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VOLUME ONE, NUMBER NINE

HISTORY OF BRITISH PHREAKING

by Lex Luthor and The Legion of Doom

In Britain, phreaking goes back to the early fifties, when the technique of "Toll A drop back" was discovered. Toll A was an exchange near St. Pauls which routed calls between London and the nearby non-London exchanges. The trick was to dial an unallocated number, and then depress the receiver—rest for ½ second. This flashing initiated the "clear forward" signal, leaving the caller with an open line into the Toll A exchange. He could then dial 018, which forwarded him to the trunk exchange—at that time, the first long distance exchange in Britain—and follow it with the code for the distant exchange to which he would be connected at no extra charge.

The signals needed to control the UK network were published in the *Institution of Post Office Engineers Journal* and reprinted in the *Sunday Times* 15 Oct. 1972. (NOTE: The British Post Office is the U.K. equivalent of Ma Bell.)

The system is called Signalling System No. 3 and it uses pairs of frequencies selected from 6 tones separated by 120Hz. With that info, the phreaks made "Bleepers" or as they are called here in the U.S., blue boxes. The British, though, utilize different MF tones than the U.S., thus, your U.S. blue box that you smuggled into the U.K. will not work, unless you change the frequencies. (In the early seventies, a simpler system based on different numbers of pulses with the same frequency (2280Hz) was used. For more info on that, try to get ahold of: Atkinson's "Telephony and Systems Technology".

Boxing in Foreign Lands

The following are timing and the frequencies for boxing in the U.K. and other foreign countries. Special thanks to Peter McIvers for the following info:

British "bleeper" boxes have the very same layout as U.S. blue boxes. The frequencies are different, though. They use two sets of frequencies: forward and backward. Forward signals are sent out by the bleeper box. The backward signals may be ignored (it's sort of like using full duplex). The frequencies are as follows:

U.S.	700	900	1100	1300	1500	1700 Hz
Fwd	1380	1500	1620	1740	1860	1980 Hz
Bkwd	1140	1020	900	780	660	540 Hz

For example, change the 900Hz potentiometers in your box to 1500Hz. All numbers 1-0 (10) are in the same order as in an American box. The ones after this are their codes for operator 11, operator 12, spare 13, spare 14, and 15. One of these is KP, one (probably 15) is Star; it won't be too hard to figure out. The signals should carry -11.5dBm +/- 1dB onto the line; the frequencies should be within +/- 4Hz (as is the British equipment). Also, the IVF system is still in operation in parts of the U.K. This would encode all signals 1 to 16 as binary numbers: for instance, a five is 0101. There are six intervals per digit, each 50ms long or a total of 300ms. First is a start pulse of 2280 for 50ms. Then, using the example of five (0101), there is a 50ms pause, a 50ms pulse of 2280, a 50ms pause, and a 50ms pulse of 2280. Finally, there is a 50ms pause that signals the end of the digit. The frequency tolerance on the 2280Hz is +/- 0.3%; it is sent at -6 +/- 1dBm. An idle line is signalled by the presence of a 3825Hz tone for more than 650ms. This must be within 4Hz.

France uses the same box codes as the U.S., with an additional 1900Hz acknowledgement signal, at -8.7 +/- 1dBm per frequency.

Spain uses a 2 out of 5 mf code (same frequencies as U.S.), with a 1700Hz acknowledge signal.

Other places using the IVF system are:

Australia: 2280Hz +/- 6Hz, 35ms/digit at -6dB.

Germany, France: same as Australia; also, some IVF systems in the U.K.

Switzerland: same as Australia, only it uses 3000Hz, not 2280.

Sweden: same as above, but at 2400Hz.

Spain: some parts use IVF with 2500Hz.

There is one other major system: the 2VF system. In this system, each digit is 35ms long. The number is encoded in binary as with the IVF system. Using the example of five (0101), here's how the American 2VF system was sent:

2400 pulse, pause. 2040 pulse, pause. 2400 pulse, pause. 2040 pulse, pause. The digits and pulses are all 35ms long for a total of 280ms per digit.

Other countries are still using a similar high/low pair with the same timings. Some parts of **Italy** use the IVF system with 2040Hz; some use the 2VF system with 2040 and 2400Hz (same as original U.S.). **The Netherlands** uses a 2VF system with 2400 and 2500Hz pulses. With the 2VF system, all frequencies should be within 2Hz.

Also, here are some specs for American phone equipment:

Dial Tone: 350+440Hz, -17.5 to -14.5 dBm/tone.

Off-Hook (BOH): 1400+2060+2450+2600(!) on/off 5 times per second.

Busy: 480+620Hz; slow busy: 0.5 +/- 0.05 sec = 1 period (about twice a second), at -28.5 to -22.5 dBm/tone.

Ring: 440+480Hz at -23.5 to -20.5 dBm/tone. A ring is modulated at 20 +/- 3Hz, 2 sec on, 4 sec off.

Call Waiting: 440Hz, on 1 second.

Recorder Connect: 1400Hz, beeps every 15 seconds.

Multiparty Line Ring: same frequency and modulation as ring, but 1 sec on, 2 sec off (twice as fast).

Titan the Scanner

In the early days of British phreaking, the Cambridge University Titan computer was used to record and circulate numbers found by the exhaustive dialing of local networks. These numbers were used to create a chain of links from local exchange to local exchange across the country, bypassing the trunk circuits. Because the internal routing codes in the U.K. network are not the same as those dialed by the caller, the phreaks had to discover them by "probe and listen" techniques, more commonly known in the U.S. as scanning. What they did was put in likely signals and listen to find out if they succeeded. The results of scanning were circulated to other phreaks. Discovering each other took time at first, but eventually the phreaks became organized. The "TAP" of Britain was called "Undercurrents" which enable British phreaks to share the info on new numbers, equipment, etc.

To understand what the British phreaks did, think of the phone network in three layers of lines: local, trunk, and international. In the U.K., Subscriber Trunk Dialing (STD), is the mechanism which takes a call from the local lines and (legitimately) elevates it to a trunk or international level. The U.K. phreaks figured that a call at trunk level can be routed through any number of exchanges, provided that the right routing codes were found and used correctly. They also had to discover how to get from local to trunk level either without being charged (which they did with a bleeper box) or without using (STD). Chaining has already been mentioned but it requires long strings of digits and speech gets more and more faint as the chain grows, just like it does when you stack trunks back and forth across the U.S. The way the security reps snagged the phreaks was to put a simple "printermeter" or pen register, as we call it, on the suspect's line, which shows every *digit dialed* from the subscriber's line.

The British prefer to get onto the trunks rather than chaining. One way was to discover where local calls use the trunks between neighboring exchanges, start a call, and stay on the trunk instead of returning to the local level on reaching the distant switch. This again required exhaustive dialing and made more work for Titan; it also revealed "fiddles", which were inserted by Post Office Engineers. What fiddling means is that the engineers rewired the exchanges for their own benefit. The equipment is modified to give access to a trunk without being charged, an operation which is pretty easy in Step by Step (SxS) electromechanical exchanges, which were installed in Britain even in the 1970's.

A famous British "fiddler" revealed in the early 1970's worked by dialing 173. The caller then added the trunk code of 1 and the subscriber's local number. At that time, most engineering test services began with 17X, so the engineers could hide their fiddles in the nest of service wires. When security reps started searching, the fiddles were concealed by tones signalling: "number unobtainable" or "equipment engaged" which switched off after a delay. The necessary relays are small and easily hidden.

There was another side to phreaking in the U.K. in the sixties. Before STD was widespread, many "ordinary" people were driven to occasional phreaking from sheer frustration at the inefficient operator controlled trunk system. This came to a head during a strike about 1961 when operators could not be reached. Nothing complicated was needed. Many operators had been in the habit of repeating the codes as they dialed the requested numbers so people soon learned the numbers they called frequently. The only "trick" was to know which exchanges could be dialed through to pass on the trunk number. Callers also needed a pretty quiet place to do it, since timing relative to clicks was important.

The most famous trial of British phreaks was called the Old Baily trial which started on 3 Oct. 1973. What the phreaks did was dial a spare number at a local call rate but involving a trunk to another exchange. Then they sent a "clear forward" to their local exchange, indicating to it that the call was finished—but the distant exchange didn't realize this because the caller's phone was still off the hook. They now had an open line into the distant trunk exchange and they sent a "seize" signal (1) which put them on the outgoing lines. Since they figured out the codes, the world was open to them. All other exchanges trusted the local exchange to handle the billing—they just interpreted the tones they heard. Meanwhile, the local exchange collected only for a local call. The investigators discovered the phreaks holding a conference somewhere in England surrounded by various phone equipment and bleeper boxes, also printouts listing "secret" Post Office codes. The judge said, "Some take to heroin, some take to telephones." For them phonphreaking was not a crime but a hobby to be shared with phellow enthusiasts and discussed with the Post Office openly over dinner and by mail. Their approach and attitude to the world's largest computer, the global telephone system, was that of scientists conducting experiments or programmers and engineers testing programs and systems. The judge appeared to agree, and even asked them for phreaking codes to use from his local exchange!

MORE ON TRASHING

What to look for, how to act, where to go

by The Kid & Co. and The Shadow

An inspection of your local Telco office trash receptacles can reveal a wealth of documents of great interest to a telecommunications hobbiest. The fone company doesn't expect anyone except maybe bums to paw through their refuse, and therefore often disposes some interesting materials. In all the installations we have investigated, the Company doesn't shred or incinerate anything. Most sites have their garbage in trash bags convenient for removal and leisurely inspection at home.

A case in point. The authors of this article have been engaged in trashing for about three months, finding quite informative info, but when we escorted two phriends from the city on an expedition, we didn't know the most efficient methods. They came out to the boondocks of New Jersey to inspect the wealth of AT&T and Bell installations in the region. They were quite expert at trashing, having more experience in the art, so we merely watched and copied their technique.

Our first hit of the night was of an AT&T Information Systems office building. We gathered a large mass of manuals and binders. Then we moved onward to hit AT&T Communications, the local business office, our central office, and another Bell site. After a successful session, we decided to call it a night.

We sorted the piles of garbage for things of merit. Our phriends garnered the majority of the really interesting items, but we salvaged several things of worth. This sorting session was conducted in the center of town, to the amusement of passers-by. It was interesting to explain to friends that passed by what we were doing. We BS'ed an inquisitive young lady into thinking that we were a local group of Boy Scouts cleaning the area as a project for our Eagle Scout badge. Following the tendency of the masses to follow falsehoods, she complimented us on how clean the town looked, for she had been out of the country for the last couple of months. Just remember when "creatively explaining" to sound confident, and to have your compatriots shut their mouths. A couple of times we almost contradicted each other as everyone got into the flow of falsehoods.

Numerous things of interest can be found in Bell trash. Ones that are of use to anyone are binders and notebooks with the Bell logo on them, good for impressing friends. Also, supplies of Bell letterhead are good for scaring phriends. Documents of more interest to phreaks can also be found. Cosmos printouts abound in any CO trash. In house telephone directories list employees of Bell, good to try social engineering on. Manuals also have merit for the phreak. Maintenance reports, trunk outages reports, line reports, network control analysis (NCA), TSPS documents, and lists of abbreviations used by the fone company can be found. The latter is of great importance as it allows one to decipher the cryptic documents. Bell seems to love ridiculous and mysterious abbreviations and anacronyms.

"Looking for Notebooks"

The expert trasher must be willing to physically enter the dumpster. Only reaching in for easily obtainable objects misses heavy manuals that tend to sink to the bottom. Huge bulky printouts, directories, and obese manuals as well as binders settle out of reach. Also, once in the dumpster, inquisitive security can't see you.

Speaking of security, what are the dangers of trashing? Well, we don't know, having never been caught at it. The basic fact which protects the trasher is the ludicrousness of someone stealing your garbage. Probably the most they can get you for is trespassing, and most of the time they'll probably just throw you off the property. Good excuses for being around the dumpsters are that you are passing through on a shortcut, that a ball or frisbee has flown in, or that you are looking for notebooks for school.

A good way to avoid unnecessary surveillance by Telco employees is to trash late at night, after most have gone home. Weekends, especially Sunday nights, leave the sites deserted, except for security or janitorial staff. Before starting on a trashing run, be sure to reconnoiter the area, and to find out the schedule of garbage collection. That way you can hit the trash at the fullest and most profitable time.

One thing that simplifies trashing runs is the use of a car. A car will allow one to hit trash sites farther afield, as well as assisting in the removal of bags and boxes of trash to sort at your leisure. Trash sorting really shouldn't be done on site as it increases the possible time for discovery by security. Removing garbage by foot invites stares and limits the amount that can be removed. The car should drop off the trashers and return about a half hour later, depending on the amount of trash there. Before dropping them off, be sure to investigate if there is any trash in the first place for, as past experience has shown, they tend to get quite angered when they have spent the last hour staring at an empty trash container.

The on-site trashers should be willing to hop into the dumpster. As we mentioned, this maximizes the amount of trash that can be reached. They should rip open any bags, shoving the uninteresting ones to the rear and bottom of the container, while bringing new ones to the forefront. Boxes in the trash should be used to carry the documents into the trunk of the car for leisurely sorting. This should be done with a minimum of noise and light, if flashlights are to be used. The trashers shouldn't attempt to take the best stuff, just to grab as much as looks interesting.

At the appointed time, the car should return and pick up the trashers. Boxes should be stuffed in the trunk as quickly as possible. Smell won't be much of a problem, as all you are taking are papers. Occasionally a bag of coffee grinds smells up the works, but you, at all costs, should avoid cafeteria dumpsters as the rotting food really reeks, and contains little of value to the telecommunications hobbiest.

The car should then drive off to a safe and secluded spot to sort the trash. The location should be well lit and have another dumpster handy to throw the real trash out permanently. The valuable stuff should be taken home and sorted according to type. By keeping all of the similar stuff together, patterns can be recognized. Here, abbreviation lists come in handy. The date and location where the trash is located helps to keep the junk organized.

A careful inspection of local Telco trash receptacles can be informative and fun. Any real phreak should find out at the least what the switching equipment for his/her/~~its area~~ is. Proper trashing technique is gained by experience, so climb on in! Well, happy trashing and have a phree day.

NSA Doesn't Feel Secure

The New York Times

The National Security Agency has told Congress that United States advantages in advanced technologies, including development of nuclear weapons, are threatened by the poor security of the nation's communications networks.

To protect information, the agency recommended that a single agency supervise the development of communication security procedures, the purchasing of telecommunications security equipment and carrying out personnel security procedures.

The National Security Agency is the largest and most secretive of the nation's intelligence agencies. Its chief responsibilities are to collect intelligence by eavesdropping on the electronic communications of other nations and to devise ways to prevent foreign countries from acquiring the confidential messages of the Defense Department and other security agencies.

Jerry F. Berman, legislative counsel to the American Civil Liberties Union, agreed that the swift development of computerized communications systems had made security a legitimate public concern.

"But what is disturbing about the proposal is that it comes from the N.S.A., a super-secret agency with a major foreign intelligence mission and the least accountability of any agency in the United States Government," Berman said.

"If any agency is competent, it is the N.S.A. The problem, however, is that they are not accountable and cannot be counted upon to weigh other interests, such as the privacy of all American citizens.

"If the N.S.A. were to get involved in procurement, for example," Berman added, "they could end up putting a net of security over large parts of the academic community and industry. It might increase security, but it also could reduce freedom and hinder the open development of new forms of communications."

A list was not provided of the Government telecommunications networks that might come under the overall control of a centralized security agency if it was given a broadened mandate. The Federal Bureau of Investigation, the General Services Administration, and the Federal Reserve operate national communication networks that would qualify as being among "the nation's automated information systems."

Another Hacker Story

Associated Press

A boy who allegedly bought rare comic books and other goods worth thousands of dollars by using a computer to get credit-card numbers is helping authorities trace other hackers across the country, Howard County [MD] police say.

He has cooperated with local police, FBI, and Secret Service investigators by providing information about illegal computer operating practices. The youth allegedly bought computer equipment and programs valued up to $4,000 by using credit card numbers supplied by computer hackers from the Midwest. He ordered the goods by telephone and then picked them up after their delivery to unoccupied homes.

Police obtained a warrant to search the boy's house August 16 after talking with an informant. Found were programs that allowed him to patch into several long distance telephone companies illegally. Police say he apparently was able to call around the world and arrange conference calls using corporate telephone lines.

[Must have been a real genius...]

AT&T Faces Serious Money Problem

Associated Press again

The American Telephone and Telegraph Company, despite service backlogs and increased competition, has moved closer in recent months to its maximum authorized profit margin for interstate long-distance telephone service.

A company spokesman said late last month that AT&T's rate or return, or profit margin, on long distance service was 12.36 percent after the first seven months of 1984. The maximum authorized margin is 12.75 percent annually, based on AT&T's investment in equipment.

Among long distance companies, only AT&T faces an Federal Communications Commission limit on profits. The commission last adjusted the margin in 1981 after more than a year of study, raising it from 11 percent. Should AT&T exceed it's margin, the F.C.C. can order rate cuts.

Private Directories Soon to be Available

The New York Times

How valuable are the telephone directories of some of the nation's top banks, investment and accounting firms, insurance companies, and corporations—especially those that include not only direct office numbers for managers, but also home addresses and phone numbers and, in at least one instance, such data for summer homes?

Steven Olsen is counting on their being worth a great deal. His firm, Corporate Information Services, plans to sell copies of directories for such companies as the General Motors Corporation; the RCA Corporation; Chase Manhattan Bank; Goldman, Sachs & Company; Arthur Andersen & Company, and Booz, Allen & Hamilton, the management consulting firm.

Prospective buyers are told to write to a box number and ask for a catalog detailing what Mr. Olsen said would be a package of directories for 250 companies from around the world. They must then submit bids through the mail for his package. Bidders topping a minimum set by Mr. Olsen's company would receive the package, and, he said, "we're not talking small money. This is a valuable source of information to stockbrokers, executive recruiters, [computer hackers,] insurance and real estate brokers, and those engaged in direct-mail marketing or telemarketing. We're talking about the most powerful companies and some of the highest-salaried people in the world," he added.

Mr. Olsen, who said he got his idea while working as an editor for a computer publication [it wasn't us, we *swear*], showed off copies of in-house directories for Chase Manhattan and Goldman, Sachs during an interview. His plans drew a cool response from both companies.

Many other companies declined comment on the attempted sale of their directory information. The reaction among those that did ranged from outrage to hearty amusement.

"We only have copies of the directories," Mr. Olsen stressed, not the directories themselves. "So we're not in receipt of stolen properties, and I acquired them all legally."

But Mr. Olsen, who wants to sell other people's addresses and telephone numbers, declined for "reasons of security" to disclose the address or telephone number of his company. There was no listing for Corporate Information Services in telephone information for New York City, and the address to which inquiries about the auction are to be sent is a mailbox in a private postal drop company on lower Fifth Avenue. Mr. Olsen was reached through an answering service, whose number is not as closely guarded. [The folks at *2600* would be more than proud if some of our readers were able to find out this guy's phone number so we can display it on *Page One!!!*]

Mr. Olsen said that such secrecy was necessary "as protection against attempts to steal or destroy this valuable database." He said he was followed for a time and "had to take evasive action" last year after a newspaper published an article about the company.

Mr. Olsen also said that he had no copies of company directories that are copyrighted. Victor A. Kovner, a lawyer who is a copyright expert, said that if a company has copyrighted its directory and given notice in it, the book cannot be reproduced without permission.

Mr. Kovner said that if a company has not copyrighted its directory, then in most cases it could not prevent copies from being disseminated.

[To illustrate this point, we have published a picture of a directory on Page 5 that is not copyrighted. We suggest you look at it so you'll understand this article better. And as a public service to nearly everyone, we challenge Mr. Olsen to beat *our* price for "public" information, which is simply the cost of Xeroxing and mailing it. We'll cheerily make available *any* documents (non-copyrighted, of course!) provided by contributors for a no-profit price. So send them on in!]

A FRIEND IN HIGH PLACES
YET ANOTHER TRUE STORY OF TELECOMMUNICATION FUN

Once upon a time there was a most unusual phone phreak and it was a phone phreak who didn't realize it. Her name was Joanne. She had a very remarkable position in that she was a telephone operator in an extremely small, rural, midwestern community. A friend of mine, who was a radio D.J., got a job in this small town. One night he had a few drinks after he got off work. He called this operator up and started talking to her for a while. She didn't hang up. In fact, she was quite cordial, quite nice, quite friendly. She said, "Would you like to call Dial-a-Record (in Australia)? Or Dial-the-Time in London? Or any other dial-it services? If there are any phone calls you'd like me to place *for free*, just let me know."

So Joanne proceeded to place a lot of long distance calls for the guy for free. He introduced me to her and said you can call Joanne for free by dialing a certain out-of-service number. She'd say, "What number did you dial, please?" And then she would quickly forward it to the other intercept operator in the nearby large city where she would tell the operator what number was dialed and then they'd put on the standard out-of-service or number-changed recording. I'd say, "Hey Joanne, it's me, call me back!" And she would. And I'd talk to her all night long because I was a security guard at the time. We'd place long distance calls, conference calls like you wouldn't believe. One day she said that the switchboard was going to get phased out—a new TSPS switchboard was being installed in the large community and was going to serve all of the small communities in a four or five state area.

But Joanne continued to be a phone phreak and to this day she's working as a secretary for a senator in Washington, DC. She still does some pretty remarkable things, even though she's not an operator.

You might want to call up your local operator, provided you live in a small town, and just say hi sometime. I've done it on occasion and operators are usually fairly friendly, but far from phone phreaks. You might want to try this with directory assistance (they double as operators in smaller locales).

Who knows, you might find another Joanne someplace. One never knows.

LETTERS FROM THE OUTSIDE

Dear *2600*:

Would you explain these terms to me? I don't know what they are:

1) phone loop
2) WATS extender.

Also, what became of *TAP*?

Thanks.

AZ

Dear AZ:

Phone loops are basically test circuits that the phone company uses for various purposes. They were never intended for use by the public. The way it works is simple. One caller dials number A. Another caller dials number B. When both of these people call these numbers at the same time, they become connected! Some loops make clicking or beeping sounds every few seconds which makes talking on them rather hard. But others are crystal clear connections. But while they may serve a purpose for the telco, what possible use could they be for anyone else. Well, for one thing, in many cases there is no charge for calling a loop number since they fall within a series of test numbers the phone company uses. Loops are also a great way to have an anonymous conversation- it's an indirect connection to another person instead of a direct one, although it's far from impossible to be traced while using one. Finally, there's the old call-collect trick where one person calls up one end of a loop that is within his local calling area. A friend from far away calls the other end of the loop collect. When the connection is made between the two loops, the operator will think that somebody answered the phone and will ask them if they want to accept a collect call. The telephone company winds up billing themselves for the call. Also, your phone number need never be known by the person "meeting" you on the loop, since he's not ever dialing your number. Loops have two ends—the silent end and the tone end. When a connection is established, the tone stops and conversation can begin. Loops are almost always found within the phone company test numbers (the 99XX suffix, in many cases). Loops are slowly but surely dying out, however.

An extender is very similar to a Sprint or MCI dialup, except that it's a number used exclusively by a particular business or organization for their phone calls. A WATS extender is one that is available on an 800 number. An employee calls up, hears the dial tone, enters a code, and dials away. There are many extenders around and many different types. Watch for an article soon detailing these.

As far as *TAP*, we sent a message to their MCI Mail account, and this is what their editor said:

"*TAP* is in hiatus. I was evicted from my apartment last week, put everything I could carry into storage, and left for California on vacation. When I get back to the East Coast, I'll be getting together issues 91 and 92. (While there is a possibility of getting the issues out while I'm out here, I will not put *TAP* out in California due to the restrictive state laws on proprietary information.)

MCI Mail is a viable way of asking me questions that require only short responses, but you should send me hard copy to *TAP*'s maildrop address (RM 603, 147 West 42nd St., New York, NY 10036) because I seldom check my MCI Mail anywhere near a hard copy printer. MCI usually deletes my mail before I can call back in and pull it out on paper.

Hope this answers your question. Keep Smiling, Chesire."

IBM 'ADS DIRECTORY'

DIV	ADS LOCATION	ADS TIELINE	ADS OUTSIDE
AFE	CANADA D MILLS	8/942/5261	416/443/5261
AFE	CANADA MARKHAM	8/241/2371	416/474/2371
AFE	CANADA MONTREAL	SEE (1)	514/874/4270
AFE	CANADA RTT1	SEE (2)	416/360/2721
AFE	CANADA RTT2	SEE (2)	416/360/5123
AFE	CANADA VANCOUVR	SEE (3)	604/665/8670
AFE	TARRYTOWN II	8/482/4333	914/997/4333
CHQ	ARMONK	8/251/5300	914/765/5300
CHQ	CCDN HCP	N/A YET	
CHQ	HUTCH CORP PARK	8/566/3300	914/684/3300
CPD	AUSTIN	8/678/8381	512/838/8381
CPD	AUSTIN	8/678/5555	512/838/5555
CPD	KINGSTON	8/373/1000	914/385/1000
CPD	RALEIGH	8/441/6801	919/543/6801
CSD	FRANKLIN LAKES	8/731/2200	201/848/2200
CSD	R 4 PHILADELPHA	8/943/2757	215/864/2757
DSD	POUGHKEEPSIE	N/A YET	
DSD	POUGHKEEPSIE	N/A YET	
EMEA	IBM EHQ	N/A YET	
EMEA	IBM FRANCE		331/296/1619
EMEA	IBM FRANCE	SEE (4)	
EMEA	IBM GERMANY	SEE (5)	
EMEA	IBM ITALY		39/275486550
EMEA	IBM UK		441/408/0787
EMEA	LA HULPE ED CTR	N/A YET	
FED	FRANKLIN LAKES	8/731/4545	201/848/4545
FED	GREENCASTLE	8/787/2020	317/658/2020
FSD	BETHESDA	8/765/1717	301/493/1717
FSD	GAITHERSBURG	8/372/6700	301/840/6700
FSD	HOUSTON	8/671/7788	713/333/7788
FSD	MANASSAS	8/725/5751	703/367/5751
FSD	OWEGO	8/662/5566	607/751/5566
FSD	OWEGO	8/662/5777	607/751/5777
GPD	SAN JOSE	N/A YET	
GPD	SAN JOSE	N/A YET	
GPD	SANTA THERESA	8/543/3055	408/463/3055
GPD	TUCSON	N/A YET	
ISCG	ISCGHQ W PLNS	8/524/4700	914/934/4700
ISG	FRANKLIN LAKES	8/731/4040	201/848/4040
ISG	ISGHQ KING ST	8/524/4700	914/934/4700
NAD	ATL REGION	8/728/4230	202/833/4230
NAD	DALLAS (GOSM)	8/668/1818	214/749/1818
NAD	DENVER B/O 13'	8/656/5222	303/773/5222
NAD	HOUSTON	8/345/1077	713/940/1077
NAD	INFO NTWK TAMPA	8/438/4300	813/872/4300
NAD	IRVING	8/641/5289	214/556/5289
NAD	LINE SW MKTG WP	8/367/4655	914/899/4655
NAD	NADHQ W PLNS	8/254/7100	914/696/7100
NAD	NFM BETHESDA	8/825/0311	301/493/0311
NAD	R 4 WAYNE, PA	8/432/5333	215/293/5333
NAD	R 6 ATLANTA	8/354/7550	404/885/7550
NAD	R 7 CINCINNATI	8/635/7610	513/733/7610
NAD	R 8 SOUTHFIELD	8/348/5555	313/552/5555
NAD	R 9 CHICAGO	8/261/4444	312/245/4444
NAD	R10 BLMTN, MN	8/653/2195	612/893/2195

NOTES:

(1) DIAL 8/241/2111 ASK FOR OUTSIDE NUMBER
(2) DIAL 8/241/2111 ASK FOR 8/165/4270
(3) DIAL 8/241/2111 ASK FOR 8/187/8670
(4) DIAL ADS 39-935-8400 EXT 4570
(5) DIAL ADS 49-7031-6200 EXT 8000

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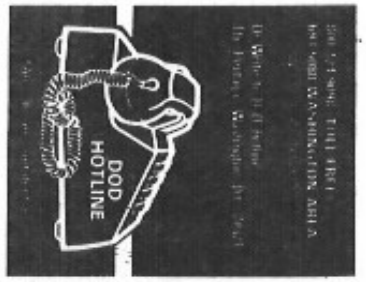
DIV	ADS LOCATION	ADS TIELINE	ADS OUTSIDE
NAD	R11 ST LOUIS	8/775/9473	314/554/9473
NAD	R13 S FRANCISCO	8/473/4747	415/545/4747
NAD	R14 L ANGELES	8/285/4400	213/736/4400
NAD	590 MADISON	8/243/5600	212/407/5600
NAD	590 MADISON	8/243/5125	212/407/5125
NAD	590 MADISON	8/243/5186	212/407/5186
NMD	ASC 5 DALLAS	8/668/6262	214/888/6262
NMD	ASC 6 L ANGELES	8/285/6441	213/736/6441
NMD	NMDHQ ATLANTA	8/331/5155	404/238/5155
NMD	NMSC ROCHESTER	8/456/7360	507/287/7360
NMD	R 1/2/3 NY	8/325/2741	212/239/2741
NMD	R-4/5-PHIL/BETH	8/943/6414	215/864/6414
NMD	R 5 BETHESDA	8/727/2522	301/987/2522
NMD	R 6 ATLANTA	8/354/4970	404/393/6970
NMD	R 6-8 SE'S	8/354/4820	404/393/6820
NMD	R 8 CINCINNATI	8/635/7634	513/733/7634
NMD	R 9 BLMFLD HILL	8/348/6564	313/540/6564
NMD	R10 RLG MEADOWS	8/788/6450	312/981/6450
NMD	R11 EDEN PRAIRI	8/653/2685	612/893/2685
NMD	R12 OVERLAND PK	8/344/7387	913/661/7387
NMD	R13 DALLAS	N/A YET	
NMD	R14 DENVER	8/656/5315	303/773/5315
NMD	R15 NEWPORT BCH	8/288/3233	714/752/3233
NMD	R16 S FRANCISCO	8/473/4900	415/545/4900
RECD	RECDHQ TARRTWN	N/A YET	
RECD	TARRYTOWN II	N/A YET	
RES	YORKTOWN	8/862/3701	914/945/3701
SPD	BOCA RATON	8/443/0361	305/998/0361
SPD	BOCA RATON	8/443/8500	305/998/8500
SPD	ROCHESTER	8/456/7400	507/287/7400
SPD	SPDHQ W PLNS	8/236/1812	914/686/1812
SSD	DAYTON	8/529/4755	201/329/4755
TCP	PRINCETON	8/538/8845	609/734/8845
WTC	EMEA W PLNS	8/236/2626	914/686/2626



MORE THAN MEETS THE EAR

New York Telephon

158 West Central Avenue
Spring Valley, New York 10977
Phone (914) 425-9950

June 27, 1984

We have made several unsuccessful attempts to reach you by telephone to discuss an important matter concerning your telephone service in the New City area.

Our records indicate that you are not subscribing to Touch Tone Service but you are using a push button phone. It will be necessary for you to contact us no later than July 3rd so that we may convert your service to Touch Tone at the approriate charges. If you fail to do so you will not be a ble to make outgoing calls from your push button set after July 8th due to our new call processing system; which went into effect on June 9th.

The new system is designed to handle more calls and process them faster. Also, it allows for sophisticated calling capabilities called Custom Calling Services. These services are "Call Waiting, Call Forwarding, Speed Calling, and Three Way Calling".

You may want to subscribe to these services when your convert to Touch Tone.

Please contact me befor July 3rd, so that I can make the necessary arrangements to connect you line to Touch Tone and avoid any interruption in your outgoing service.

Sincerely,

(Mrs.) M.J. Coyne
Representative

MC:ml

OH NO! THIS PERSON'S CENTRAL OFFICE HAS SWITCHED OVER TO ESS OR THE EQUIVALENT, WHICH MEANS NO MORE FREE USE OF TOUCH TONES®. AND SOMEHOW (PROBABLY THROUGH THE USE OF FCC REGISTRATION NUMBERS) THE PHONE COMPANY FOUND OUT THAT THIS PERSON WAS USING A "PUSH-BUTTON". BY THE WAY, CHECK OUT THE MANY TYPOS IN THIS LETTER. WE COUNTED FIVE MAJOR SCREWUPS, AND THERE ARE PROBABLY MORE.

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