

# ATTACHMENT C

**Information Management and  
Technology Division**

B-240678

October 9, 1990

The Honorable Robert W. Kastenmeier  
Chairman, Subcommittee on Courts,  
Intellectual Property, and  
the Administration of Justice  
Committee on the Judiciary  
House of Representatives

Dear Mr. Chairman:

This report provides information you requested on T-Search—an automated search and retrieval system at the Patent and Trademark Office (PTO), Department of Commerce. The system has been used since 1986 to help determine whether trademarks submitted for registration are confusingly similar to pending or registered trademarks. In March 1990, you requested that we do some preliminary work to identify users' concerns about T-Search and determine whether users are satisfied that paper files containing trademark registration information are being adequately maintained to serve as a backup to the automated system. You also asked that we obtain information on PTO's actions and plans to improve the automated system.

In preparing this report, we interviewed PTO trademark and automation officials, several PTO examining attorneys,<sup>1</sup> some public users of the system, and officials of the United States Trademark Association, which represents trademark attorneys and many trademark owners. We also reviewed related documents, plans, and records of public hearings. PTO officials reviewed a draft of this report and generally agreed with its contents. We did not analyze PTO's assessment of the system's problems, the reasonableness of PTO's planned short-term actions to improve the current system, or PTO's plan to replace the current system with a new system. As agreed, we will do additional work early in 1991 to determine whether PTO is making progress in addressing the issues identified in this report. Appendix I more fully describes our objectives, scope, and methodology.

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**Results in Brief**

PTO's examining attorneys and public searchers, the primary users of T-Search, told us that they are dissatisfied with several aspects of the

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<sup>1</sup>Several of these attorneys are also officials of the National Treasury Employees Union, Chapter 245, The Trademark Society, which represents PTO examining attorneys.

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system. They said that it takes too long to perform searches on the system and that the data is often inaccurate and unreliable. Several public users state that they prefer to rely primarily on PTO's paper registration files because they find T-Search to be slow, inaccurate, and cumbersome to use; however, they believe that the quality of the paper files is deteriorating. The attorneys also maintain that their access to the T-Search system is constrained by the limited number of computer terminals available to them and the need to periodically shut the system down to backup data files and maintain the data base.

Many of these problems have been raised and discussed at PTO's public hearing and public advisory committee meetings. PTO trademark and automation officials have concluded that T-Search needs to be replaced with a new system. The requirements for the new system, which is to be implemented by the mid-1990s, are being defined at this time. PTO also plans to make some short-term improvements to the current system, such as making some existing terminals more accessible to examining attorneys and decreasing the amount of time that T-Search is shut down. However, the main problems—slow search times and inaccuracies in the data base—are likely to continue until PTO formulates and completes additional actions to resolve them. While PTO attempts to resolve system problems, it is attempting to reduce the T-Search work load by requesting its examining attorneys to perform 20 percent of their searches using the paper files.

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## Background

Trademarks are words and designs used by manufacturers or merchants to identify their goods or services and distinguish them from those manufactured or sold by others. PTO's Trademark Office examines trademark applications for compliance with various statutory requirements to prevent unfair competition and consumer deception and, if approved, registers the trademarks to help protect their owners' rights to them. Recent changes in trademark law have prompted a dramatic increase in the number of trademark applications. In the first 8 months of fiscal year 1990—the first year of operations under the changed law—PTO received nearly 90,000 applications, compared to about 83,000 for all of fiscal year 1989.

In 1980, the Congress directed PTO to identify its automation needs and, if necessary, develop an officewide automation system. One result of PTO's automation efforts is T-Search, a computer-based search and retrieval system intended to eventually replace the office's trademark registration paper files, currently containing about 1 million trademark

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records. PTO's examining attorneys use T-Search to determine if an applicant's trademark is confusingly similar to pending or registered trademarks. The public can also review trademark records in PTO's public search room either by using T-Search computer terminals or the paper files.

T-Search was not fully operational when it was accepted from the development contractor in June 1984. In a previous report, we noted that PTO did not thoroughly analyze users' needs or fully test the system before accepting it from the contractor.<sup>2</sup> Examining attorneys eventually began using T-Search as their primary tool for word searches in August 1986 and for design searches in January 1988.

T-Search has come under criticism by both PTO examining attorneys and public users. For example, an August 1989 memorandum from the examining attorneys' union to the Assistant Commissioner for Trademarks maintained that the time to complete a search was increasing due to poor system performance. In June 1989, the United States Trademark Association sent a detailed critique of the system to the Commissioner of Patents and Trademarks, outlining problems regarding very slow search times and cumbersome search procedures. During a public hearing before the Commissioner in 1989, some public users complained about slow search times and strongly questioned the system's reliability.

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## Users Complain of Slow Search Times

PTO's goal for T-Search was to provide examiners with the capability to conduct a trademark search as fast or faster than manual searches of the paper files (which averaged 16 minutes for word searches), without the problems associated with maintaining the integrity of the files. According to PTO's May 1988 test of T-Search, the average search time begins to exceed the system's design goal of 16 minutes when the number of concurrent users reaches 24 to 26. We examined usage data for May, June, and July 1990. While the *average* number of concurrent users over the period never reached the 24 to 26 user level, the *peak* number of concurrent users exceeded 26 on over half of the regular working days (Monday through Friday, excluding holidays).

All of the 17 examining attorneys we interviewed complained that search times on T-Search were too long. Some PTO attorneys, as well as the attorneys' union, stated that it takes an average of 20 minutes to

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<sup>2</sup>Patent and Trademark Office Needs to Better Manage Automation of Its Trademark Operations (GAO/IMTEC-85-8, Apr. 19, 1985).

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complete a design search. This type of search involves comparing an applicant's trademark design to designs already registered or pending. Some attorneys maintained that such searches can take as long as 30 to 45 minutes. PTO trademark and automation officials agree that average search times have become too long.

Degradations in search time can affect the attorneys because they have production goals associated with their performance appraisals. Many of the attorneys stated that T-Search's slow search times impair their ability to meet these production goals. Some told us that the only way they can meet their goals is by working extra hours or not using all of the search strategies available to them, resulting in reviews that are not as comprehensive as they would like. In addition, some attorneys, citing PTO's plan to hire about 80 new examining attorneys in fiscal year 1990, are worried that this hiring will increase the number of concurrent users of the system and result in even longer search times.

Nearly all of the six public users we spoke with, as well as officials of the United States Trademark Association, also maintain that the system's search times are too long. Two public users testifying at a 1989 PTO public hearing characterized search time as being their most serious problem with T-Search.

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## Attorneys' Access to T-Search Is Constrained

Some PTO examining attorneys complained that there are not enough T-Search computer terminals available and that too often they cannot find a free terminal when they need one. Currently, there are 43 terminals available for use by about 150 examining attorneys.

Also, the attorneys said that they cannot use T-Search after 6 p.m. because the system is shut down to back-up data files. The system is also shut down about every other month on Fridays and Saturdays for data base maintenance. One attorney told us that computer terminal availability and search time problems worsen a couple of days before each of the scheduled shut downs, as the attorneys rush to meet their production goals.

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## Data Base Inaccuracies May Compromise Quality of Registration Process

Along with slow search times, T-Search users are greatly concerned about inaccuracies in the system's data base. Many of the examining attorneys and public users we interviewed said that the data base has numerous data errors—such as misspelled words, missing data, or data entered into the wrong data fields—that may compromise the quality of their trademark searches. The Deputy Assistant Commissioner for Trademarks said that some of the errors are due to the data entry contractor's failure to meet accuracy requirements, which call for no more than 3 percent of the trademark applications to contain data entry errors. According to PTO officials, a recent quality check of data entry performance showed that 10 percent of the applications contained at least one data entry error. Although a software program is used to check the accuracy of spelling at the data entry point, it does not prevent all spelling errors from reaching the data base. For example, "Coruette" had been mistakenly entered for "Corvette," and "PG News" for "PC News."

Attorneys also complained that trademark design coding done by PTO staff is inaccurate and inconsistent. Design coding is the process of assigning index numbers to trademarks in order to classify them according to the various design elements that make up the trademark, such as geometric shapes, objects in nature, or depictions of animals and people. For example, one particular trademark—a personified ear of corn wearing a sombrero and playing a guitar—is coded under several design categories, such as plants representing people; playing musical instruments; husked ears of corn; sombrero; and guitars, banjos, ukuleles. Because the classification process is interpretive, it is to some extent subjective. T-Search users said they often disagree with the classification data in the system. If a design is classified inappropriately, T-Search users may have trouble retrieving it from the data base when doing searches of designs that contain similar elements.

According to PTO's design search coding supervisor, applicants often submit trademark designs that are unclear, making accurate coding difficult. In addition, the design codes are not always revised to reflect modifications made to a trademark design during the application review and approval process. Consequently, coding representing the original rejected design—rather than the modified and approved design—remains in the T-Search data base.

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## T-Search Can Be Cumbersome to Use

Both PTO attorneys and public users cited a variety of problems that makes T-Search difficult to use or otherwise limits the usefulness of the system. Among the problems cited most often are:

- T-Search often does not allow a user to cancel a search once it is started, resulting in wasted time.
- The procedures for printing designs are inefficient, in that they require multiple steps. Also, the printers often are not in working order.
- Phonetic searches, which are designed to find variations in the spelling of words (e.g., "E-Z" for "easy"), often produce unreliable results.
- Truncation, a search function to assist in reviewing trademarks, is used to find strings of consecutive letters embedded in words. Users complain that the function is of limited use because it cannot search for two-letter word endings, such as -on, -up, -ox, and -ex, which are commonplace in trademarks.

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## Complaints About the Quality of the Paper Files

Most of the public users with whom we met said that they dislike T-Search because of slow search times, data errors, or other problems. Several of them prefer to search the trademark registration paper files by hand, using T-Search as a secondary search tool. Some of the public users maintain, however, that the quality of the paper files has been deteriorating due to missing or out-of-date information. United States Trademark Association officials stated that the condition of the paper files was always poor and has been getting worse.

In its 1982 Automation Master Plan, PTO identified the growth of its paper files, increasing resources required to maintain them, and steadily degrading quality of the files as impediments to carrying out its mission effectively. One of the prime reasons for developing T-Search was to improve the accuracy of the trademark information.

According to PTO trademark officials, the policies and procedures for maintaining trademark paper files have not been changed since T-Search was implemented. They believe that perceptions that the paper files are worse than ever are due to the fact that users now have an opportunity to compare these files with the information maintained in T-Search.

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## PTO's Actions to Improve Trademark Automation

PTO trademark and automation officials are aware of the complaints about search time, computer terminal availability, data base accuracy, and automated search functions. For example, in an August 1989 letter to the union representing the examining attorneys, the Assistant Commissioner for Trademarks acknowledged that T-Search has deficiencies, primarily with search time, and that management was doing everything possible to improve system performance. In addition to users' complaints, PTO officials are concerned about the need to handle sharp increases in the office's work load expected during the 1990s. PTO estimates that annual filings of trademark applications will increase from 120,000 in fiscal year 1990 to over 257,000 in fiscal year 1998.

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## Planned Replacement of T-Search

PTO automation and trademark officials maintain that it would not be wise to make major changes in the current system and that the time has come to take advantage of advances in technology. Consequently, PTO plans to replace the T-Search system with a new system by the mid-1990s in order to improve trademark automation and meet the increasing work load. PTO has prepared a draft long-range improvement plan, as well as a draft functional requirements document describing the capabilities needed by users of the system. PTO plans to issue a request for proposals to acquire the new system in the spring of 1991, after it finalizes the functional requirements document and completes the feasibility study, benefit/cost analysis, acquisition plan, and market survey.

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## Interim Improvements Planned for T-Search

PTO officials plan to make some needed improvements in the existing T-Search system while the new system is being developed and installed. In an August 2, 1989, memorandum to the examining attorneys' union president, the Assistant Commissioner for Trademarks stated that PTO planned to have improvements in place by April 1990 that should result in marked improvement in search time, particularly for design searches, and should provide the necessary computer capacity to handle an increased work load. In February 1990, the Deputy Assistant Commissioner for Trademarks circulated for internal review a draft of a short-term improvement plan. The draft, however, was criticized by PTO automation officials on the grounds that it was incomplete, lacked details on the proposed improvements, and did not address potential procurement problems. For example, the plan called for a replacement of the current computer terminals by April 1990 using an existing contract. The Department of Commerce subsequently determined that a separate procurement would be needed, which could take about 18 months to complete.

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PTO officials were redrafting the short-term plan when we concluded our audit work in August 1990. They did, however, state that they will soon take several actions that they believe will alleviate some of the system's problems:

- PTO plans to move T-Search software to a more powerful mainframe computer by late December 1990. Use of this computer is expected to reduce the amount of time that the system is shut down for data file backup and maintenance of the data base.
- In an effort to speed up on-line retrieval somewhat, PTO is exploring the possibility of operating multiple copies of the T-Search software and data base concurrently on the new mainframe computer.
- PTO will relocate computer terminals currently in individual offices so they can be shared among the examining attorneys, thereby increasing the availability of terminals. In addition, the system's hours of operation have been extended 2 hours each working day from 6 p.m. to 8 p.m.

According to PTO trademark and automation officials, they do not expect any of these actions to greatly improve search times. They said that they have not yet determined the primary causes of slow search times, but plan to do so on a priority basis. At present, they believe that the problem may involve limitations in PTO's communications system and computer terminals.

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## Other Improvement Actions

In addition to the actions listed above, PTO officials said that they are considering placing trademark data on compact disks, a technology for storing and quickly accessing very large quantities of data. They said that examining attorneys could use compact disks to conduct simple searches that would not require current data, such as looking up trademark registration numbers. This would help keep T-Search terminals free for more complicated searches. Officials also said that they are considering making T-Search available for text searches through standard personal computers, without the user-friendly interface currently employed on T-Search terminals. They said that this would tend to speed search and retrieval of textual material for users, although they would not be able get design images on their computer screens.

PTO is also developing software to improve spell checking capabilities. According to PTO trademark officials, the new spelling program has been tested and is currently being fine tuned. They said that the data base, except for the trademarks and ownership data fields, has been spell checked. About 104,000 potential errors have been identified and the

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correction process has begun. They estimate that it will take about 2 staff years of effort to correct the mistakes. PTO officials also said that the data entry contractor has been put on notice to improve performance or face termination of its contract.

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## Partial Fallback to the Use of Paper Files

Recognizing that current problems with T-Search may worsen as more examining attorneys are hired and use the system, PTO officials have decided to allow the attorneys to use the paper files for their searches, just as was done prior to automation. Specifically, PTO officials have asked that the attorneys, on a voluntary basis, conduct about 20 percent of their searches using the paper files. This practice would begin in September 1990 and continue indefinitely, until problems with the automated system are resolved. PTO is requiring that all examining attorneys hired since August 1986—the time automated searching was implemented—take training in the use of paper files. PTO officials said that this training would involve most of the attorneys.

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## Conclusions

Both PTO examining attorneys and public users of T-Search are dissatisfied with its performance, particularly the slow search times. PTO trademark and automation officials recognize the need to improve trademark automation and are working on plans to improve the current system and eventually replace it with a system that they maintain will better meet the users' needs. Both PTO's short-term and long-term plans were still in draft form when we concluded our audit. Although PTO officials intend to take some short-term actions soon that they expect will mitigate some problems with the T-Search, they say that these actions are unlikely to result in substantially reduced search times.

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As arranged with your office, unless you publicly announce this report's contents earlier, we plan no further distribution until 30 days after the date of this letter. We will then send copies to interested congressional committees; the Secretary of Commerce; the Commissioner of Patents and Trademarks; the Director, Office of Management and Budget; the Administrator of General Services; and other interested parties.

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Should you have any questions about this report or require additional information, please contact me at (202) 275-9675. Major contributors are listed in appendix II.

Sincerely yours,

A handwritten signature in black ink, appearing to read "JayEtta Z. Hecker". The signature is fluid and cursive, with a long horizontal stroke at the end.

JayEtta Z. Hecker  
Director, Resources, Community, and Economic  
Development Information Systems

# Objectives, Scope, and Methodology

At the request of the Chairman of the Subcommittee on Courts, Intellectual Property, and the Administration of Justice, House Committee on the Judiciary, we reviewed the Patent and Trademark Office's (PTO) T-Search system. As agreed, our objectives were to conduct some preliminary work to (1) identify users' concerns about T-Search, (2) determine whether users are satisfied that paper files containing trademark registration information are being adequately maintained to serve as a backup to the automated system, and (3) obtain information on PTO's actions and plans to improve the automated system. We did not analyze PTO's assessment of the system's problems, the reasonableness of PTO's planned short-term actions to improve the current system, or PTO's plan to replace the current system with a new system. As agreed, we will do additional work early in 1991 to determine whether PTO is making progress in addressing the issues identified in this report.

We interviewed officials in PTO's Office of the Assistant Commissioner for Automation and the Office of the Assistant Commissioner for Trademarks to obtain their views on how well T-Search is meeting users' needs and what PTO's plans are for addressing problems with the system. We also reviewed PTO's 1987 Automation Master Plan, as well as short-term and long-term plans for improving trademark automation.

To obtain users' views on the adequacy of the system and paper registration files, we interviewed:

- 14 PTO examining attorneys, mostly chosen by PTO management;
- 3 examining attorneys who are officials of the National Treasury Employees Union, Chapter 245, The Trademark Society, which represents the examining attorneys;
- 6 public users; and
- officials of the United States Trademark Association, which represents trademark attorneys and trademark owners.

We also reviewed documents prepared by PTO examining attorneys and public users describing their concerns regarding the T-Search system and the paper files. In addition, we examined the records of recent PTO public advisory council meetings and public hearing dealing with T-Search issues.

We conducted our work from April to August 1990 at the Department of Commerce's PTO in Arlington, Virginia, and at the United States Trademark Association in New York City. We performed our work in accordance with generally accepted government auditing standards. PTO

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**Appendix I**  
**Objectives, Scope, and Methodology**

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automation and trademark officials reviewed a draft of this report and generally agreed with its contents.