. Ownership of patent rights can control markets, regulate the pace of technological progress, and generate income.

In 1993, the United States earned over \$20 billion from international technology licensing. At the same time, the trade deficit in manufactured goods was over \$100 billion, over half of which was from Japan. According to a 1988 U.S. International Trade Commission Report, international theft of intellectual property reportedly cost American companies nearly \$24 billion annually (USITC Publication 2065, February 1988).

Since the 1980s, the pace of technological change, amendments to U.S. patent law, and more aggressive methods for enforcement of patent infringement both in the United States and abroad have helped make patents an important legal and competitive consideration for American companies. In 1982, Congress created the U.S. Court of Appeals for the Federal Circuit (CAFC) in Washington, D.C., to include a focus on patent-related cases. Decisions of the lower District Courts in cases involving patents can be appealed directly to the CAFC.

In addition, with the 1988 Omnibus Trade Act, Congress has worked to strengthen patent infringement enforcement outside of the United States. This legislation revised Article 337 of the United States Tariff Act of 1930; expanded the enforcement of process patents in the Patent Act, and instituted a "Special" Section 301 list that identifies countries not having adequate and effective protection of intellectual property rights that could subject them to trade sanctions by the United States. These changes allow the United States to forbid the import of goods solely on the basis of patent infringement, extend effective protection of process patents internationally, and generally broaden executive branch powers to enforce intellectual property rights.

Suits concerning patents filed in U.S. courts have more than doubled since 1980. Japanese companies have been particularly affected by stepped up enforcement and aggressive patent protection policies of the U.S. government and American companies where substantial damages for patent infringement were awarded against Japanese-owned companies. Landmark cases include Honeywell Inc. v. Minolta Camera Co. Ltd. and Sanyo v. Texas Instruments. From 1989 through 1995, Japan has been

According to a 1988 U.S. International Trade Commission Report, international theft of intellectual property reportedly cost American companies nearly \$24 billion annually.

Over 20 percent of the patents filed in the U.S. and Europe are from Japan. The majority of the top 10 corporate patent recipients in the United States have been from Japan since the mid-1980s.

included on the Special 301 “Watch List” as having inadequate intellectual property protection. Japanese companies and the Japanese press have termed active American interest in patent protection a “patent war.”

Why Be Concerned with Japanese Patents?

American companies should become familiar with the Japanese patent system both to protect their innovative technologies and processes and to track and understand their Japanese competitors. Knowledge of the Japanese patent system can be used as a defensive, offensive, and strategic asset. The differences between the patent enforcement systems of the United States and Japan can cause difficulties for collaboration and hinder successful market access.

Japanese patent activities reflect the fact that Japan has become an important economic and technological power and competitor. Japan files five times as many patent applications as any other country. Over 20 percent of the patents filed in the U.S. and Europe are from Japan. The majority of the top 10 corporate patent recipients in the United States have been from Japan since the mid-1980s. Over the past decade, Japanese inventors have filed close to 400,000 applications annually in Japan. In the 1970s, this figure was closer to 100,000 applications per year. Only 20 percent of Japanese patents applications filed in Japan are also filed in other countries. According to a 1992 survey of Intellectual Property Rights by the Nomura Research Institute, 90 percent of litigation in the electronics industry and 100 percent in the precision instruments industry concerned IPR. Over 50 percent of the Japanese businesses surveyed anticipated that IPR litigation would increase.

International Agreements Affecting Japanese Patents

Patent Cooperation Treaty (PCT)

The Patent Cooperation Treaty (PCT), administered by the World Intellectual Property Organization (WIPO) in Geneva, Switzerland, provides the procedural framework for filing a patent application in Japan (and other countries) that may relate to a corresponding U.S. patent application.

Using a single international application filed in the United States, inventors can now initiate the process for patent protection in some 78 member countries, including Canada, Japan, Russia, and most of the European Union. The application may be filed by residents or nationals of any country that is a party to the treaty.

The international application is then subjected to an international search, carried out by one of the major patent offices. The applicant receives an international search report, which lists the patent documents that might affect the patentability of the invention. At this point, the applicant may decide to withdraw the application if the report makes it clear that patents are unlikely to be granted in the countries desired.

Twenty months after the international application is filed (or, if an earlier application in another country has priority, 20 months after the filing date of the earlier application), the applicant must furnish a translation of the application to each designated national office in its official language and pay the usual fees to that office.

This period is extended by a further 10 months if the applicant asks for an "international preliminary examination report." This report, prepared by one of the major patent offices, gives a preliminary, non-binding opinion on the patentability of the claimed invention. The applicant is entitled to amend the international application during the international preliminary examination.

The development of the PCT system, according to WIPO statistics, is shown by the fact that in 1979, 2,625 international applications were received by the PCT's International Bureau, while the corresponding numbers were 28,577 in 1993 and 34,104 in 1994. Details concerning the PCT can be obtained by consulting the *PCT Applicant's Guide*, published by the WIPO in English and French, and the *PCT Newsletter*, published by WIPO in English.

Table 1, prepared by the AIPPI of Japan, provides a comparison of the PCT format with those in Japan, the United States, and Europe.

GATT TRIPs

An agreement to establish minimum international standards to protect and enforce intellectual property rights is part of the Uruguay Round GATT (General Agreement on Tariffs and Trade) agreement that was signed on April 15, 1994.

The GATT is a multilateral trade organization promoting the lowering of worldwide trade barriers and freer trade among member countries. The agreement concerning intellectual property is outlined in the Trade Related Aspects of Intellectual Property Rights (TRIPs) section of the Uruguay

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Table 1. Comparison of Patent Specifications for Japan, PCT, USA, and EPC

Items and Order			
Japan	PCT	USA	EPC
(1) Title of the Invention	(1) Title of the Invention	(1) Title of the Invention	(1) Title of the Invention
(2) Claim(s)	(2) Technical Field	(2) Cross-References to Related Applications (if any)	(2) Technical Field to Which the Invention Belongs
(3) Description of the Invention	(3) Background Art	(3) Reference to a "Microfiche Appendix" (if any)	(3) Related Background Art
(a) Field of Industrial Application	(4) Disclosure of the Invention	(4) Background of the Invention	(4) Disclosure of the Invention
(b) Prior Art	(5) Brief Description of Drawings	(a) Field of the Invention	(5) Brief Description of the Drawings
(c) Problems to Be Solved by the Invention	(6) Best Mode for Carrying Out the Invention	(b) Description of the Prior Art	(6) Description of Special Embodiment
(d) Means to Solve the Problems	(7) Industrial Applicability	(5) Brief Summary of the Invention	(7) Industrial Applicability
(e) Work or Operation of the Invention	(8) Claim(s)	(6) Brief Description of the Drawings	(8) Claim(s)
(f) Working Examples	(9) Abstract	(7) Detailed Description	(9) Abstract
(g) Effects of the Invention		(8) Claim or Claims	
(4) Brief Explanation of the Drawings (if any)		(9) Abstract of the Disclosure	
(5) Abstract			

Round of the GATT. The primary focus of the GATT TRIPs accord is to compel developing countries to strengthen their IPR protection.

Japan has made a number of changes in its patent regime to comply with the TRIPs agreement. These include allowing for limited discovery procedures in patent infringement cases and granting patent protection for 20 years from the filing date. The U.S. also has to comply with the latter requirement as well as prohibit discrimination in awarding patents based on where inventions were made.

[N.B.: On January 1, 1995, the GATT became the World Trade Organization (WTO).]

Patent Harmonization

Since 1980, the WIPO has undertaken a lengthy discussion of international patent law harmonization. The purpose of the harmonization effort is to develop a treaty that will simplify and expedite the process of obtaining patent protection around the world and to strengthen protection once granted. An important focus of harmonization is to have worldwide

acceptance of a first-to-file system where patents are awarded to an inventor who first files an application, thereby avoiding the need to have a mechanism to resolve disputes in priority of inventorship.

The proposed treaty calls for patent procedures that generally are closest to existing procedures used by the European Patent Office. Unlike the GATT TRIPs negotiations, WIPO's harmonization discussions are viewed primarily as a forum to resolve differences among the patent systems of the developed countries. These negotiations have been postponed indefinitely at the request of the United States.

U.S.-Japan Framework Discussions

Intellectual property issues have been an integral part of the bilateral economic discussions between the U.S. and Japan embodied in the United States-Japan Framework for a New Economic Partnership, better known as the "Framework Negotiations." The Framework, initiated on July 10, 1993, represents a comprehensive approach to macroeconomic, sectoral, and structural issues and is aimed at readdressing Japan's fundamental economic imbalances as evidenced by its persistent large trade and current account surpluses. Under the Framework, Japan committed to achieving "tangible progress" toward market access and the use of objective criteria to assess implementation of the agreement.

During 1994, two bilateral agreements were concluded under the Framework working group on IPR. The first agreement, signed on January 20, 1994, addressed a number of outstanding issues. They included permission to file patent applications in Japan in English, correction of translation errors after patent issuance, and changes in the U.S. patent term to 20 years from the filing date instead of 17 years from grant date.

On August 16, 1994, a second agreement was signed with specific provisions to revise the Japanese patent "opposition" system. Under this agreement, the Japanese Patent Office agreed to: by April 1, 1995, introduce legislation to end the practice of allowing third parties to oppose a competitor's patent before it is granted; by January 1, 1996, put in place an accelerated patent examination procedure that will enable applicants to obtain disposition of their patent applications within 36 months, upon request; and by July 1, 1995, end the practice of awarding dependent patent compulsory licenses, which can force patent holders to license the use of their technology to competitors, thus limiting their exclusive rights in their inventions. The agreement also requires the USPTO to publish pending patent applications 18 months after filing, beginning with applications filed after January 1, 1996, and expand reexamination

proceedings to allow greater participation by third parties. Legislation was introduced in 1995 to publish patent applications and to expand reexaminations.

Trilateral Cooperation

Since 1983, the USPTO, the EPO, and the JPO have had a program of cooperation aimed at “solving common problems related to industrial property administration and the protection of industrial property rights and promoting the dissemination of advanced technology through the flow of information.” There is an annual October meeting and a publicly available report of comparative statistics from the three patent offices (*Trilateral Statistical Report*).

The trilateral cooperation program has concentrated on the following areas:

- Exchange of data, products, statistics, and staff in an effort to work more closely together and find common solutions to the problems posed by an increase in the number of patent applications.
- Harmonization of policy on patent information dissemination with a view to building up joint databases accessible to the public in the three regions.
- Study of patent practice at the three Offices aimed at achieving better understanding and working toward greater compatibility of procedures.

II. CHARACTERISTICS OF JAPANESE PATENT DOCUMENTS

Japanese patent documents are registered, dated, and given a new serial number at every stage of the patent application process. Different years can have the same serial numbers, albeit the first two digits of the number represent the year. The year is determined by the Emperor's reign and there have been four imperial regimes since the turn of the century. Older documents have their serial numbers in Chinese numerals. Different Western database producers and vendors, furthermore, often assign their own codes. All this can create some confusion for the uninitiated researcher of Japanese patents.

Under the current Japanese patent regime, there are also different designations for each stage of the patent application process, each with its own filing number. Some of the different numbered stages are as follows:

1. the unexamined, laid-open (published) patent application (*kokai tokkyo koho* published, given a *kokai* number)
2. patent application that is in the examination process
3. the examined, approved patent application published for opposition, (*kokoku, tokkyo koho* published, given a *kokoku* number)
4. unopposed approved patent
5. the official, post-opposition patent grant (given a *tokkyo* number).

Starting on January 1, 1996, the pre-grant opposition system will be eliminated; therefore, the *kokoku* numbers will no longer be issued and the *kokoku* designation will be eliminated.

Until recently, with the advent of electronic filing (and foreign pressure), paper copies were on B5 paper, making them difficult to read and reproduce. The format of Japanese patent filings was changed slightly in 1993 to make electronic filing and CD-ROM production easier. As of January 1993, Japanese patent documents conform to the recommended WIPO standard paper size (A4). In addition, the text in the new format consists of large, clearly legible characters in a typeface that lends itself to clear reproduction. Standardization and clear text now allow even the searcher with no knowledge of Japanese to identify relevant data elements by using standard INID (international identification) codes established by the WIPO for identification of bibliographic data.

Standardization and clear text now allow even the searcher with no knowledge of Japanese to identify relevant data elements by using standard INID (international identification) codes established by the WIPO for identification of bibliographic data.

The following is an introduction to the key elements of Japanese patent documents. Reading Japanese patent documents is a complex art. The casual researcher can often be confused and misled by the documents' format as well as the various numbers assigned to the same application as it goes through the examining process.

Types of Japanese Patent Documents

Patent (*Tokkyo*)—A granted and registered patent.

Utility Model (*Jitsuyo shin-an*)—A minor improvement or modification of prior art. As of January 1, 1994, these documents will only be examined if disputed. Until the 1980s, there were more applications for utility models than for patents.

Status

As mentioned above, there are many designations, each with its own filing number, for Japanese patent applications. The two general categories most discussed by Western searchers are:

Unexamined (*Kokai*)—A patent application that has been laid open for public inspection 18 months after it was filed. Applicants have up to seven years to request examination.

Examined (*Kokoku*)—An approved patent application.

Script

On a typical Japanese patent document, you will find six different types of script.

1. *Kanji*: Chinese characters or ideograms
2. *Hiragana*: A phonetic syllabary consisting of 46 basic symbols
3. *Katakana*: A phonetic syllabary that mirrors *hiragana* that is used for the transliteration of foreign words and animal sounds
4. *Romaji*: How the Western alphabet is referred to in Japanese
5. *Arabic Numerals*: Older documents use Chinese numeric characters

6. *Furigana*: *Hiragana* placed above the Chinese characters of personal names or infrequently used words to allow the correct pronunciation

Date

Year of the patent

Designated by the traditional Japanese calendar, which is based on the reign of the Emperor.

Showa = title of the previous Emperor, starting 1926

Heisei = title of the current Emperor, starting 1989

Serial number

- Today, numbers are Arabic.
- Older documents use Chinese ideogram numerals.
- INPADOC has standardized codes.

A minor irregularity in the numbering of patents occurred in 1989:

1. Showa Emperor died in January, 1989.
2. Installment of a new Emperor necessitated a change in the designation of patent numbers.
3. Patent documents submitted in 1989 were changed from the designation of Showa 64 (64 denotes the number of years in the Showa Emperor's reign) to Heisei 1.
4. New era name of Heisei was not announced for several months.
5. Patent documents continued to be dated Showa 64 through April 10, 1989 (The last Showa *kokai* document is 91300; the first Heisei document starts with 91301. The last Showa *kokoku* document is 1-12441).
6. Japan Patent Office insists that these documents be cited as Heisei 1.
7. The year 1990 is Heisei 2, and the numbering sequence is normal thereafter.

Layout of Japanese Patent Documents

The typical organization of a post-1993 Japanese patent document is as follows:

Filing numbers

1. Claims (in pre-1993 documents, #1 and #2 are reversed)
2. Title of the Invention
3. Detailed Description of the Invention
 - Field of Industrial Application
 - Prior Art References
 - Problems the Invention Seeks to Overcome
 - Objective of the Invention
 - Means of Solving the Problem
 - Function
 - Preferred Embodiment
 - Effect
4. Brief Explanation of the Drawings (if any)
5. Drawing (if any)
6. Abstract (or summary)

Identification of Key INIDs

NB: Some key information on a Japanese patent document does not have INID numbers.

11. KOKAI APPLICATION NUMBER
12. KOKAI PATENT REPORT

19. JAPANESE PATENT OFFICE
21. APPLICATION OR FILING NUMBER
22. DATE OF FILING
31. PRIORITY FILING NUMBER
32. DATE OF EARLIEST CLAIMED PRIORITY
33. COUNTRY OF EARLIEST PRIORITY
54. TITLE OF THE INVENTION
57. AUTHOR'S ABSTRACT
71. APPLICANT/PATENTEE/ASSIGNEE
72. INVENTOR

See Appendix A for examples of *kokai* and Appendix B for examples of *kokoku*.

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III. DIFFERENCES BETWEEN THE U.S. AND JAPANESE PATENT SYSTEMS

When comparing the Japanese patent system with that in the United States, you are faced with systems shaped by fundamentally different purposes. Although Japanese patent laws resemble both those in Europe and the United States, Japan interprets and uses its patent regime distinctively. Japan measures its rewards for invention in terms of social rather than individual benefits.

In the United States, the patent system exists to provide an incentive for innovation by rewarding an inventor with the right to exclude others from practicing his or her invention. That reward is made in exchange for a full, complete, and enabling disclosure of the invention to the public.

In contrast, the Japanese system is more focused on the goal of promoting Japanese industry and technology development by disseminating patent information. The current system encourages corporate strategies that promote extensive filings, cross-licensing, and strategic filings. Public disclosure and long patent pendency can be used as a tool to dilute or prevent any reward to the inventor.

Although there are many similarities on the surface between the Japanese system and those in many European countries, it would be a mistake to overstate these. Differences can be found in substantive rights, in procedure and enforcement of patent rights, and, most importantly, in interpretation. How Japanese law and practice interprets the requirement of inventive step is significant—small modifications that create “new function effects” are patentable in Japan, but not the United States.

Japan has recently begun to make efforts to reduce international concerns over its patent system. GATT agreements and successful U.S.-Japan trade negotiations on intellectual property have prompted the Japanese government to initiate a series of substantial modifications in their patent law and procedures. The effects of these changes, however, will not be realized for many years. As Japanese companies have become technology leaders, the advantages of rigorous protection of patent rights has become more evident.

Patent Systems Compared

The following outlines the key differences between the U.S. and Japanese patent systems, with some references to the European system. These

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differences are also a review of the fundamental difficulties in working with the Japanese patent system. In many cases, recent changes and proposed changes to Japanese patent law may eliminate some of the traditional areas of conflict.

1. First-to-File vs. First-to-Invent

The first and most obvious difference between the Japanese and U.S. systems is that the Japanese system, like that of most countries in the world, is a *first-to-file* system, while the U.S. system is a *first-to-invent* system.

A first-to-file system creates a race to the filing office. In Japan, this is the Japanese Patent Office (JPO). Assuming that an invention meets the criteria for patentability, the first party to file the invention with the JPO is entitled to patent rights for the invention irrespective of whether that party was, in fact, the first to invent the technology.

In contrast with the simplicity of a first-to-file system, the first-to-invent system, as applied in the United States, has generated a complex body of law regarding priority of inventorship. A first-to-invent system, therefore, encourages the inventor to keep meticulous pre-filing records and to prepare a precise patent application to protect his or her rights. A first-to-file system, in contrast, promotes the rapid filing of a large number of applications that can be prepared quickly, are narrow in scope, and often represent mere incremental advances.

Highlighting the difference in implementation between the European and Japanese first-to-file systems is the disparity in the number of applications filed under both systems. The European Patent Office, with membership of 17 European states, received 56,966 applications in 1993. The same year, the Japanese Patent Office received 366,486 applications; there were 419,886 applications, if utility models are included.

2. Patent Term

Until December 8, 1994, the second major difference between the patent systems of the United States and Japan was the term of the patent right. Now the patent term in the United States is 17 years from the patent grant date or 20 years from the application filing date, whichever is greater. However, for applications filed after June 8, 1995, the patent term is only 20 years although legislation has been introduced to provide for either 17 or 20 years. In Europe, the patent term is 20 years from the date of filing. In Japan, the period extends 15 years from the date that the application is

published for opposition with the limitation that the term may not exceed 20 years from the filing date of the application at the JPO. In 1996, the pre-grant opposition system will be eliminated and the Japanese patent term will be the same as in the United States and Europe.

Although the Japanese process resembles the European system, substantial differences arise in implementation. If the time for deferred examination (see below), administrative delays, and any opposition period is included, the average pendency in the Japanese Patent Office is more than six years (more for pioneering technologies). Japanese statistics on patent pendency indicate an average of a 28-month pendency. These numbers, however, do not measure the period of time from filing until grant or withdrawal. In Europe, patent pendency averages 24.8 months and in the United States, it is 19.6 months. In the United States, in many cases, this short pendency period will afford patentees a longer period of patent protection under a 20-year-from-filing system.

- With approval of the GATT TRIPs agreement in 1994 and implementing legislation, both Japan and the United States have adopted the international standard of 20 years from the filing date of the patent application.

3. Early Publication

Another significant difference between the Japanese and U.S. patent systems is that Japan requires public disclosure of all patent applications within 18 months of filing. In the United States, applications are maintained in confidence up through the issue of the patent. A Japanese patent application is automatically laid open for public inspection (this document is referred to as a *kokai*) 18 months after filing, or if priority has been claimed based on a prior foreign filing, 18 months after the earliest priority date.

Laying open is achieved by publication of the full text of the specification, claims, and drawings with amendments, if any, in the Japanese *Patent Gazette* (starting in 1995, the print version will be replaced by CD-ROMs). This practice allows anyone early access to any new technologies. Although the European system also has early publication, there are a number of important differences. In Japan, unlike in Europe or the United States, the pre-grant opposition system (see below) and the long patent pendency combined with narrow claim interpretation (see below) can lead to abuses.

In Japan, unlike in Europe or the United States, the pre-grant opposition system and the long patent pendency combined with narrow claim interpretation can lead to abuses.

Some patent experts observe that Japanese competitors sometimes use *kokai* publications as a basis to initiate a series or “flood” of patent applications with simple, incremental improvements to the original *kokai*. This strategy, known as *patent flooding*, can enable a competitor to effectively appropriate the core technology of the original patent by requiring cross licenses from the original inventor using surrounding rights as leverage.

4. Pendency Period

Many of the problems that U.S. inventors experience with the Japanese patent system trace directly to the extremely long pendency period for applications filed at the JPO. In Japan, a patent takes an average of six to seven years to be issued compared with about 19 months in the United States. In some active technological areas such as organic chemicals and electronics, pendency of a patent application filed in Japan may be up to 10 years.

Although the JPO represents the average pendency period to be about 30 months, this figure can be misleading because it does not take into account the long period of delay before examination actually begins. Due to the backlog of applications, there is an average delay of three to four years before the JPO will begin an examination, even if a request for examination is made at the time of application filing.

The Japanese Patent Office attributes much of the long patent pendency term to their examiners’ workload, not procedural delays. Over the past few years, the JPO has taken a number of steps to reduce the pendency of patent applications. These include small increases in the number of examiners, development of an electronic, “paperless” filing system, and in 1994, the elimination of substantive examination for utility models. Since 1988, the JPO has allowed multiple claim applications and JPO officials have worked to encourage this practice. The effects of these changes remain to be seen.

In addition to the above improvements, the JPO has agreed, by 1996, to pursue accelerated processing for inventions in which patent applications have also been filed in foreign countries.

5. Bars to Patentability: Grace Period

There are substantially different legal bars to patentability between the United States and Japanese systems. In the United States, a patent is barred if the invention is placed on sale, described in a printed publication, or publicly used more than one year prior to the application filing

date. If an application is filed within the grace period, however, such public disclosures are not necessarily fatal to obtaining a valid patent.

In Japan, as in Europe, the grace period is shorter, only six months, and the set of circumstances in which the grace period applies is much more limited. Unlike Europe, the definition for public disclosures made by publication are quite specific. Disclosure is accepted if the publications and written presentations are from organizations sanctioned by the director general of the JPO. Furthermore, only disclosures made by the inventor or his assignee are covered under the grace period. Third party disclosures are an absolute bar. In contrast, in the United States, any disclosure, i.e., by the inventor himself or by a third party, may be overcome by the inventor in the grace period.

Japanese law respecting public disclosures by use or sale also differs from that in the United States. In Japan, a disclosure must actually be made to the public to act as a bar. In contrast, in the United States, even a secret offer for sale may constitute an on-sale bar. Therefore, the set of events which may trigger a bar is narrower in Japan than in the United States. According to Section 30 of Japanese Patent Law, the set of public disclosures that actually qualify for a grace period is also more limited in Japan. They include: experiments conducted by the person entitled to the invention, disclosures of the invention against the will of the person entitled to obtain the patent, and displays of the invention made by the person entitled to obtain the patent at exhibitions held in Japan or in another Paris Convention Treaty signatory country that have been sanctioned by the director general of the JPO.

6. Compulsory Licensing

Compulsory licensing is a significant but, thus far, little-used threat in Japan. In the United States, a patentee may refuse to license other parties even if he or she chooses not to work the invention and even if another patented invention cannot be worked without infringing the patentee's rights. The government can demand licensing only for limited reasons of national and energy security.

In contrast, Japanese law allows interested parties to acquire a compulsory license to the patented invention in several circumstances. First, if three years after the grant of the patent, neither the patent owner nor a licensee in the industry is 'working the patent,' the director general of the JPO may order licensing discussions between the patentee and the interested party. If the parties are unable to agree on a license, the JPO may order a non-exclusive license to enable others to make or use the invention.

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Second, in circumstances where a first patented invention cannot be worked without infringing a second patent and where the owner of the second patent refuses to license the first, a compulsory license may be granted to the second patent owner to enable him to practice his invention. Third, the JPO may require a compulsory license where it determines that such a license is necessary in the public interest. It is also unclear where administrative guidance directly from MITI can or does apply.

The threat of compulsory licensing, where the Japanese government will determine the licensing terms, combined with the practice of patent flooding, is said to encourage cross-licensing.

- After July 1, 1995, the Japanese Patent Office has agreed to cease rendering arbitration decisions ordering the grant of dependent patent compulsory licenses.

7. Pre-Grant Opposition

The Japanese patent system provides for *pre-grant* opposition to the award of patent rights. The JPO allows third parties to “oppose” or object to a pending patent application by submitting reasons why it should not be granted. Neither the U.S. nor European system offers this opportunity. The European Patent Office does have a post-grant opposition system whereas the U.S. Patent Office has post-grant reissue and reexamination procedures.

After an application has been examined (called a *kokoku*) by the JPO, it is published for opposition in the *Patent Gazette*. The period allowed for submission of oppositions is only three months. Firms that do not carefully monitor *kokoku*, especially foreign firms where translation is crucial, often find themselves missing the opposition deadline.

Although provisional patent rights granted after the patents are laid open continue to be recognized after this post-examination publication, *kokoku* publication allows competitors to oppose the final grant of the patent. Each opposition is considered separately, sometimes adding years to the proceedings. Such oppositions can contribute significantly to the magnitude of delays in pursuing Japanese patent rights and afford competitors an opportunity to block or at least forestall the award of patent rights in a pioneering invention long enough to develop the surrounding or competing technology. It should be noted that the average annual opposition rate is 7 percent of all examined patents published. Applications for pioneering

inventions are commonly the targets of oppositions. A long pendency period is often a precursor of future opposition problems.

- Starting on January 1, 1996, the pre-grant opposition will be eliminated and multiple oppositions will be consolidated and addressed in a single proceeding to minimize the time spent on opposition to the patent grant.

Patent Practices and Procedures

In addition to the structural differences between the two patent systems, several aspects of patent practice and procedure differ between the United States and Japan.

1. Form and Content—Language

Japanese patent applications must be filed in Japanese. In contrast, U.S. applications may be filed in a foreign (non-English) language as long as the initial foreign-language filing is followed within two months with a verified English-language translation. The European Patent Office (EPO) permits filings in any of its member country languages or in German, English, and French, the official languages of the EPO.

The requirement that Japanese patent applications be filed in Japanese creates particular problems for foreign inventors since Japan does not, in general, permit correction of translation errors. Although correction of minor errors that do not substantially change the subject matter is permitted in theory, two examples of translation errors that were not permitted to be corrected highlight the problem.

In a 1983 Tokyo High Court case, the Court refused to allow an applicant to correct the mistranslation of a chemical term. The translator misunderstood the element “boron” and translated it as “bromine.” In that case, the applicant’s appeal was denied because under Japanese law, a patent examiner must recognize from the invention’s description that the language is clearly used in error in light of the specification. In an earlier case, the court also refused to permit the correction of the term “°C,” which was mistranslated as “°F.” These examples highlight the importance of allocating the time and resources necessary to achieve an accurate translation of the original English text.

- Starting July 1, 1995, the JPO will permit foreign nationals to file patent applications in the English language, with translation into

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Japanese to follow within two months. There is debate in the legal community whether this is really a significant change. Besides wondering if pre-grant corrections will delay the final grant of the patent, some attorneys question which submission, the English or the Japanese, will be used in patent disputes.

2. Form and Content—Other Considerations

Aside from the Japanese language filing requirement, most other formal Japanese and U.S. requirements are similar; however, several differences do exist. For example, unlike the United States, Japan does not require that the applicant disclose the best mode contemplated by the inventor for practicing the invention. A Japanese patent application should, however, adopt a problem/solution approach to presenting the meritorious or advantageous effects of the invention when compared with the prior art. In addition, there should be a close coupling between features of the claimed invention and working examples presented in the application.

Other common problems cited by JPO officials and *benrishi* (roughly equivalent to U.S. patent agents) with applications originally drafted for filing in the United States include:

1. description of the advantageous effect, or how the disclosed invention is superior to the prior art, is missing or unclear;
 2. a problem/solution approach is not used to describe the advantageous effect over the prior art;
 3. features of the invention defined in the claims do not demonstrate a clear one-to-one correspondence with the working examples provided in the specification; and
 4. the number of working examples provided is insufficient given the number of claims.
- The JPO is in the process of changing some of the above requirements.

3. Deferred Examination

Each U.S. patent application is examined unless abandoned. In Europe, examination must be requested up to 6 months after the 18-month publication. In Japan, however, an applicant must specifically request examination. Such a request must be made within seven years of filing at the JPO.

It is not unusual to find applicants who file without intending to ever request an examination.

Deferred examination allows a patent applicant to more completely consider the potential market for his or her invention before committing to the costs involved with an examination. In the United States, no deferred examination exists and fees must be paid on filing or shortly thereafter.

- The JPO has stated that it is considering plans to shorten the deferral time from seven to three years by 1999.

4. Duty of Disclosure

Stringent U.S. Patent Office rules govern the duty to disclose information of which one is aware that is material to patentability. In Japan, there is no similar duty. U.S. patent applicants and their attorneys must disclose known, material prior art, and failure to do so may result in loss of the patent right. Disclosure of prior art is encouraged in Japan, but is not required.

Patent Enforcement

Unlike in the United States, a challenge to a patent's validity is not brought before the courts, but instead directly to the Japanese Patent Office. Patent infringement cases themselves, without consideration of validity, are brought before the courts. The United States does provide for a reexamination in the USPTO over prior art not previously considered.

Among the overviews of Japanese patent litigation practices, you may want to start with "Patent Enforcement in Japan: An American Perspective For Success" by Mark F. Wachter, Esq., in the *AIPLA (American Intellectual Property Law Association) Quarterly Journal* (Vol. 19, 1991, No. 1).

1. Scope of the Patent Right

The scope of the patent right is much narrower in Japan than in the United States. Although patent rights in both countries are defined by the patent claims, the role of the specification in defining the breadth of those claims is much different. In the United States, the specification aids the examiner, or in the case of litigation, aids the court in interpreting the claim language. It is a fundamental precept of U.S. patent law that while

the specification may aid in interpretation of the claims, it may not be read into the claims as a limitation. Instead, the scope of the patent right is defined by looking to the claims. In contrast, in Japan, the practice is to restrict the scope of patent claims as much as possible including limiting the scope of protection to those specific embodiments described in the written technical description.

Because of this narrow interpretation of claims, a Japanese patent application typically focuses on a small number of embodiments. Typically, a series of narrowly tailored patent applications will be filed, each with a small number of claims and a specific description of an embodiment corresponding to those claims. Each resulting patent may represent an incremental variation or improvement when compared with the others. In contrast, an inventor filing an application in the United States may typically rely on a single application capturing the breadth of his patentable conception, identifying a specific preferred embodiment, and setting forth a schedule of claims that vary in scope from the narrowest to the broadest definitions of the invention being claimed.

2. Doctrine of Equivalents

In addition to the differences between U.S. and Japanese interpretations of claims, there are significant differences in judicial doctrine. In the United States, application of the doctrine of equivalents enables a patent owner to exclude others from practicing an invention with a method or apparatus that achieves substantially the same function, in substantially the same way, to achieve substantially the same result. Strictly speaking, the judicially developed doctrine does not broaden the scope of claims, but rather expands the rights of a U.S. patentee to exclude others from practicing minor variations on the invention. Japanese legal doctrine on this issue is less inclusive. As a result, the amount of protection afforded by Japanese patent rights is significantly less than in a U.S. patent.

3. Discovery

Compared with the United States, there is no meaningful discovery in Japanese courts. This lack of discovery affects both the patent owner's ability to prove infringement in Japan and a defendant's ability to establish facts that would invalidate an adversary's patent. Evidentiary problems are perhaps greatest in litigation that seeks to enforce process patents. Here it is essential to obtain access to a defendant's documents or facilities in order to prove that the defendant practices or practiced a patented process. Particularly in the semiconductor, pharmaceutical, and

The amount of protection afforded by Japanese patent rights is significantly less than in a U.S. patent.

chemical arts, it can be extremely difficult to establish the processes used in their manufacture solely from an examination of a final product.

- Approval of the GATT TRIPs compels some limited discovery in Japanese patent infringement cases.

4. Length of Proceedings

Patent infringement proceedings in Japan typically last much longer than similar proceedings in the United States. In fact, infringement suits usually take three to nine years to conclude in Japan as compared with two to three years in the United States.

Lengthy court proceedings are particularly problematic given the difficulty in obtaining preliminary injunctions in Japan. Although theoretically possible, a preliminary injunction requires a separate action that can typically take as long as 18 to 24 months. Such a lengthy delay can make it extremely difficult to prevent an alleged infringer from exploiting a patented invention. In rapidly developing areas of technology, this can be particularly troubling since by the time a preliminary injunction is granted or the dispute is adjudicated, the market for an invention may have come and gone.

5. Adequacy of Damages

A final problem is the inadequacy of damages awarded by Japanese courts. In theory, both lost profits and reasonable royalty measures are provided by Japanese law as in United States law; however, given the difficulties of obtaining discovery, lost profits are often difficult, if not impossible, to prove. In addition, enhanced damages are unavailable in Japan, and provisions do not exist for the award of attorneys fees. In contrast, U.S. courts will grant up to treble damages in cases of willful infringement, and attorneys fees may be recoverable in certain circumstances. Many patent attorneys, therefore, believe that damages awarded in Japan are often so low as to persuade petitioners that litigation is not worth its associated costs.

Recommendations

Substance, procedure, and even objective distinguish the Japanese and U.S. patent systems. Neither system is inherently better than the other; however, the nature of the differences requires that applicants and patentees establish different expectations and develop different approaches for

The nature of the differences between the Japanese and U.S. patent systems requires that applicants and patentees establish different expectations and develop different approaches for exploiting the two patent systems.

exploiting the two patent systems. (See Table 2 and Figure 1.) Several general recommendations are relevant with respect to the Japanese system.

- *Exploit Patents Japanese-Style:* Be prepared to exploit patents Japanese-style, i.e., defensively, rather than offensively. Successful exploitation of the Japanese system requires large numbers of patents or patent applications, which are used more as leverage to cross-license technologies than as a means for excluding others from practicing a critical technology. Although the expense of prosecuting large numbers of incremental patent applications to issue can be great, costs can be reduced by following the Japanese example: *file many applications and request examination for only a few.*
- *Develop a Strategy to Ensure Correct Translation:* It is extremely important to allow adequate time and resources for a correct translation of applications into Japanese. Check the translation by commissioning another translator to translate the translation back to English and by comparing the original with the second translation. If the 12-month window for claiming foreign priority under the Paris Convention Treaty represents insufficient time to prepare a translation, consider filing via the PCT, designating Japan. This will allow more time (8 months under Article 22 or 18 months if an international preliminary examination has been requested under Article 39(1)) for an adequate translation to be completed.
- *Monitor Japanese Kokai and Kokoku Filings:* By scanning the Japanese patent filings you can judge the strength of potential competitors' technologies and plan defensive or offensive strategies.
- *Work Closely with Your Japanese Attorneys:* Do not assume an aggressive pursuit of your interests. Japanese attorneys wait for instructions and guidance. Your knowledge of the Japanese patent system is crucial in your being able to best respond to your Japanese representative's needs and concerns.

NOTE: In Japan there are patent attorneys (although not members of the Bar), called *benrishi*, who are much like U.S. patent agents and who represent clients in front of the Japanese Patent Office and there are attorneys, called *bengoshi*, who are members of the Bar and who represent clients in court for patent infringement and related litigation. The latter belong to the Bar Association in Japan and the former to the Japan Patent Attorneys Association of Japan. Both associations set fees for their members' work.

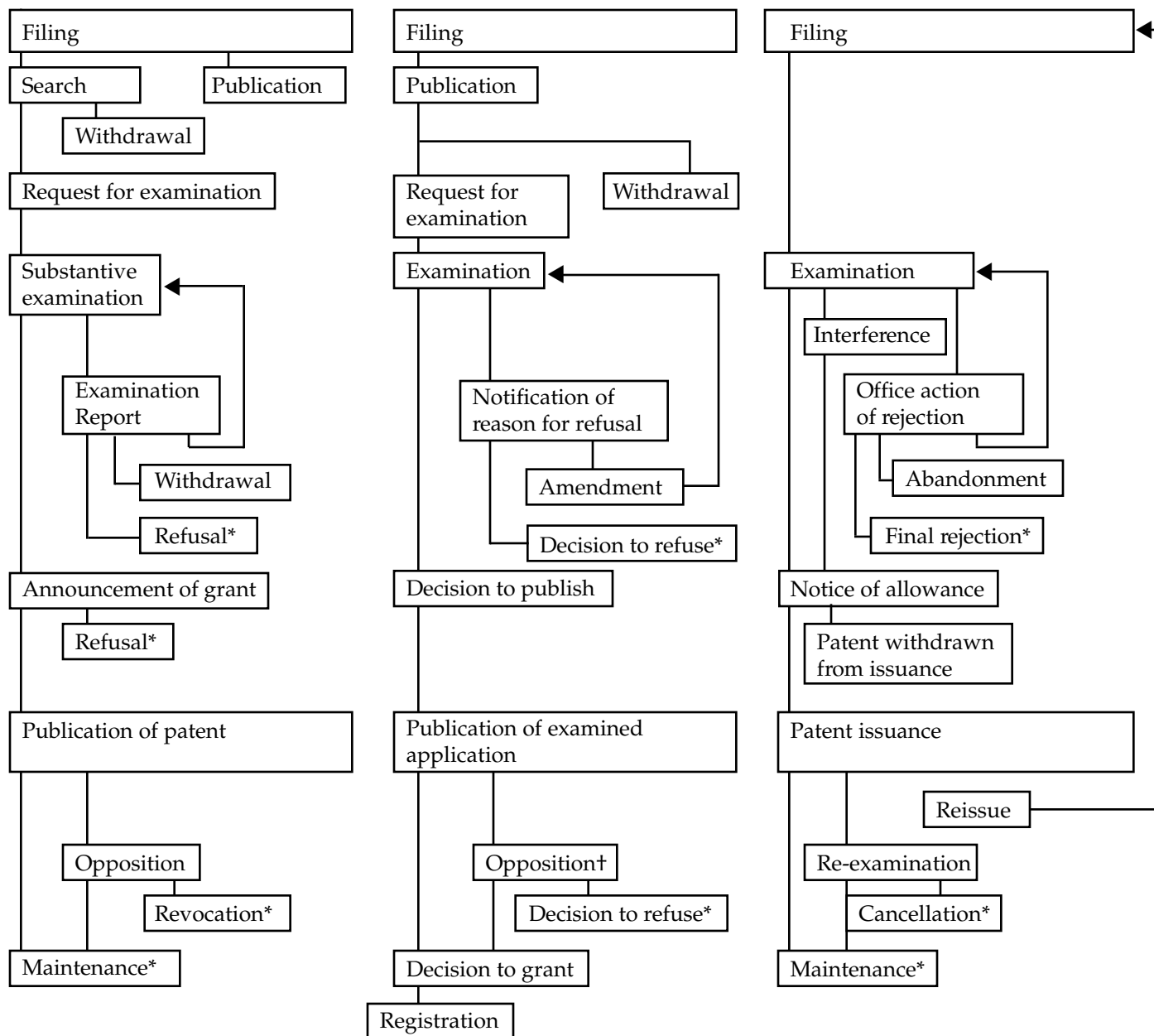
OFFICE OF TECHNOLOGY POLICY

Table 2. Major Differences Between the U.S., Japanese, and European Patent Systems

Patent systems' features	United States (US PTO)	Japan (JPO)	Europe (EPO)
Patents granted on the basis of first-to-file?	No	Yes	Yes
Filing permitted in any language?	Yes	Not	No, but accepts English, French, German, or any official language of member state of European Patent Convention
Are patent applications published?	No, kept secret until patent is granted	Yes, 18 months after filing/priority date	Yes, 18 months after filing/priority date
Can patent examination be deferred?	No	Yes, for 7 years after filing†	Yes, for 6 months after 18-month publication
Patent term	20 years from filing for applications filed after June 8, 1995	15 years from date of publication for purposes of opposition, but not more than 20 years from filing†	20 years from filing
Grace period (amount of time inventors have to file patent applications after their inventions have been made public)	1 year with no restrictions on disclosure by inventor	6 months with restricted disclosure permitted	6 months with restricted disclosure permitted
Pre-grant opposition?	No	Yes†	No
Compulsory licensing	Only for national security	Yes†	Laws of member states control
Legal systems	Common law	Civil	Civil/UK common law
Patent commissioners	Political appointee	Professional bureaucrat	Professional bureaucrat
Patent documents	Public good	Copyrighted	Varies
Formality	<ul style="list-style-type: none"> • Less stringent • Reviewed by clerks and examiners 	<ul style="list-style-type: none"> • Extremely stringent • Reviewed by clerks (not examiners) 	Reviewed by clerks and examiners
Pendency after examination requested	19.6 months	28 months	24.8 months
Backlog	About 1 year	About 5-6 years	Less than 9 months
Number of Applications (1993)	174,743	366,486	56,966
Exam rate (1993)	100%	54%	91%
% of foreign application filings (1993)	45%	10%	50%
Patents granted (1993)	98,344	88,400	36,667
†will change in/after 1995			

Figure 1. Trilateral Patent Granting Procedures

Major phases in the trilateral procedures are outlined in the flow chart below.



*decision may be appealed

†Starting in 1996 the opposition system will resemble the EPO procedure.

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IV. DIFFICULTIES IN WORKING WITH THE JAPANESE PATENT SYSTEM

As alluded to in the previous chapter, the differences between the patent regimes can create a number of difficulties for American firms who want to pursue patent rights in Japan. The U.S. General Accounting Office issued a report on July 12, 1993, for Senators John D. Rockefeller IV and Dennis DeConcini, entitled *Intellectual Property Rights: U.S. Companies Patent Experiences in Japan*, which reviews the range of difficulties encountered by American firms seeking patent protection in Japan. A copy of this 96-page report can be obtained from the GAO by requesting document #GGD-93-126.

Many of the problems outlined below may be alleviated over time as the GATT TRIPs and U.S.-Japan Framework agreements begin to be implemented. The essential philosophical difference between the systems will, however, remain. Japan's patent system is focused on maximizing national economic welfare, whereas the U.S. system emphasizes individual achievement and benefit. In a September 18, 1994, article in the *Nihon Keizai Shimbun* entitled, "A Gap Exists Between Japan and the United States in the Number of Patent Applications," an official of MITI's Institute for Intellectual Property noted that "the number of U.S. applications in Japan will not drastically increase as long as there is a difference between Japanese and U.S. companies in patent strategies."

Time

Patent pendency, the time it takes to obtain a patent grant, is significantly greater in Japan than it is in the United States. This difference is further compounded if the technology to be patented is significant or pioneering in nature. In Japan, the typical patent takes an average of six to seven years to be issued, compared with about 19 months in the United States.

The longer pendency period in Japan is due to several factors, including the pre-grant opposition system, which allows rival companies to raise objections to a proposed patent before it is granted. Another problem leading to delays is the fact that the JPO receives twice as many patent applications per year as its U.S. counterpart while employing far fewer patent examiners. The ratio of patent applications filed to patent examiners is about four times higher in Japan than in the United States.

In Japan, the typical patent takes an average of six to seven years to be issued, compared with about 19 months in the United States.

Determining patent pendency in Japan can be difficult. The statistics produced by the JPO, although detailed, can be confusing. The potentially long and drawn-out process for patent approval, furthermore, makes it difficult to determine how many patent applications actually become patents. JPO statistics indicate that approximately 40 percent of the patent applications filed are never examined. From 1983 to 1993, the JPO granted an average of 60,000 patents each year while the average number of patent applications filed is approximately 300,000 annually. Both numbers have been increasing. Japanese file internationally approximately 60,000 patent applications annually.

Translation

Patent applications must be filed in Japanese, and there is little room for correction. Translations are costly and must be performed according to a set fee schedule established by Japan's patent attorneys. Translation can also be time consuming. If U.S. patent applicants do not factor in the time for translation in their understanding of Japan's filing schedule, the need for a translation may cause the applicant to miss deadlines and leave open opportunities to challenges to their grant. Although new agreements will allow filings in English, deadlines remain for a Japanese translation and corrections can only be offered at prescribed times.

Patent Flooding

Patent flooding, the practice of filing many patent applications claiming minor, incremental changes surrounding another patentee's core technology, has been publicized as a widespread problem in Japan. The GAO has found this practice to be most pronounced with technologies that include pioneering inventions and/or technologies that promise high commercial return.

A combination of narrow claim interpretation and the laying open of applications encourages competitors of a patent applicant to flood the surrounding art with incremental improvement patents. This tactic can be used to intimidate (along with compulsory licensing) an applicant who might be compelled to cross-license to avoid expensive delays and litigation. Many patent analysts point to the large number of patent applications in Japan as one proof of this tactic.

On the other hand, extensive patenting can be less a strategic weapon than a measure of success in Japan. This practice, to some extent, can be

traced to Japanese corporate personnel and budgetary policies. Successful R&D departments are rated by their output of patents. A large number of applications is regarded as a symbol of both a company's and department's efforts toward research and development. With this "measure" of productivity, Japanese corporate managers find it easier to allocate resources and promotions.

Opposition

The time-consuming pre-grant opposition system and consecutive oppositions can significantly reduce patent coverage in Japan. By accepting oppositions before the final grant of a patent and then accepting oppositions one at a time (instead of by opposition category), the Japanese system can delay the final granting and thus patent protection until the end of the patent term which begins at the date of filing. This practice is to end after 1996.

Cost

Cost is often cited as a major barrier to pursuing patent applications in Japan. Patent filing costs in Japan are among the highest in the world, due to translation costs and fees charged by Japanese patent attorneys. For example, in comparing the total costs of filing in Japan to those in the United States, Samson Helfgott of the patent firm of Helfgott & Karas found that the average cost of filing a 25-page patent application in Japan was \$4,772, while in the United States the same case was \$1,390. Patent attorney fees in Japan are prescribed by the Japan Patent Attorneys' Association (JPAA). The schedule of fees has fixed charges based upon "transactions" as opposed to actual costs or hours worked for a case. These fees are also determined on a per-claim basis, making multiple claim applications more expensive. This practice tends to contradict new JPO policies to encourage multiple claims.

In 1994, General Electric's Chief Patent Counsel, Erwin F. Berrier, Jr., prepared an analysis for the December 1994 annual meeting of the Intellectual Property Owners, Inc. (IPO) of worldwide costs to obtain and maintain patents. He found that the average costs in Japan to obtain a patent were \$30,000 or twice those in the United States. The following tables and figures detail graphically his findings.

OFFICE OF TECHNOLOGY POLICY

Table 3. International Patent Costs

1994 Country	Pat. Off. Fees Maintenance (Entire term)*	Total Patent Costs	Population (in millions)	Patent Cost/ Million Population	1992 GDP (in billions)	Patent Cost/ Billion GDP
EP (as of 1983)		12,012				
AT (Austria)	11,237	14,785	7.5		164	
BE (Belgium)	3,793	5,967	10.02		171	
FR (France)	5,115	5,744	57.3	1,000		
DE (Germany)	13,873	14,361	80.4		1,331	
IT (Italy)	11,885	14,515	57.9		965	
LU (Luxembourg)	2,546	2,658	0.392		78	
NL (Netherlands)	11,552	13,323	15.1		249	
SE (Sweden)	4,169	7,629	8.6		147	
CH/LI (Switzerland/ Liechtenstein)	4,523	4,890	7.8		147	
GB (United Kingdom)	5,960	6,160	57.8		915	
Total	74,653	102,044	302.81		5,167	
EP (as of 1994)						
DK (Denmark)	6,143	10,283	5.16		91	
GR (Greece)	3,395	5,185	10.14		77	
IE (Ireland)	5,276	5,605	3.52		392	
MC (Monaco)	2,954	2,954	0.029			
PT (Portugal)	180	2,410	10.4		87	
ES (Spain)	3,168	5,920	39.1		487	
Total	21,116	32,357	68.36		1,134	
EP Grand Total	95,769	134,401	371.17	362.10	6,301	21.33
JP (Japan)	19,591	30,498	125.0	243.98	2,300	13.26
US (United States)	5,790	14,370	256.5	56.02	5,600	2.57

*All costs are in U.S. dollars.

OFFICE OF TECHNOLOGY POLICY

Table 3. International Patent Costs (continued)

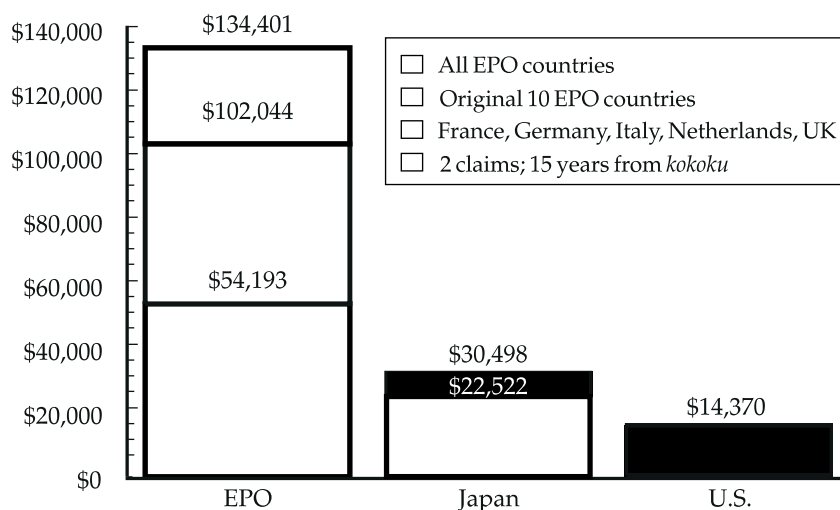
1994 Country	Pat. Off. Fees: Filing, Designation, Search Examination, Grant*	Translation: EP National Phase	Agent Fees: Filing Examination	EP National Phase Pat. Off. Agent	Pat. Off. Fees Maintenance (Entire term)	Total Patent Costs		
EP (as of 1983)	6,728		3,284	2,000		12,012		
AT (Austria)		1,800		700	1,048	11,237		
BE (Belgium)		1,600			574	3,793		
FR (France)		1,600**		44	585	5,115		
DE (Germany)		1,800**		165	323	13,873		
IT (Italy)		2,125		135	370	11,885		
LU (Luxembourg)		1,600**		4	108	2,546		
NL (Netherlands)		1,518		40	213	11,552		
SE (Sweden)		2,150		609	701	4,169		
CH/LI (Switzerland/ Liechtenstein)		1,800**		42	325	4,523		
GB (Great Britain)					200	5,960		
Total	6,728	9,193	3,284	2,000	1,739	4,447	74,653	102,044
EP (as of 1994)								
DK (Denmark)		2,200		914	1,026	6,143	10,283	
GR (Greece)		780		644	366	3,395	5,185	
IE (Ireland)		-		50	279	5,276	5,605	
MC (Monaco)		1,600**				2,954	2,954	
PT (Portugal)		1,560		335	335	180	2,410	
ES (Spain)		1,810		421	521	3,168	5,920	
Total		6,350**	-	-	2,364	2,527	21,116	32,357
EP Grand Total	6,728	15,543**	3,284	2,000	4,103	6,974	95,769	134,401
JP (Japan)	2,007	3,000	2,500	3,400			19,591	30,498
US (United States)	1,980		4,600	2,000			5,790	14,370

*All costs are in U.S. dollars.

**Translation costs have been omitted.

Table 2. Patent Cost

Total Cost—Cradle to Grave



Notes and Assumptions

1. Patent application of 20 pages (6,000 words) in English, including 10 claims (2 independent), abstract, and 2 sheets of drawings.
2. All patent office fees assume large entity, if applicable.
3. All amounts expressed in US\$ with early September 1994 exchange rates.
4. Total maintenance fees assume patent is maintained for full term. Patent term in the EP contracting states is 20 years from filing date. In U.S., applications filed prior to June 8, 1995, which are in force on or after June 8, 1995, will have a term of 20 years from the date of filing or 17 years from grant date, whichever is longer. In Japan effective July 1, fees in Japan are shown for 15 years for a post-1987 filed application, which is published (*kokoku*) five years after filing. No patent agent fees for payment of maintenance fees are included.
5. Examination requested in Japan upon filing; *kokoku* within five years of filing.
6. Population figures are 1993 estimates (The World Almanac 1994).
7. Translation costs have been omitted.
8. Patent agent fees for examination assume two official actions and two amendments.
9. U.S. patent attorney fee for filing includes preparation of application and is an average of typical charges from the 1993 AIPLA Economic Survey.
10. Patent office fees include where applicable—filing, search, designation, examination, grant, printing fee, assignment, and the like.
11. Patent agent fee for EP filing assumes designating all Contracting States and is an average of fees from GB, FR, and DE associates' fee schedules.
12. Insufficient data for GDP and EP national phase (official and agency) for Monaco.

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Table 4. Cumulative Cost to Expiration of Official Fees of a Japanese Patent Filed after 1987

Years Left at <i>Kokoku</i>	Number of Claims Published for Opposition (<i>Kokoku</i>)								
	1	2	4	6	8	10	14	17	20
15	\$10,618	\$11,615	\$13,609	\$15,603	\$17,597	\$19,591	\$23,579	\$26,570	\$29,661
14	\$8,807	\$9,635	\$11,290	\$12,944	\$14,599	\$16,253	\$19,562	\$22,044	\$24,526
13	\$6,998	\$7,656	\$8,970	\$10,285	\$11,601	\$12,916	\$15,546	\$17,519	\$19,492
12	\$5,188	\$5,675	\$6,651	\$7,627	\$8,603	\$9,578	\$11,530	\$12,994	\$14,457
11	\$4,283	\$4,685	\$5,492	\$6,298	\$7,104	\$7,910	\$9,522	\$10,731	\$11,941
10	\$3,377	\$3,695	\$4,332	\$4,969	\$5,685	\$6,241	\$7,514	\$8,468	\$9,423
9	\$2,472	\$2,706	\$3,173	\$3,639	\$4,106	\$4,573	\$5,506	\$6,206	\$6,906
8	\$2,020	\$2,211	\$2,593	\$2,975	\$3,356	\$3,738	\$4,502	\$5,074	\$5,647
7	\$1,568	\$1,716	\$2,013	\$2,310	\$2,607	\$2,904	\$3,498	\$3,944	\$4,389
6	\$1,115	\$1,221	\$1,433	\$1,645	\$1,858	\$2,069	\$2,494	\$2,812	\$3,130
5	\$889	\$973	\$1,143	\$1,313	\$1,482	\$1,652	\$1,992	\$2,247	\$2,501
4	\$662	\$726	\$853	\$980	\$1,108	\$1,235	\$1,489	\$1,680	\$1,871
3	\$436	\$479	\$563	\$649	\$733	\$818	\$988	\$1,115	\$1,242
2	\$291	\$319	\$376	\$432	\$489	\$546	\$658	\$744	\$828
1	\$145	\$160	\$188	\$216	\$244	\$272	\$330	\$371	\$414

The ¥ conversion rate is ¥99/\$1. The table does not include attorney's fees charged for paying annuity payments. These fees are published by the Patent Attorneys Association of Japan. As an example, for the first five claims through 15 years, the total attorney's fees charged is \$1,575 at the same conversion rate. For 10 claims through 15 years, the amount is \$2,282.

To use this chart, estimate how many years of enforcement will be left when the *kokoku* publishes for opposition, then apply how many claims are in the application. The resulting number is the cumulative annuity expense from *kokoku* publication to expiration of the patent.

If you request exam in the seventh year, your Years Left can be no more than 13. If it takes two years to publish the application for opposition (*kokoku*), then your Years Left are no more than 11. (You pay annuities from *kokoku* even if you are opposed and do not have an issued patent for several more years.) Thus, if you have between 4 and 6 claims at *kokoku*, the cost is between \$5,492 and \$6,298 for annuities to expiration. That amount is smaller than most European countries charge but for fewer claims than usually filed in the EPO. At 10 claims, the annuities of \$7,910 are close to U.S. maintenance fees but for fewer years of enforcement. If you request examination earlier and publish for opposition with 15 years left, then 5 claims cost about the same as an expensive European country and twice the cost of a U.S. patent to maintain.

Japan permits multiple dependent claims. That can help you save future annuity expense by reducing the number of claims when requesting examination.

OFFICE OF TECHNOLOGY POLICY

Table 5. Statistics from the Japanese Patent Office (JPO)

	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993
Patent applications filed	254,956 (27,213)	284,767 (28,562)	302,995 (28,562)	320,089 (29,887) US 13,087	341,095 (30,089) US 12,843	339,399 (30,491) US 12,903	351,207 (33,641) US 14,847	367,590 (34,360) US 15,830	369,396 (33,463) US 15,720	371,894 (33,875) US 15,930	366,486 (34,141) US 16,783
Utility model applications filed	205,243 (1,259)	202,181 (1,278)	204,815 (1,275)	204,210 (1,275) US 300	201,614 (1,201) US 253	171,674 (1,107) US 200	153,302 (1,169) US 228	138,294 (1,255) US 278	114,687 (1,347) US 314	94,601 (1,284) US 298	77,101 (1,182) US 199
Patent oppositions filed	5,664	4,455	5,276	4,564	4,854	4,683	5,404	3,919	5,317	5,565	6,620
Utility model oppositions filed	2,807	2,625	2,005	1,967	1,954	1,595	1,887	1,714	2,182	2,085	1,996
Patents granted	54,701 (9,123)	61,800 (10,110)	50,100 (7,777)	59,900 (8,624) US 3,976	62,400 (8,313) US 3,824	55,300 (7,388) US 3,229	63,301 (8,558) US 3,799	59,401 (9,031) US 4,112	36,100 (5,647) US 2,589	92,100 (13,107) US 6,080	88,400 (11,089) US 5,324
Utility models granted	55,000 (534)	57,800 (578)	41,100 (357)	42,700 (436) US 182	47,800 (405) US 184	42,300 (323) US 120	47,100 (361) US 144	43,300 (367) US 128	36,500 (357) US 133	65,200 (556) US 154	53,400 (371) US 119
# of examiners	873	870	865	860	856	853	883	913	955	993	1,030
Patents— Requests for examination†			54.1%	51.3%	35%	23%	20.3%	15.4%	9%	6.8%	6%
			163,876	164,082	119,368	78,045	71,354	56,744	33,276	25,226	22,093
Utility models— Requests for examination†			54.1%	53.1%	50.7%	45.8%	48.7%	31.6%	17.4%	12.6%	11.3%
			110,883	108,396	102,134	78,690	74,619	43,738	19,990	11,967	8,749

Note: Each figure in parentheses indicates the number of applications/registrations by foreigners out of the total shown above.

†These numbers represent the number of requests for examination received by the JPO by 1993 of patents filed in each of the designated years. For example, by 1993, 54.1 percent of the patents filed in 1985 have had a request for examination.

Source: Japanese Patent Office Annual Report 1987, 1992, and 1993.

V. COMMISSIONING AND EVALUATING A PATENT TRANSLATION

Carl Kay, Japanese Language Services

How should you choose a patent translator? Understand what your objectives are and articulate them clearly. Find a translator who has a wealth of experience to call on but is oriented to solving your problem in the most effective manner. A translator should have credentials and references. In short, choosing the appropriate translator is not unlike choosing an appropriate attorney.

It is very important that you find translators whose work you can trust. Would your translator ask a question when he or she is unsure of something? Would the translator do everything possible to ensure that you have an accurate, understandable document on the day promised? You should feel that all questions have been resolved or that all possible readings of ambiguous passages have been presented to you. A professional translator adds nothing and leaves nothing out, unless instructed to do so. The more you know about the process of translation of Japanese patents, the more you can judge the work being done on your behalf. Here I will examine some of the key issues involved in producing quality translations of Japanese patents.

The typical Japanese patent begins with “front matter” that includes patent number, date, classification numbers, names and addresses of inventors and applicants, patent agent, etc. Next comes the *meisaisho* (“specifications”), which includes the *hatsumei no meisho* (“title of the invention”), *tokkyo seikyu no hani* (“scope of patent claim”), and the *hatsumei no shosai na setsumei* (“detailed explanation of invention”). The latter might include various embodiments and figures, etc. Each section of the Japanese patent presents its own challenge to the translator.

In the front matter section, correct rendering of Japanese proper names is a big problem. When we translate a Japanese patent into English, there are many cases where we cannot be sure of the correct names of the inventors, even though they are printed on the page, because we cannot be sure what sounds the characters in the name are intended to represent.

The Japanese written language consists both of phonetic characters, called *kana*, that represent one syllable of sound each, and of Chinese-derived characters, called *kanji*, that do not always include visual information on how to pronounce them. You have to memorize them one by one, and in fact most characters can be pronounced in more than one way, so you

have to memorize several “readings” for each character. Certain categories of words such as proper names are especially difficult. When a Japanese person speaks his or her own name out loud, there are many cases where a listener, even a well-educated Japanese person, does not know what *kanji* characters to use to spell the name. But to use the wrong *kanji* is very insulting, so it can be quite awkward. The reverse is also true: we cannot always be sure of how to pronounce a name, and hence how to render it in phoneticized English, just by looking at it. Hence the problem in the front matter of patents. Even our special Japanese proper name dictionaries can’t resolve all such questions.

As a result, we often print a disclaimer on our translations stating that such ambiguity exists and can only be resolved with certainty by asking someone who knows the inventors, or asking the inventors directly, what their names are. We make this disclaimer, even in cases where there is only a small amount of doubt, to help our clients avoid problems in conducting patent searches, etc., based on inventors’ names or to help avoid the risk of any delays, etc., for our client because a name is incorrect. This applies to place names also, such as the address of the inventor or applicant.

Some Japanese patent documents add tiny phonetic characters, called *furigana*, next to the *kanji* characters so that there will be no doubt as to how to read the proper names. Unfortunately, this is not done all the time, so the problem persists. Sometimes these points don’t affect our client at all. They just want to know about the technology, and the names of the inventors are not relevant. If we know this in advance we can skip some of the steps we would take when doing our most thorough investigation.

Another problem area is in the translation of names of Japanese companies, agencies, or other entities. The question that arises is, is there an official name in English for the entity that is authorized by that entity, or should the translator just render the Japanese name in phonetic English characters, or should we create our own “translation” of the name (ISDN Kenkyujo or ISDN Laboratory? Laboratories?). Similarly, there are set terms that appear in the front matter of Japanese patents, and some of these correspond in function to terms in English. But if there is any possibility that the reader will make false assumptions about the meaning of the Japanese if we use that English term, perhaps it is better to translate the Japanese more literally and let the reader judge to what degree the term is similar in function to a familiar English term.

There is another more trivial issue in the front matter section. The Japanese number patents based on the year of application or issue using the

traditional Japanese way of counting years. 1993 is *Heisei* 5—5th year of the *Heisei* Emperor. We usually add a note to our translation to indicate this. The previous Emperor, the *Showa* Emperor, lived a long time and reigned from 1926-1988. Thus *Showa* 1 is 1926, and *Showa* 50 is 1975. The *Showa* Emperor died in early 1989, or *Showa* 64. 1989 was renamed *Heisei* 1 early in 1989, and a lot of calendars, standardized forms, computer programs, etc., had to be recreated to accommodate the new designation for the year.

The claims section of a patent is the most difficult to translate. I've never written a patent, but I imagine the claims would also be the most difficult part to write. It is the wording of the claims section that is the basis for the granting and challenging of intellectual property rights. Many people, with technical and legal expertise, probably collaborated in the writing of the claim. In some cases they tried to make very fine distinctions in relation to other patents known to them but not to the translator. In other cases they were intentionally trying to be vague to cover a broad scope.

Claims are difficult to translate because they are not a full sentence, but rather a phrase with many modifiers. In English word order, the phrase comes first—a method for manufacturing a flash memory semiconductor device, whereby...—but in the Japanese, the word order is completely reversed. The LAST word of the Japanese claim for the above is “method.” The translator of a Japanese patent claim must therefore untangle what is usually a fairly complex long phrase and completely rework it so that the order comes out naturally in English while preserving all the relationships of the various parts to each other. There are also certain words used in some claims that indicate the boundary of what is the prior art and what is claimed as novel.

The translator must know very well the precise meaning of various Japanese connecting words that indicate “and,” “or,” and other grammatical structures that express hierarchy, connection, and other relationships. There are many cases where the meaning of the claims remains ambiguous despite rigorous linguistic analysis, and it is sometimes unclear if that ambiguity is intentional or just the result of careless writing by the Japanese applicant. Sometimes the information given in the specifications section sheds light on the correct interpretation of the claims section. As translators, however, we need to know whether we should try to give the most reasonable interpretation of an ambiguous phrase, or render it equally ambiguous in English, possibly with footnotes explaining the various possibilities and which one is best supported by other information in the document. Again, good communication with our client helps us determine what to do and helps us avoid unnecessary work.

The translator must know very well the precise meaning of various Japanese connecting words that indicate “and,” “or,” and other grammatical structures that express hierarchy, connection, and other relationships.

In the Detailed Explanation of Invention section, which describes the invention in full prose sentences, some of the basic differences between English and Japanese can be seen. In Japanese, the subject of sentences is sometimes omitted, leaving the reader to understand the subject from the context. This sometimes has the benefit of allowing a more inclusive, holistic way of describing a situation, but sometimes the result is just plain confusion about what is doing what to what. Such ambiguity is rarely welcome to our clients when they are trying to determine if the Japanese patent infringes on their company's core technology.

One key problem is that in Japanese it is rarely specified explicitly whether a noun is singular or plural. In the patent, we cannot tell just from the phrase alone whether one vacuum chamber or multiple vacuum chambers are present. Is the Japanese pharmaceutical company claiming one compound or many compounds? Translators can use knowledge of the technology itself, plus reference to other parts of the patent such as the figures, to determine what is meant, but the words themselves are ambiguous. This issue is of course critical in the claims section, where the distinction between singular and plural can be rather significant.

The layman's view of translation as looking up words one at a time in the dictionary notwithstanding, the task of translation of Japanese into English actually involves about 80 percent dealing with grammar and sentence structure, and 20 percent dealing with terminology. Still, the terminology issues are important, especially in rapidly evolving technical fields. Professional translators have large libraries full of such books as *Japanese-English Glossary of Molecular Biology*. Translators use current technical periodicals from both countries as a guide to the latest terminology. Translation editors help maintain terminology accuracy and consistency. Translators develop specialties over years of work and become deeply familiar with the terminology and concepts in certain fields.

A fairly large number of Japanese words, especially words relating to advanced technology, are imported from other languages, mainly English. Japanese has an entire phonetic alphabet, called *katakana*, devoted to transcribing foreign-derived words. An example is *Te-Re-Ko-Myu-Ni-Ke-Shon*, which means, of course, telecommunications. Sometimes these words cause trouble for translators because they are modified when adapted in Japan. For example, the Japanese word *rimokon* means "remote control." The term is an abbreviation of the borrowed English words. Another example is *enpura*, which is the Japanese for "engineering plastic," from the words *En-Ji-Ni-A-Rin-Gu Pu-Ra-Su-Te-Ik-Ku*.

There is a growing interest in the use of computers to perform translations. The vast differences in structure between the Japanese and English

languages, as well as the great complexity of patent documents and variety of writing styles in general, all make machine translation virtually useless for close translation of a Japanese patent into intelligible English sentences. However, companies that wish to scan large volumes of Japanese patents and other documents to monitor technical developments in Japan can combine optical character input of Japanese printed texts, online access to Japanese language databases and a machine translation system to create an automated Japan intelligence-gathering system. Several large U.S. corporations and government agencies are currently testing such systems. The English sentences output by the system are mostly gibberish, but if a terminology bank is carefully constructed, the system will locate key words faster than by human review. Human translators can then be called on to translate in full documents that contain terms of particular interest.

A patent translator thus must be able to unravel complex Japanese sentences, which are sometimes intentionally confusing, and express a complex hierarchy of relationships in clear English, while handling the newest terminology of cutting edge technologies as well as the special terminology of the patent document itself. Despite the requirement for this high level of expertise, in America, unlike certain other countries, there is little regulation of the translation field. Anyone can put out a shingle and call themselves a translator. Therefore the buyer of translation services must be diligent in seeking out true professionals—dedicated to the highest standards of the craft and to using their talents to be of service to others. True professional translators look forward enthusiastically to the next encounter with the language barrier. The professional translator is a key ally in any effort to compete in the cross-border high technology markets of the 1990s.

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Appendix C provides information on locating translators and translations.

The vast differences in structure between the Japanese and English languages make machine translation virtually useless for close translation of a Japanese patent into intelligible English sentences.

VI. SEARCHING AND RETRIEVING JAPANESE PATENT INFORMATION

Why Searching Japanese Patents Is Important

Japan has become a world leader in technology development and engineering. Nearly 40 percent of patents granted in the world are now issued in Japan.

Japanese patents and utility models are prime sources of information for tracking Japanese S&T development. Early publication (18 months after application is filed) of unexamined patents provides early disclosure of technology trends and prospects.

Characteristics of a Japanese Patent

A complete Japanese patent number includes the following information:

1. Sequential patent number: patent applications are published at different stages and renumbered at each stage.
2. Identification of the type of document, which includes
 - patent = *tokkyo*; or
 - utility model = *jitsuyo shin-an*.
3. Status of the document, which includes
 - examined = *kokoku*; or
 - unexamined = *kokai*.

Print Sources of Information for Japanese Patents

1. The official Japanese-language *Patent Gazettes* published by the Japan Patent Information Organization (JAPIO) for the Japan Patent Office (JPO) have most complete coverage of Japanese patent information.

Starting in 1994, JAPIO began to distribute CD-ROMs instead of paper gazettes for patent information. CD-ROMs are issued on average of three per week. The paper gazettes are no longer published by the JPO. At the Data Room of the JPO, computers are available free for up to two hours to screen patent information. Hard copies can be purchased from the Hatsume Kyokai (Institute of Invention and Innovation, see Chapter VII, Resources).

pros:

- full-text with graphics, good copies
- available through the USPTO and selected depository libraries

cons:

- requires a reading knowledge of Japanese and understanding of Japanese patent documents and indexing
- CD-ROM software and hardware requirements are expensive and cumbersome (see below)

2. Patent Abstracts of Japan (*Kokai* documents only)

Switched to CD-ROM version in early 1995.

pros: abstracts are provided in English, and are of unexamined patent applications

cons: difficult to use, need an experienced researcher, not all fields covered, four-month or more time lag

3. Japanese Technical and Patent-Related Journals and Periodicals

Important to scan the literature for early warning of upcoming patent filings and background for pending patents.

pros: provides in-depth patent information and background

cons: translations are not always available, difficult to locate in the United States

NOTE: The Japan Information Center of Science and Technology (JICST) produces a database in both Japanese and English of most published

Japanese technical literature. For more information, contact the JICST office in Washington, D.C. (1550 M Street, N.W., Washington, D.C. 20005, telephone (202) 872-6371, FAX (202) 872-6372) or the U.S. National Technical Information Service (NTIS) that distributes U.S. patents (NTIS, 5285 Port Royal Road, Springfield, Virginia 22161, telephone (703) 487-4650, FAX (703) 321-8547). The JICST English-language database is available through STN.

Databases for Japanese Patent Information

World Patents Index (WPI)

Produced by Derwent Information, Ltd.

Available on **ORBIT/QUESTEL**, **DIALOG**, and **STN** systems

English-language patent abstracts from 36 patent offices around the world

pros:

- only database with international coverage that is useful for subject matter searching
- counterpart patent publications in different countries collected in the same record (patent families)
- company searches using standard patentee codes
- simple and inexpensive family and English equivalent searching
- drawings available after 1988
- starting in 1995 all *kokai* documents for all technologies will be covered

cons:

- incomplete Japanese coverage (includes chemicals and limited electronics, but NOT data processing and computers); coverage expands in 1995
- some searchers find inventor and company name searching unreliable

- data not available until 6 to 14 weeks after publication of patent document
- limited coverage before 1982

International Patent Documentation Center (INPADOC)

Produced by the European Patent Office, Vienna, Austria

Japanese records are from PATOLIS (see below)

Available on **ORBIT/QUESTEL**, **DIALOG**, and **STN** systems

pros:

- most complete source of international patent family information
- covers all stages of publication from unexamined application through grant for most (over 58) countries
- updated quickly—within two weeks of publication for most European countries and four weeks for other major patent offices
- comparatively easy inventor and company searching

cons:

- records are in the language of the country of origin
- cannot be used for keyword searches
- no abstracts
- family and English equivalent searching is expensive

Patent Abstracts of Japan (JAPIO, English-language)

Produced by the Japan Patent Information Organization

Available on **ORBIT/QUESTEL** and **DIALOG**

pros:

- only easily accessible English-language database that can be used for subject matter searches of Japanese *kokai* in electronics and mechanical technologies

- Japanese company and inventor searching

cons:

- before 1990 coverage incomplete
- slow updating—six to eight months after publication
- many titles are brief and non-descriptive, which necessitates using abstracts to determine relevance
- abstracts not written in the clearest language
- no drawings, nor is record updated

Patolis

Available through JAPIO, INDAPOC, and PATOLIS

pros:

- most complete coverage of Japanese patents, includes legal status
- updated every two weeks

cons:

- Japanese-language only
- abstracts only, no graphics available outside Japan
- need special hardware and software to access (only eight known accounts in the United States)
- restricted online hours: 8 AM to 11 PM, Japan time (6 PM to 9 AM EST)
- slow 1200-baud modem rates

One of the eight U.S. password holders to the PATOLIS system suggests the following for setting up in-house PATOLIS searching.

1. **Japanese-Literate Worker.** An engineer or scientist familiar with the technical field, who can use a PC equipped with Japanese

software. If Japanese-to-English translation is expected, a native speaker of English is greatly preferred. If you do not have Japanese-literate staff yet, there are many headhunters in the USA that specialize in locating Japanese-literate technical personnel as well as a number of universities that teach technical Japanese, such as MIT, University of Michigan, University of Washington, and the University of New Mexico.

2. **PC and Modem.** An IBM-compatible PC is generally preferred because Japanese software is more easily available. Presently the PATOLIS link is just 1200-baud, so almost any Hayes-compatible modem will work.
3. **Japanese OS Software.** For the IBM-PC this would be DOS/V, which is widely available in Japan, and from specialty computer stores in the United States.
4. **Japanese Word Processing Software.** This is used for business correspondence with the JAPIO, as well as reading, reformatting, and printing PATOLIS search results. This should come with a *Kana/Kanji* conversion program that also works with the other Japanese software.
5. **Communications Software.** Japanese communications software capable of handling Kyuu-JIS text. Such Japanese communications software is widely available in Japan, and can also be purchased mail order from Japan or from specialized companies within the United States.
6. **Data Network Connection to Tokyo.** From the United States this would be the BT Global Data Network, TYMNET. There are local gateways throughout the United States. It takes about one month to set up a new account. Most American Fortune 500 corporations already have such an account. Minimum monthly charge is about \$30 for one user. For information, contact:

MCI Telecommunications Corporation
2560 North First Street
San Jose, California 95131
FAX: (408) 922-6051

7. **User's Manual and PATOLIS Account.** This takes about two months to set up. Payment by yen bank transfer. Minimum monthly charge is ¥5,000. Cost per patent application to detect

and display an abstract is roughly \$3. I recommend that all correspondence be in Japanese to avoid any miscommunications, although letters in very simple English may also be adequate. For information, contact:

Japan Patent Information Organization
Sato Dai Building -7
Toyo 4-chome, Koto-ku
Tokyo 135, JAPAN
FAX: 81-33-580-3501
URL: <http://www.jef.or.jp/news/rdb.html>
Note: PATOLIS does not have a U.S. agent.

- 8. Source of Hard Copy of Patent Documents.** Can be ordered from a number of U.S.-based patent document delivery services.

Other Databases

The following list was prepared by Jeffrey Forman of IBM of other databases that can be useful to the patent researcher looking for Japan-related information. Armed with his observation that Japan bundles and files its most significant inventions internationally and the fact that the European patent system also requires pre-grant publication 18 months after filing, the savvy searcher can use many of the following databases to research Japanese patents and inventiveness.

- 1. EPAT**

EPAT is produced by the European Patent Office (EPO) and covers published unexamined patent applications and granted patents published by the EPO. It includes an English title for each application and an abstract in the language in which the application was filed (English, French, or German). For Japanese origin applications, this will almost always be English. In recent years, about 20 percent of the almost 60,000 applications published annually by the EPO have been filed by Japanese applicants. The database is updated weekly on the same day that the documents are published. It is an ideal database to use for current awareness searches. Japanese companies can be easily searched as the applicant's name and subject searches can be done using keywords and/or International Patent Classifications (IPC). Subject searches can be limited to Japanese origin inventions by simply including JP/PR as a search term in the search strategy. EPAT is available on the QUESTEL search system (..FI EPAT).

2. EDOC

EDOC is produced by the European Patent Office and includes selected bibliographic information (but no titles and abstracts) for patent documents published by 21 patent offices. It includes coverage of Japanese patent documents from 1973 on and is the only readily accessible database to include Japanese patent registrations, the third stage of publication in Japan. Its primary use is for patent family searches. EDOC is available on the QUESTEL search system (..FI EDOC).

3. CHEMICAL ABSTRACTS (CA)

The CA databases are produced by Chemical Abstracts Service of the American Chemical Society. They include worldwide patent coverage of the chemical technologies from 1967. About 50,000 records based on Japanese patent documents are added each year. Records include a title, controlled vocabulary terms, registry numbers, and other indexing. There is a considerable delay between the time a document is published and the entry of a record for it in the database. CA is available on DIALOG (FILE 399), on ORBIT (FILE CASM), on QUESTEL (FILE CAS), and on STN (FILE CA).

4. CLAIMS

CLAIMS is produced by IFI/Plenum Data Company and covers U.S. patents only. It includes titles, abstracts, and at least one claim in most records. Coverage dates from 1950 for chemical inventions and 1963 for all technologies. It is a good database to use when searching for U.S. patenting by the Japanese. Since the mid-1980s, Japanese applicants have received about 20 percent of the patents issued each year in the United States. Company names are standardized, which makes searching for Japanese patentees easier. Subject searching can be done using keywords, U.S. Patent Classifications, and/or International Patent Classifications. Subject searches can be limited to Japanese origin inventions by including JP/PR (on ORBIT) or AC = JP/PR (on DIALOG) as a term in the search strategy. CLAIMS is available on DIALOG (FILES 340 and 125), on ORBIT (FILE CLMS), on QUESTEL (FILE IFIPAT), and on STN (FILE IFIPAT).

5. U.S. PATENTS FULLTEXT

U.S. PATENTS FULLTEXT is produced by Dialog Information Services and covers U.S. patents only. It includes the full text of all patents issued from 1974. Selected technologies, largely in the electrical and mechanical arts, are also covered for 1971 through 1973. Its uses are similar to those stated above for CLAIMS and Japanese origin inventions can be retrieved in the same way (i.e., AC=JP/PR). However, more information is available on each invention since the full text of the patent specification is included. The file is updated weekly and records for the current week's issue are usually available two days after the issue date. It is available on DIALOG (PATFULL or FILES 654, 653, and 652).

6. EUROPEAN PATENTS FULLTEXT

EUROPEAN PATENTS FULLTEXT is produced by Dialog Information Services and it is available online. The initial release of the database was similar to the EPAT database, described above, in record content and time period covered. Later in 1994, Dialog added the full text of the specification and claims to each record. The text of the specification will be in the language in which it was filed (i.e., English, French, or German). Since almost all European patent applications filed by Japanese applicants are filed in English, this will in effect create an online database of full English translations of the Japanese priority applications. Since it is planned that updates will appear online within about a week of publication of the European application, it should frequently be available before the publication date of the corresponding Japanese Kokai. EUROPEAN PATENTS FULLTEXT will be available on DIALOG as FILE 348.

Database Producers and Vendors

Derwent Information Ltd.

North America

1420 Spring Hill Road, Suite 525

McLean, Virginia 22102

Telephone: (703) 790-0400, (800) 451-3451

Fax: (703) 790-1426, (800) 457-0850

World Wide Web: <http://www.derwent.co.uk>

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Dialog Information Service

3460 Hillview Avenue
Palo Alto, California 94394
Telephone: (800) 334-2564 or (415) 858-3785
Fax: (415) 858-7069

IFI/Plenum Data Corporation

3202 Kirkwood Highway, Suite 203
Wilmington, Delaware 19808
Telephone: (302) 998-0478 or (800) 331-4955
Fax: (302) 998-0733
Represents INPADOC and JAPIO in the United States
Contact: Mr. Harry Allcock, telephone (910) 392-0068 or (800) 368-3093,
Fax (910) 392-0240

INPADOC (EPIDOS)

Schottenfeldgasse 29
Postfach 82
A-1072 Vienna, Austria
Telephone: 43-1-52126-0
Fax: 43-1-52126-5491

Japan Patent Information Organization (JAPIO)

4-1-7 Toyo
Koto-ku, Tokyo 135, Japan
Telephone: 81-35-690-5555
Fax: 81-35-690-5566

Orbit/Questel Search Service

8000 Westpark Drive
McLean, Virginia 22102
Telephone: (800) 45-ORBIT or (703) 442-0900
Fax: (703) 893-4632

STN/Chemical Abstracts Service

P.O. Box 3012
Columbus, Ohio 43210
Telephone: (614) 447-3600 or (800) 848-6538
Fax: (614) 447-3713

CD-ROM

CD-ROMs are quickly becoming a cost-effective means for searching and obtaining full-text patent documents.

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Two vendors produce CD-ROMs of U.S. patents and distribute the EPO's CD-ROM. The table below compares these two products with the JPO's CD-ROM.

JPO CD-ROM (Windows)

Available only through JAPIO

Costs \$20,000 to \$60,000 annually for approximately 100 disks, fees determined by usage and number of users

pros:

- full text with graphics
- good copies
- comparatively cost effective
- available at selected USPTO Depository Libraries

cons:

- need knowledge of Japanese and search techniques
- tedious to use and slow printing
- automatic search will miss graphics
- each disk only contains a few days worth of data
- software and hardware expensive (adds an average of \$10,000)
- disks arrive late in the United States, potential subscribers must apply and fill out a very detailed form, and approvals are only given four times each year

NOTE: The Federation of Japan Patent Information Suppliers suggests that U.S. users be sure to use laser jet printers and IBM compatible search software called CD-CUT distributed by Chuo Kogaku Shuppan Co., Takashima Bldg., 17-6, Nishi-Shimbashi 1-chome, Minato-ku, Tokyo 105, 81-33-580-9681, fax 81-33-580-5648 (approximately \$6,000).

The following table outlines some of the search software and hardware available for the JPO's CD-ROM. As you can see, all are expensive.

Table 6. Computers and Software for Searching JPO CD-ROM

Company	Hardware	Operating System	Cost
Hitachi/JAPIO	68030	UNIX	¥4,200,000—hardware ¥20,000/mo—software
Hitachi/JAPIO	386/486	AX-DOS/V Windows 3.0J	¥2,500,000—hardware ¥20,000/mo—software
Toshiba	SPARC	UNIX	¥3,000,000
Toshiba	J-3100	MS-DOS/V Windows 3.01J	¥390,000~500,000
NEC	NEC 9801 series	MS-DOS 3.3 Windows 3.0J	
Odisu	NEC 9801 series PC/AT	MS-DOS 3.3 MS-DOS/V Windows 3.1J	
Fujitsu	FM G-1500 FM G-1600	SX/G	Not available in the U.S.
Japan Patent Data Service	NEC 9801 or 386/486	MS-DOS 3.1 MS-DOS/V	¥400,000— <i>Kokai</i> software ¥400,000— <i>Kokoku</i> software other versions
Chuo Kogaku Shuppan	NEC 9801 DOS/V	MS-DOS 5.0 MS-DOS/V 5.0	¥550,000 ¥600,000
IBM/RICOH	PS/55 series	OS/2J	ø\$10,000—software
ISTA	386/486	Windows NT3.5J	(In development)
Japan Patent Office	386/486	MS-DOS/V	(Only available to foreign PTOs)

Source: Table, in part, prepared from data compiled by Alan Engel, ISTA, Inc., 950 Conestoga Road, Rosemont, Pennsylvania 19010-1347, Telephone: 610-527-4538, Fax: 610-527-2041, E-mail: aengel@netaxs.com, WWW: <http://www.netaxs.com/~aengel/ista.htm>.

Tables 7 and 8 can help give you a quick review of the benefits and drawbacks of the available patent databases and CD-ROMs available for searching patent information with special reference to Japanese patent information. All efforts have been made to accommodate the views and evaluations of both vendors and searchers.

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Table 7. Availability and Timeliness of Japanese Patent Information in Online and CD-ROM Databases

Database	Full Text	Abstract	Drawings	Special Coding*	Legal Status	Time Lag	Oldest Records	Comments
WPI	No	Yes English	Selective	Subscribers Only	Some	2-3 months	1963	Japan: chemical & electrical fields only. Complete coverage in 1995
CAS	No	No	No	Yes	No	3 months	1967	Paper version back before 1900
U.S. Patents Full text	Yes English	Yes English	By FAX	No	U.S. only Not updated	2 weeks 14 months after <i>Kokai</i> **	1971	U.S.-filed patents only Complete since 1974, with back files being added
JAPIO	No	Yes English	No	No	No	7 months	1976	No updating of records
PATOLIS	No	Yes Japanese	In Japan only	No	Japan only Updated	Bibliographic - 2 weeks	<i>Kokai</i> - 1971	Abstracts since 1977 Updating continuous, depends on field
JPO CD-ROM	Yes Japanese	Yes Japanese	All	No	No	Can be several days to 2 weeks	<i>Kokai</i> - 1993 <i>Kokoku</i> - 1994	Expensive and cumbersome to use
INPADOC	No	No	No	No	Some Depends on country	Immediately to 8 weeks Depends on country	1973	Extensive patent family fields. Covers most countries. PATOLIS available through INPADOC

Source: Table, in part, prepared from data compiled by Alan Engel, ISTA, Inc., 950 Conestoga Road, Rosemont, Pennsylvania 19010-1347, Telephone: 610-527-4538, Fax: 610-527-2041, E-mail: aengel@netaxs.com, World Wide Web: <http://www.netaxs.com/~aengel/ista.htm>.

*Special Coding—refers to detailed chemical structure codes, registry numbers, and the like that can provide valuable detail on the contents of the document even if the document is not available.

**Japan-originated U.S. patents tend to be issued 14 months after the same *kokai* (unexamined, published patent application) are first published in Japan. Thus, tracking only Japanese foreign patent filings may not be time-sensitive enough.

Internet

As Internet services become easier to access and more available in Japan, access to Japanese patent and S&T information will also become easier. Expect to see increasing sites devoted to intellectual property organizations and issues.

- The following Web sites are good places to start for hypertext links to current and future sites:

STO's Intellectual Patent Search System

URL: <http://sunsite.unc.edu:80/patents/intropat.html>

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Table 8. Patent CD-ROMs: Features and Price Comparison

	Patent View	Patent Images	JPO CD-ROM
Criteria for Inclusion	All U.S. patents	All U.S. patents except for live plant-related patents	All Japanese patents
Current Backfile	January 1992. (20-year backfile forecast for end of this year)	1975	<i>Kokai</i> -1993 <i>Kokoku</i> -1994
Update Frequency	Weekly	Weekly	<i>Kokai</i> -2x/week <i>Kokoku</i> -weekly
Patent Filing Lag Time	2 weeks	7-10 days	None
Keyword Searchable	Abstract, Exemplary Claim, Title	Abstract, Title	Abstract, Title
No. of Searchable Fields	22	11	<i>Kokai</i> -15 <i>Kokoku</i> -18
Names of Searchable Fields	patent #; patent type; original #; title; date of issue; name, state, and country of inventor; assignee name, state, and country, date filed; serial # assigned; related filing date, serial #, patent #; priority country, date, application #; classifications: IPC, primary U.S., U.S. class cross reference; abstract; exemplary claim	patent #; application #; filing date; priority #; priority date; abstract; title; issue date; international classification; U.S. classification; inventor; assignee	application #; application date; <i>Kokai</i> #, <i>Kokai</i> date; <i>Kokoku</i> #, <i>Kokoku</i> date; IPC classification; FI classification; assignee; inventor; patent agent; title keyword; abstract keyword
Index/Locator Files	Yes. 22 fields, cumulative year to date	Yes. Pilot index on each cumulative for the year/complete master index by using Patent/Power	Single index for each disk.
Hardware Necessary	PC compatible, DOS 3.1, HP, or Canon compatible printer	286+ PC w IMB RAM, VGA Graphics. HP printers or compatible.	386/486; Japanese DOS or Japanese Windows
Price	\$4,995. \$1,995 for subset (chemical, electrical, general, and mechanical)	\$6,100. \$2,750 for chemical subset with biweekly updates.	\$200/disc for ø 100 <i>Kokai</i> discs/year \$135/disc for ø 50 <i>Kokoku</i> discs/year
Non-U.S. Patent CD-ROMs	Distributor of European Patent Office's ESPACE-EP, European Patent applications	Distributor of European Patent Office's ESPACE-EP, European patent applications	n.a.

Contacts:

Patent View: RapidPatent, 1921 Jefferson Davis Highway, Suite 1821-D, Arlington, Virginia 22202, Telephone: (800) 336-5010, Fax: (703) 413-0127. (RapidPatent is the marketing arm of Research Publications Inc. that sells to commercial accounts.)

Patent Images: MicroPatent, 250 Dodge Avenue, East Haven, Connecticut 06512-3358, Telephone: (800) 648-6787 or (203) 466-5055, Fax: (203) 466-5054.

JPO CD-ROM: Japanese Patent Office, 3-4-3 Kasumigaseki, Chiyoda-ku, Tokyo 100, Japan, Telephone: 011-81-33-581-1101, Fax: 011-81-581-0762. For further information contact: ISTA, Inc., 950 Conestoga Road, Rosemont, Pennsylvania 19010-1347, Telephone: (610) 527-4538, Fax: (610) 527-2041.

This news service tracks patent information worldwide. It is a way to perform patent searches and access information on the patenting process anywhere in the world.

United States Patent and Trademark Office

URL: <http://www.uspto.gov>

Includes online publications, including two PTO pamphlets containing general information about Patents and Trademarks. The Copyright Office, which is under the Library of Congress, provides similar information on copyrights. You may also wish to browse through speeches and press releases at the Patent Office. Contains links and information on collaborative projects, current news, announcements, public hearings, and information on important patent law changes.

U.S. Patent Databases

URL: <http://town.hall.org/patent/patent.html>

This public service is not affiliated in any way with the U.S. Patent and Trademark Office. The database is maintained by the Internet Multicasting Service. The cost is free. Includes Patent Full-Text/APS File for 1994 and 1995. Field name abbreviations in the original feed have been expanded into human-readable form. Also, contains links to other related sources.

World Intellectual Property Organization (WIPO)

URL: http://ananse.irv.uit.no/trade_law/i_p/wipo/art/wipo.html

The World Intellectual Property Organization (WIPO) is an intergovernmental organization with headquarters in Geneva, Switzerland. It is one of the 16 "specialized agencies" of the United Nations system of organizations. WIPO is responsible for the promotion of the protection of intellectual property throughout the world through cooperation among States, and for the administration of dealing with the legal and administrative aspects on intellectual property. Includes Member States, Member Missions, and original text of the Agreement between WIPO and the United Nations.

World Intellectual Property Organization (WIPO)

URL: <http://www.uspto.gov/wipo.html>

WIPO information located on the USPTO WWW server. Includes Introduction, Handbook on Industrial Property Information and Documentation, International Patent Classification Information, Patent Cooperation Treaty (PCT) information, laws, treaties, and agreements concerning international intellectual property rights.

EINet Galaxy

URL: <http://galaxy.einet.net/galaxy/Law/Intellectual-Property.html>

Provides a guide and many links on intellectual property organizations and issues around the world. Includes search capabilities.

Intellectual Property Rights and Dissemination (IPRD)

URL: <http://www.sfc.keio.ac.jp/~t92049yi/iprdhome.html>

IPRD is a project of Keio University SFC (Shonan Fujisawa Campus) Naemura Laboratory to make their research and other information about IPR public on the WWW. Most of material is in Japanese.

Japanese Patent Office Release of Data Base of the Patent Abstracts of Japan in English.

URL: <http://www.jef.or.jp/news/rdb.html>

The JPO describes how to obtain the Patent Abstracts of Japan in English (PAJ) CD-ROM.

New and notable U.S.-based, private Japanese patent retrieval and translations services with Internet access are:

ISTA, INC.

950 Conestoga Road

Rosemont, Pennsylvania 19010-1347

Telephone: (610) 527-4538

Fax: (610) 527-2041

Contact Person: Dr. Alan Engel

E-mail: aengel@netaxs.com

World Wide Web: <http://www.netaxs.com/~aengel/ista.htm>

MICROPATENT

250 Dodge Avenue

East Haven, Connecticut 06512-3358

Telephone: (800) 648-6787, (203) 648-6787

Fax: (203) 466-5054

E-mail: infor@micropat.com

World Wide Web: <http://www.micropat.com>

On the Internet, this firm offers U.S. patent information and starting July 1995 it began to offer translated titles, document numbers, number of pages, and assignees of Japanese *kokai* documents, key word searchable. Full translations are available.

Search Strategies

For a bibliography of books and articles that can help search, retrieve, and work with Japanese patent documents see section II.

Starting in 1995, a new generation of software tools will be introduced by the leading database providers that will make the process of accessing online patent data and related S&T information easier. It is worthwhile to discuss search strategies with your database and software providers. Dialog has BusinessBase. This software enables users to access over 50 business databases, including patent information. STN has SciFinder, a Windows-based software tool that offers direct Internet access to information on the Chemical Abstracts Service. ScienceBase, also by Dialog and to be introduced in 1996, will enable the user to access over the Internet patent data from over 90 Dialog databases. There are also a number of products, such as SmartCharts by TRW Business Intelligence, that can search and arrange data to create a technology analysis without a detailed knowledge of complex search commands.

One of the unique and easier-to-use database patent search strategies has been suggested by Jeffrey Forman, patent counsel at IBM. He has observed that Japanese firms tend to file outside of Japan only on their more important inventions. NEC, for example, has reported that only 2.8 percent of the Japanese patent applications that they filed in 1988 were also filed in other countries. In addition, it is common for the Japanese to combine a number of applications filed in Japan on separate embodiments into a single application when they file outside of Japan. Thus, by looking at these foreign filings by the Japanese, you are not only getting the benefit

of Japan's selectivity, but you are also avoiding redundant analysis of essentially identical individual Japanese publications.

Japan's patent applications at the European Patent Office, as in Japan, are published 18 months after their filing date. It is not unusual, however, to find the EPO publishing these applications (*kokai*) slightly earlier than the JPO. Because of the huge number of filings in Japan that cause printing backlogs, the EPO publication date can be two months or more before the JPO publication date.

Appendix D offers a number of English-language search examples for keywords, analyzing areas of inventive activity, and analyzing examined patent applications, using JAPIO. These searches were performed by Mr. Forman in mid-1994. Appendix E contains a resource list for Japanese patent-related information.