

LAW ENFORCEMENT ASSISTANCE ADMINISTRATION (LEAA)  
POLICE TECHNICAL ASSISTANCE REPORT

SUBJECT: Development of a 911 System

REPORT NUMBER: 77-098-181

FOR: New Castle County, Delaware

Population 400,000

Police Strength  
(Sworn) 790

Square Mile Area 440

CONTRACTOR: Public Administration Service  
1776 Massachusetts Avenue, N. W.  
Washington, D. C. 20036

CONSULTANT: R. James Evans

TRACT NUMBER: J-LEAA-002-76

DATE: March, 1978

NCJRS

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ACQUISITIONS

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## I. INTRODUCTION

This report was prepared in response to a request for technical assistance from the New Castle County Department of Public Safety. The task was to assist in the development of a 911 call for police, fire and ambulance service communications center, including a system for installing necessary equipment (radio, telephone, and computer) for receiving and dispatching calls for service.

The consultant assigned was Mr. R. James Evans, and those persons involved in processing the request were:

Requesting Agency: Mr. Richard Kendall  
Administrative Assistant  
Department of Public Safety  
New Castle County, Delaware.

State Planning Agency: Ms. Christine Harker  
Governor's Commission on  
Criminal Justice.  
Wilmington, Delaware.

Approving Agency: Mr. Robert O. Heck  
Police Specialist.  
LEAA Office of Regional  
Operations.

## Background

New Castle County, Delaware, is one of three counties in the State and has a population of approximately 400,000 people in an urbanized area covering 440 square miles. The County of New Castle lies in the Northern section of the State. The County is split by the Chesapeake and Delaware Canal, with 50 percent of the land area located south of the canal, although only 4 percent of the population is located below the canal.

The Public Safety Departments in the County have in the past several years shown a desire to improve their services to the citizens of the County by centralizing some of the emergency call taking and dispatching functions; for instance, the County police and the State police some years ago formed a Regional Emergency Communications Center (RECOM), responsible for accepting emergency calls from citizens and dispatching the nearest vehicle for assistance in police related incidents. A second County system was also implemented several years ago. It is the County Fire Board. This unit receives citizen calls throughout the County (except the City of Wilmington) for fire and ambulance assistance and dispatches equipment for 21 of the 22 fire departments in the County.

In order to improve these coordinated emergency services and provide the citizens with a faster and easier access for help during their emergencies, the county has developed a 911 common telephone number plan which is



expected to be implemented along with further centralization of the existing fire and police dispatching services. The available full-time police personnel in the County are as follows: State Police, 436 officers with approximately 300 in the New Castle County area; County of New Castle Police, 185, Wilmington Police Department 256; Newark Police Department 49. The fire service in the county (Fire Board) operates over 180 pieces of equipment.

#### Methodology

The first section of the problem, the development of a 911 call for police, fire, and ambulance service communications center, was completed in late 1977 by the use of a committee and several workshops held in New Castle County. Mr. Kendall advised the most urgent problem and task for the consultant to undertake is as follows: a) review the proposed 911 plan, b) review and make recommendations to a draft copy of a request for proposal (RFP). The draft copy of the RFP was prepared by The Pinkerton Computer Consultants, Inc., a consulting firm in Pennsylvania.

The task required a review of the several existing communications centers in the County that will be a part of the new proposed center for 911 telephone calls and dispatch of emergency messages. The Centers visited were the county and state center, RECOM, New Castle Fire Board communications center, and the Wilmington Police and Fire operations. A meeting was attended by the consultant on

January 27th, 1978 at which Mr. Kendall reviewed the proposed 911 plan and the consolidated communications center with State Police personnel. Much of the consultant's time was used in discussions with Mr. Kendall and various other communications personnel for obtaining sufficient background material for analyzing the RFP material. Mr. Russel Lee of the Delaware State Police was contacted by telephone for the purpose of discussing technical specifications on the new console equipment.

Personnel interviewed during the on-site visit included the following:

1. Mr. John T. McCool, Director  
Department of Public Safety,  
New Castle County, Delaware
2. Mr. Richard W. Kendall,  
Administrative Assistant,  
Department of Public Safety,  
New Castle County, Delaware
3. Mr. James W. Bell,  
Chief of the Fire Emergency Communications  
Center, Department of Public Safety,  
New Castle County, Delaware
4. Ms. Christine Harker,  
Governor's Commission on Criminal Justice,  
Wilmington, Delaware

5. Lt. George Lightcap,  
Delaware State Police.
6. Mr. Russel Lee, Communications Supervisor,  
Delaware State Police (telephone contact)

## II. ANALYSIS OF THE PROBLEM

The primary objective of this assignment was to review the 911 Communications Center proposal, the draft copy of a Request For Proposal (RFP), and provide comments, additions and corrections that will aid the County in their communications purchases. This section will analyze and review the two documents and the existing RECOM, Fire Board operations, and Wilmington Police and Fire Systems.

### The 911 Communications Center Proposal

The first of several areas of review by the consultant was the 911 communications proposal, prepared by New Castle County and dated December, 1977. This proposal verified the need of a single, easily remembered telephone number that would be fast for a citizen in need to dial. The single 911 telephone number would replace, at a minimum in the County, three, seven-digit police numbers, two seven-digit fire numbers, and one seven-digit ambulance number.

The 1977 planning action was created by Mary D. Jornlin, a New Castle County Executive, in the form of a 911 feasibility study committee. The Director of Public Safety for New Castle County, Mr. John McCool, was appointed chairman. Further planning was supported by the findings of a workshop committee chaired by Mr. Richard Kendall.

The main committee set forth a number of parameters within which the emergency reporting communications system should operate. The workshop committee addressed such needs as equipment, telephone, call-taking positions, space needs, and costs. The parameters and needs are available in a copy of the 911 plan in the appendixes (Appendix A). The proposal is based upon the assumption that the agencies listed below would operate their dispatch functions from the new communications center:

New Castle County  
Department of Public Safety Police

Emergency Communications Center  
(Fire and Ambulance)

City of Wilmington  
Bureau of Police  
Bureau of Fire

State of Delaware  
Department of Public Safety  
Division of State Police

City of Newark  
Police Department.

Confirmation of each agency to join the communications center was due on February 1, 1978.

The equipment needs for the communications center were assessed by the work shop committee. These needs included new consoles and the modification of existing units. It included a computer-aided dispatch system for the center, a logging recorder for long-term retention of telephone and radio traffic, several instant playback recorders, microfiche viewers for storage and viewing of microfilmed documents

pertinent to the center operation, telephone equipment, and line needs.

The staff requirements were estimated for the center to be approximately \$325,000 per year. The space requirements are being offered by New Castle County and consist of a new addition now being constructed adjacent to a former school building. The building is being renovated to provide quarters for the New Castle County Police Department.

Estimated equipment costs were provided by the committee at \$734,000. The majority of this cost will be provided through an existing EDA grant.

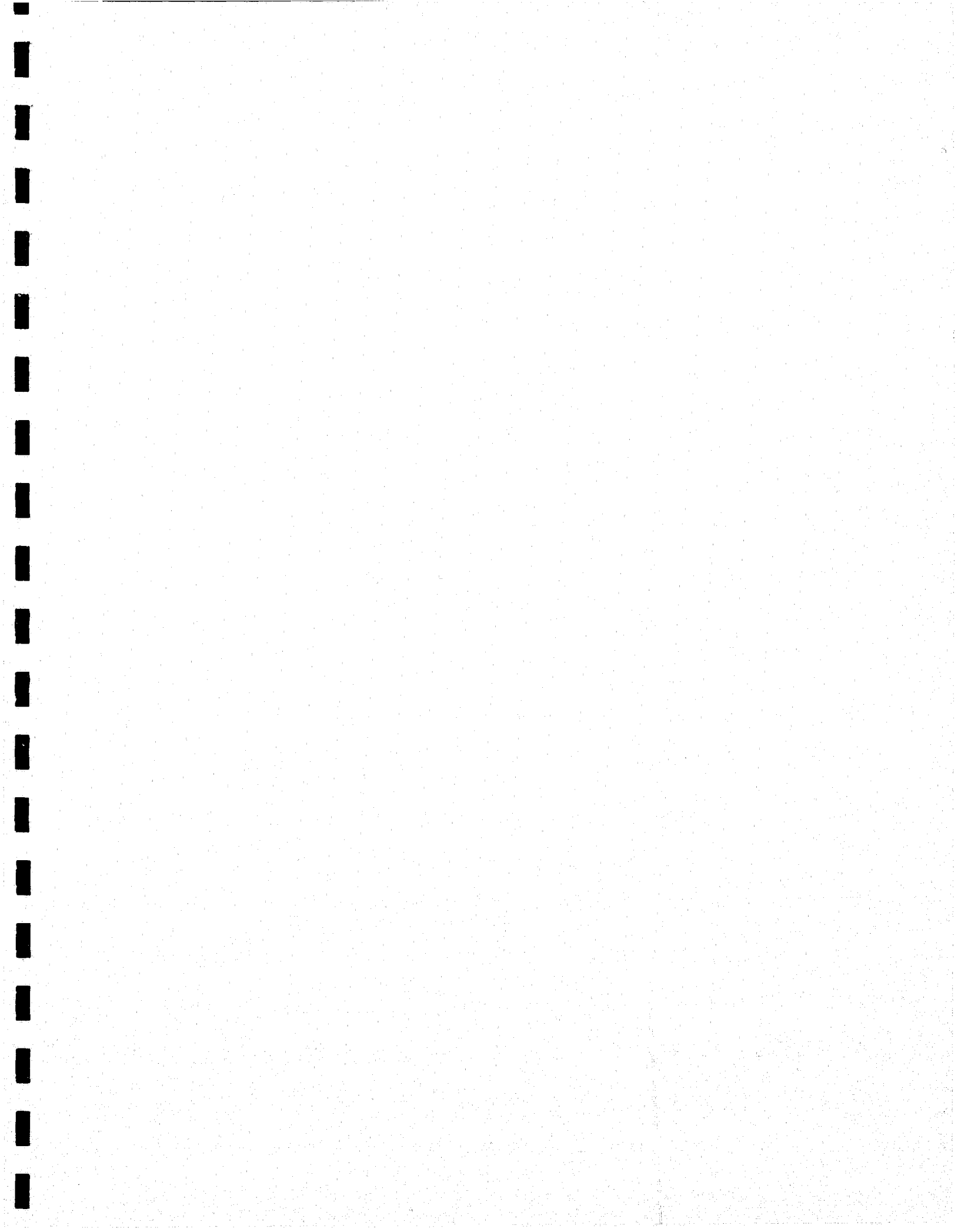
Operating costs have been estimated at \$417,000 per year on a full year basis.

The proposal carries a section describing the comparative operating cost for the new center (current operations vs. proposed center). The estimated operational figures indicated a savings of approximately \$14,990 per year with the new center operation. See Figure 1, Basic Concept of New Communications Center.

#### Request for Proposal for New Castle County

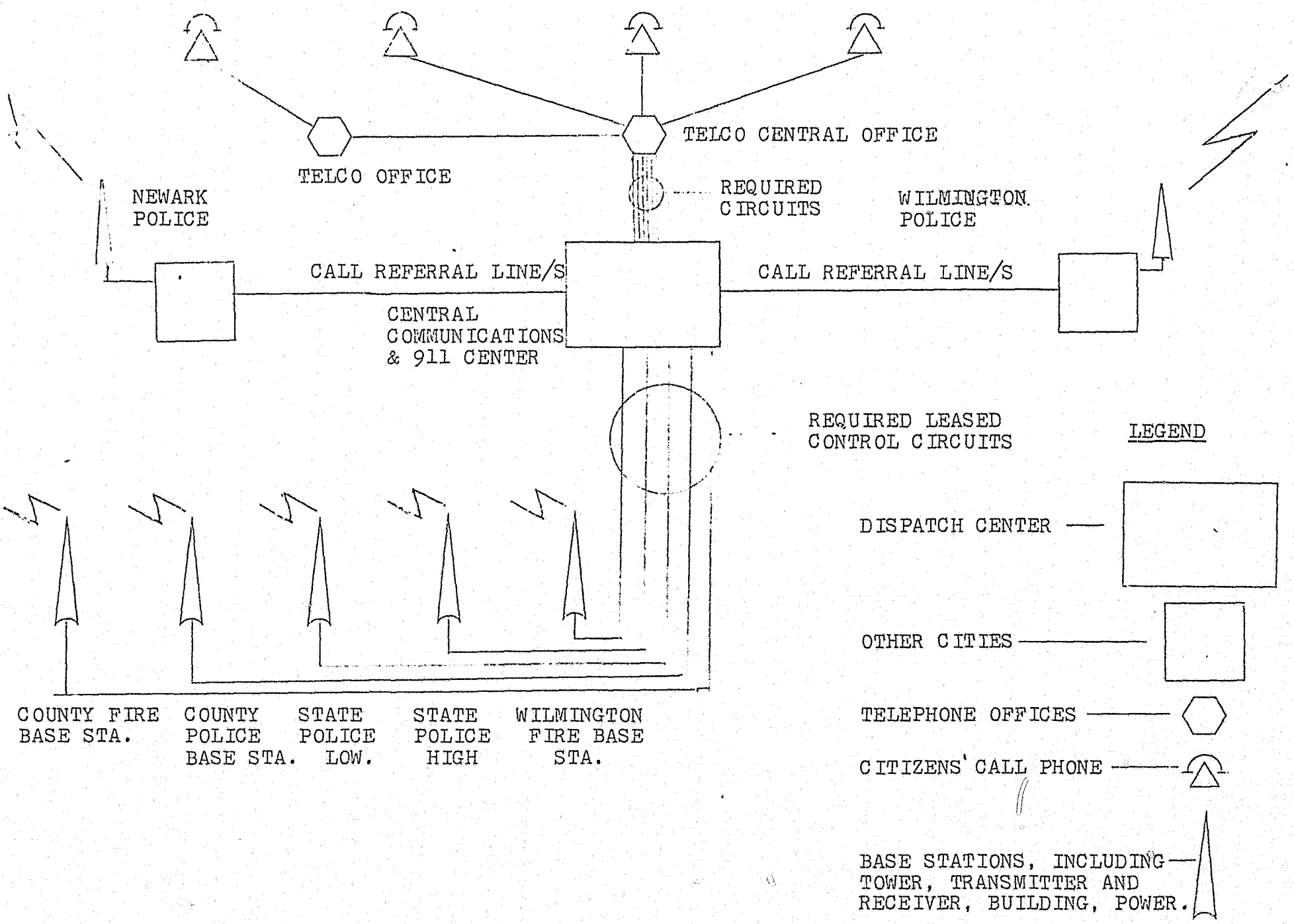
The request for proposal was prepared by the Pinkerton Computer Consultants, Inc. of Warminster, Pa. and included the emergency center consoles and associated electronics for the New Castle County Center (See Appendix B).

The RFP was prepared in seven sections, the first of which was an overview stating the required descriptions of



NEW CASTLE COUNTY, DELAWARE  
BASIC 911 CONCEPT.

911 CITIZEN CALLS



REQUIRED LEASED  
CONTROL CIRCUITS

LEGEND

DISPATCH CENTER — [Square]

OTHER CITIES — [Square]

TELEPHONE OFFICES — [Hexagon]

CITIZENS' CALL PHONE — [Triangle]

BASE STATIONS, INCLUDING  
TOWER, TRANSMITTER AND  
RECEIVER, BUILDING, POWER. — [Tower]

Figure 1



the hardware, the modifications and their functions. Detailed dimensions allowed for equipment installation, the bid exceptions, bid bonds required, warrantees, bid sheet instructions, and a diagram of the proposed communications center console layout.

The second section of the RFP describes the eight new consoles to be purchased for the State and County Police.

Section III briefly describes the two consoles to be purchased for the Wilmington Police Department.

Section IV describes a new console with accessories for the Wilmington Fire Department.

Section V describes modifications that will be required for the two existing Wilmington Police consoles in order to provide adequate desk space for the 60-button telephone instruments and the computer terminal (CRT).

Section VI describes modifications required to three existing New Castle County Fire and Ambulance consoles to make them compatible with the technical and construction changes at the new center.

Section VII describes one new 40-channel logging recorder to be purchased through the RFP. This section contains technical specifications that are sufficient to allow the vendor to determine the exact type of merchandise required.

Two Addendums were attached to the RFP document: the first were bid sheets for vendor pricing, on individual

items. The second was a detailed wiring section containing information on the existing consoles and remote equipment at RECOM.

#### Analysis of the Regional Emergency Communications Center (RECOM)

The Regional Emergency Communications Center is a cooperative telephone and dispatch operation between the Delaware State Police and the New Castle County Police. Each Agency provides personnel to work in the center. The center is located at the State Police quarters in Wilmington, Delaware, and the entire operation is under the supervision of State Police Lieutenant George Lightcap.

RECOM is governed by an agreement dated December, 1975, that sets forth the purposes and functions of the unit. (See appendix C). The basic purpose of the unit is to provide a central police communications for New Castle County outside the city limits of Wilmington and Newark and to provide a central complaint receiving unit for those citizens within the RECOM jurisdiction who are in need of emergency services. The functions of the unit are basically to receive requests from citizens for emergency services, make proper records, and to dispatch police units or relay calls to other agencies for action.

In addition to the purposes and functions that were set forth in 1975, there were recent adjusted jurisdictional agreements for the delivery of police services in New Castle County. This agreement is dated January 9, 1978, and a copy

appears in Appendix D. The adjusted agreement describes specific roadways and their adjacent structure that will be the responsibility of either the State Police or the New Castle County Police. When there is not an appropriate patrol unit available or in the immediate vicinity of a serious crime reported to be in progress or an incident which has, or is likely to result in serious physical injury, the nearest police unit will be dispatched regardless of the police agency jurisdiction.

These two documents indicate the fine cooperation between two departments to provide the public with emergency assistance in the fastest way possible.

The primary center operation consists of eight complaint-taker positions, four dispatch positions, and one supervisor's desk and console. The normal day-to-day operations do not require staffing of the full eight complaint positions. In the dispatch area there are two state police dispatchers, one to handle the low-band radio frequencies for administration and out-of-state messages, and one for the VHF or high-band channel assigned to handle the emergency police calls in Delaware. There is one county dispatcher and also one dispatcher expeditor whose function is to handle all calls for wreckers, ambulances, fire assistance and etc.

When a complaint-taker receives a call from a citizen for assistance, the information is recorded on an event card (IBM size), and the time the call is received. The jurisdiction is then determined. The card is then placed

into an endless track system that extends from the call-takers area into the dispatch area. This system will transfer the card in a matter of a few seconds. The dispatcher receives the card and assigns the complaint to a police car in the area. He will again stamp the dispatch time and record the final information on the complaint when the field officer clears. After final disposition, the card information is microfilmed and stored for future reference. The complaint-takers received 113,000 calls in 1977.

All dispatch positions have the use of two CRT terminals that are wire-lined to the State and Federal criminal justice computers and also to the NLETS system.

The center has a bank of logging tape recorders that provide a record of all radio transmissions and telephone calls accepted in the center.

The center supervisor's position has a console equipped with all telephone lines and dispatch channels. He has the capability to over-ride any of these circuits. He has a CB set that is used to monitor channel 9, as well as the supervision of alarm terminals for approximately 80 schools, banks, and businesses.

Status of the police vehicles is maintained manually by the dispatcher through the use of "IBM-type" cards. These are placed into a slotted upright tray directly in front of the dispatcher. This allows him to immediately access the availability of any unit when a message is received.

The radio control console system was designed by the Delaware State Police radio lab in Dover. It is a very novel and reliable design. The Dispatch control panels are equipped with the necessary switches and indicators, while all of the electronic equipment is placed in racks in a separate room. This design provides less confusion in the control room when repairs are necessary by the radio technician, since most of the problems occur in the electronic section.

#### Analysis of the New Castle County Fire and Ambulance Communications

About five years ago, a decision was made to upgrade the fire communications center to handle an increased activity. Recognizing the potential for tremendous expansion in the county, it was determined that an automated dispatch and data collections system would enhance the potential services the county supplied, without infringing on the autonomy of each individual fire department. A committee of fire chiefs representing each individual fire department in the county served as an advisory board in establishing the project. This committee continues to serve, providing valuable input to enhance capability of the system. The automated dispatch and data collection system is called CADRE (computer-assisted dispatching and reporting). This system uses two Interdata model 74 computers, one on-line, and one as a backup. Three CRT terminals are used in the dispatch area to assist in the fire and ambulance dispatching. This system provides computer storage for all dispatcher-required information such as recommended courses of action, current status of all

vehicles, retention of historical incident data, as well as management information for all fire chiefs involved in the county system. With the CADRE system each fire chief may retain control of their area and equipment and may modify the desired response at any time.

The present communications center has five telephone answering positions with consoles; each console has a total of 120 line capability. Within this structure of lines are the direct lines to fire stations, incoming lines from the public, direct lines to hospitals, police departments in the county, Delaware Power and Light, County ambulance stations, and other necessary contacts.

The dispatch function of this system alerts and dispatches over 200 pieces of fire and ambulance equipment for 21 departments in the county. In 1977 there were a total of 42,404 dispatched responses. The entire radio operation is on low band at this time; however, they plan in the near future to implement the Emergency Medical Service, VHF radio channels.

The center has a logging tape recorder with a capability of 40 channels and 10 active at this time.

A read-projection microfilm system is used in the center to store information necessary for the fire department operation throughout the county.

There are three radio dispatch consoles in the center; these have all of the necessary switch functions for the dispatching on any channel in use in the center. The consoles

are connected to base station radio transmitting and receiving equipment via wire lines. The base station equipment and radio tower are located directly back of the Engineering building (location of the center) on Capitol Trail in Newark, Delaware. The center and the base stations have emergency power that will actuate automatically during any failure of the commercial power.

Mr. James Bell, Chief of the fire and rescue center, advised that the center consoles and the CADRE system will be modified and updated when moved to the new center.

#### Analysis of the Wilmington Police and Fire Communications

The existing Wilmington Police and Fire communications are combined into one center that is located in downtown Wilmington. The original proposals for the 911 County Center indicated that both the Wilmington Police and Fire would participate; however, recent decisions have resulted in only the Fire department being moved into the new center. All calls for the Wilmington Police assistance received at the new Center on the 911 system from any of the 80,000 citizens in the City will be referred back to the Wilmington dispatcher for action. All calls for fire and rescue originating in the City of Wilmington will be received and dispatched from the new center location without the necessity of a call transfer or referral. The Wilmington Fire and Rescue service will take advantage of the computer-assisted dispatch system (CADRE) when they move into the new center. Part of

the expansion and updating of the CADRE system will include this expanded fire operation.

### Conclusion

The assessment and analyzation of the existing Public Safety Communications systems in New Castle County has provided a background upon which to evaluate the RFP. After review of the data collected on the afore-mentioned communications systems, it is the opinion of the consultant that the implementation of the 911 common telephone number and the new center will greatly improve the emergency service to the citizens of the County. Some of the systems, although operating efficiently, are in need of equipment (hardware) updating in order to continue to perform the required services.

### Internal and External Problems

The only internal problem that was apparent to the consultant during the on-site phase of the assignment was the apparent need for on-site technical advice in the area of hardware to be purchased. The Administrative Assistant, Mr. Richard Kendall, did an excellent job in preparing the 911 proposal and outlining the necessary procedures and equipment items; however, the RFP draft did not have an in-depth technical specification on the new consoles that is required for a vendor to properly bid. Since the consoles for the new center were to be designed after the existing models used at RECOM, the State Radio Communications Director,



Mr. Lee, should have been asked to provide the necessary specifications.

The external problem is related to the internal lack of technical assistance in the RFP. The consultant is of the opinion that the Pinkerton Computer Consultants in preparing the RFP should have spent some time with Mr. Lee in Dover, Delaware, in securing technical specifications for the new consoles.

### III. FINDINGS AND CONCLUSIONS

The following findings and conclusions were derived primarily from the review and analysis of the New Castle County 911 Proposal and the RFP for equipment purchase.

1. FINDING: The RFP is not clear as to the technical requirements of the control center consoles.

CONCLUSION: The 911 center proposal states on page 5, "It is recommended that the police dispatch consoles be wired according to the system currently utilized by RECOM. This system offers more flexibility and costs less than standard dispatch radio consoles." The console concept referred to in the above statement provides a radio console in the dispatch office that is similiar to existing units. The RFP does not appear to follow this recommendation. Page 4, indicates that the console will contain electronic items such as printed circuit boards. This may not have been the intention of the person preparing the RFP; however, the consultant believes that the exact system concept should be described in the RFP.

2. FINDING: The RFP draft copy does not recommend nor set a time and place for a vendor's conference.
- CONCLUSION: In many technical procurements it is deemed necessary to provide a vendor's conference that will allow all prospective bidders to sit down with knowledgeable State and County personnel and discuss questions relative to the system and hardware. This provides a more acceptable product and a more exact pricing by the vendor. The time for holding such a conference may be from two to four weeks after the RFP is sent out. Enough time should be allowed for the vendor to review the RFP and send a copy to his factory if necessary.
3. FINDING: The RFP does not contain a statement relative to a performance bond.
- CONCLUSION: A performance bond furnished by the vendor would be desirable in this type of procurement document that requires a vendor to furnish certain hardware that must perform to a specification and to the purchaser's satisfaction. Without a performance bond the County does not have any recourse if the final design fails to operate to desired expectations.
4. FINDING: The new building floor plans indicate a computer room area of approximately 8 x 15 feet. This appears to be too small for computer equipment.

CONCLUSION: The indicated floor plan appears too small to house the computer hardware and the programmer's console. This problem was discussed with Mr. Kendall, who advised that the programmer's console will be placed in the logistics support area, therefore the planned size was considered adequate. Mr. Kendall will check further into this question; however, it is too late to make changes since the contractor has started construction on the new building.

5. FINDING: The instant playback recorders should be a part of the recorders section of the RFP.

CONCLUSION: The vendors that furnish logging recorders also supply instant playback equipment; therefore, it is the opinion of the consultant that a lower pricing might result if the playback item were included in the RFP under section VII, Recorders.

6. FINDING: The modifications listed in the RFP should be removed and made a sole source procurement from the original vendor.

CONCLUSION: Several modifications of existing radio equipment items are listed in the RFP. Normally it will be to the advantage of the purchaser to have the original equipment

vendor make the modifications on his own equipment, since he has the proper parts and the technical expertise for the job. This type of work can usually be negotiated on a parts plus time cost.

7. FINDING: The diagrams included as addendum to the RFP are meaningless to a vendor for bid purposes.

CONCLUSION: The many wiring and circuit diagrams are considered of little value to a vendor, since he is to supply a new equipment item of his own design using the existing concept. His design will require a specialized wiring. In place of these diagrams the RFP should have a concept diagram prepared by Mr. Lee of the State Police, to give the vendor a definite concept of the system desired by the purchaser.

8. FINDING: Several minor changes are suggested in the RFP.

CONCLUSION: There were a number of minor changes or additions noted by the consultant that could improve the clarification of the RFP. These will be listed in the recommendation section.

9. FINDING: A clarification is necessary in the sections on control consoles to distinguish between the State and County consoles and the Wilmington Fire console.

CONCLUSION: Page 10 of the RFP lists consoles to be purchased for the State and County operation and page 12 lists a similar console to be purchased for the Wilmington Fire. The design concept of each of these are different and should be explained for benefit of the vendor. The State and County console design is to follow the remoted electronic method, and the Fire console is to be designed similiar to the existing County Fire consoles.

#### IV. RECOMMENDATIONS

The recommendations provided are specific and confined to the consultant's suggested improvements concerning the 911 proposal and the pending New Castle County Request for Proposal.

1. Recommend that the RFP section II relative to new consoles be re-written to contain the desired and recommended system concept. Also that the technical specifications for the required equipment be prepared by Mr. Lee of the State Police and inserted in the document.
2. Recommend that the RFP be amended to contain a paragraph stating that a vendor's conference will be held (explaining the purpose of the conference), the date, time and place of the meeting.
3. Recommend that the RFP be amended to provide a clause or paragraph containing the required performance bond.
4. Recommend that the RFP section VII be amended to include the "instant playback recorders," as required in the 911 proposal.
5. Recommend that the modifications listed in the RFP on the existing equipment be negotiated with the original equipment vendor on a time and material basis.

6. Recommend that a concept diagram be prepared to replace the wiring diagrams in the addendum of the RFP.
7. Recommend the following minor changes in the RFP:
  - a. The vendor supply a detailed parts list in the technical manuals and each part keyed to its master diagram in the technical manual.
  - b. The console equipment to be purchased, should be of the "solid state design."
  - c. 60 extra rolls of recording tape should be supplied for use with the logging recorder.
  - d. Each radio console should have a separate electrical circuit breaker to prevent multi-dispatch positions from being out of service simultaneously.
  - e. Change wording on page 10, item 5 from, "telephone" to "radio."
8. Recommend a clarification be added to pages 10 and 12 of the RFP to explain the difference between the State and County console design concept and the Wilmington Fire console design.



APPENDIX A  
COPY OF 911 PROPOSAL

911

COMMUNICATIONS CENTER

PROPOSAL

NEW CASTLE COUNTY  
EXECUTIVE OFFICES  
December, 1977

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## INTRODUCTION

For several years numerous governmental units, legislative bodies, private organizations and citizen groups throughout the country have recommended the establishment of a single, nationwide easy-to-remember emergency telephone number to improve emergency communications. The "911" Concept has been focused upon to facilitate such communications. It provides the public with only one telephone number to remember when in need of police, fire or ambulance services. The number is easy to remember under conditions of stress, anxiety and frustration. "911" is easy and fast to dial during situations in which misdialing a seven digit number would most likely occur.

In New Castle County there are three separate emergency telephone numbers listed for police, two numbers listed for fire and one for ambulance services. It is clear that a time delay is inherent in searching the telephone directory for the appropriate number assigned to the particular agency providing the emergency service needed. If a telephone directory is not available or an individual is unfamiliar with the locale, the caller may experience a state of complete confusion before contact is made with an emergency service agency. Since individuals tend to relay the least amount of information when situations increase in seriousness, the mechanism used for reaching help should not be complicated. The "911" Concept is designed to circumvent communications problems between persons requesting emergency assistance and agencies that respond to such requests.

## 911 PLANNING

### Approach:

Not until Mary D. Jornlin, New Castle County Executive, created the 911 Feasibility Committee in March, 1977, had a serious attempt been undertaken to assess the conditions under which a 911 Emergency Reporting Communications System could be instituted in New Castle County, Delaware. This committee was chaired by John T. McCool and consisted of representatives from a variety of organizations, including citizen groups and agencies in New Castle County currently receiving and dispatching police, fire or ambulance calls for service. A list of members and invited guests can be found in Appendix I.

The planning endeavors of the 911 Feasibility Committee were supported through workshops comprised of operational personnel from agencies with dispatch responsibilities and the telephone company. Participants may also be found in Appendix I. A word of appreciation is extended to each participant for the many hours devoted to this project. The material included in this proposal is based on information and requirements generated by both the 911 Feasibility Committee and workshops. In particular, the 911 Feasibility Committee established the following parameters within which the Emergency Reporting Communications System should operate:

1. The Communication Center should be located within the 65 or 57 telephone exchange area. This was the request of the Diamond State Telephone Company for technical reasons.

2. The dispatch agencies and call-takers should centralize their operations. This would be cost effective and avoid delays in responding to calls for service.
3. 911 number should be used to receive all calls for police, fire and emergency ambulance services. The public generally preceives a situation as an emergency when police, fire or ambulance assistance is needed.
4. Seven digit telephone numbers should be utilized to receive administrative and information calls and such calls should not be answered by the 911 call-takers. This permits the public to communicate directly with a desired agency in matters of concern without overloading the 911 telephone network and permits the 911 call-takers to devote full-time to calls for service.
5. The Communications Center should be staffed with civilian call-takers, but the dispatch functions should be preformed by each agency's uniformed personnel. Civilian call-takers assure equitable treatment of each call, whereas uniformed dispatchers permit the dispatch functions to be executed by persons most familiar with an agency's operations, procedures and geography.
6. Each participating agency should have complete control and authority over its dispatch functions. This guarantees that the agencies will not be subjected to the policies, rules and regulations of another agency.
7. The Communications Center should not be housed in a facility which is under the jurisdiction of a participating dispatch agency. This condition provides a sense of being independent from the influence of any particular dispatch agency.
8. The Communications Center should be equipped to receive, dispatch and record calls for police, fire and emergency ambulance services. The purpose of and functions to be performed within the center are defined by this condition.
9. Immediate equipment assessment should focus upon "needs" rather than "wants." This directs expenditures into areas of operations that will permit the center to function within the shortest period of time.

Within the framework of the parameters setforth by the 911 Feasibility Committee, the Workshop Group proceeded to assess equipment, telephone, call taking position and space needs and costs

by employing a functional planning process. That is, the planning effort consisted of defining what functions the agencies anticipated performing within the Communications Center and then proceeded to develop a system of needs which would facilitate the execution of such functions and their interrelationships.

This proposal is based on the assumption that the agencies listed below would operate their dispatch functions from the Communications Center.

New Castle County  
Department of Public Safety  
Police  
Emergency Communications Center  
(Fire and Ambulance)

City of Wilmington  
Bureau of Police  
Bureau of Fire

State of Delaware  
Department of Public Safety  
Division of State Police

City of Newark  
Police Department

In order for the agencies to effectively execute their responsibilities, functions to be performed within the Center and interrelated systems have been converted into hardware and physical needs. Results of this assessment are presented below:

Direct Dispatch Equipment Needs:

New Castle County - Police

4 New Consoles - 1 Primary Frequency  
1 Information Frequency  
1 Service Position  
1 Supervisory Position

State of Delaware - Police

4 New Consoles - 1 Low Band Frequency  
1 High Band Frequency  
1 Service Position  
1 Supervisory Position

City of Wilmington - Police

2 New Consoles - 1 Primary Frequency  
1 Data Frequency

City of Newark - Police

1 New Console

New Castle County - Emergency Communications Center

Modifications to 3 Existing Consoles - 2 Fire  
1 Ambulance.

City of Wilmington - Fire

1 New Console

It is recommended that the police dispatch consoles be wired according to the system currently utilized by RECOM. This system offers more flexibility and cost less than standard dispatch radio consoles. The modifications proposed for the Emergency Communications Center's existing consoles are necessary to accommodate new technology and a working relationship with Wilmington's Bureau of Fire. The new fire console for Wilmington will provide the City with modern dispatch features similar to the capabilities that currently exist in the County.

Support Dispatch Equipment Needs:

Computer Aided Dispatch System

- 22 Cathode Ray Tubes (CRT)
  - 3 New Castle County - Police
  - 3 State of Delaware - Police
  - 2 City of Wilmington - Police
  - 1 City of Newark - Police
  - 3 New Castle County - Fire and Ambulance
  - 1 City of Wilmington - Fire
  - 7 Call Takers
  - 1 Logistic Support
  - 1 Computer Support
- Primary and Back-Up Computer Units
  - (2 Processors, 2 Disk Drives, 2 Tape Drives)
  - 2 Printers
  - 1 Switch Device
  - 1 Uninterruptable Back-Up Power Source
  - Software (programming)
  - Recorder (24-hour, multi channel)
    - 1 Call-Taker
  - 7 Instant Playback Recorders for Call-Takers



Microfiche Viewers  
1 New Castle County/State Police  
1 Wilmington/Newark Police

Dispatching vehicles in response to citizens' requests for service depends upon a substantial amount of information that must be either known by or readily available to dispatch personnel. As the volume of requests increases relative to the ability of field resources to respond, the tasks of dispatch personnel become very complex. Thus, the smooth functioning of the dispatch process is related to the capabilities of dispatchers to maintain the status of all vehicles and equipment and simultaneously maintain the status of all calls for service awaiting to be dispatched. To process large volumes of information in a rapid and efficient manner requires the assistance of a computer.

A computer aided dispatch system supports the telephone answering functions by recording necessary information relayed by the callers, verifying locations, detecting duplicate calls and determining which agency has jurisdiction over each incident. The dispatch information is routed to the appropriate dispatch position by means of a CRT. The computer system supports the dispatch operations by automatically establishing priorities based upon predetermined policies, maintaining status of all vehicles and equipment, indicating backup units according to predetermined deployment plans and maintaining status of calls awaiting to be dispatched. The system also has the capacity to provide incident and unit dispatch data for management purposes. Basically the objectives of a computer aided dispatch system are:

Reduce response time to calls for service.

Improve control of field units.  
Enhance the safety of field personnel.  
Provide full field status.  
Improve utilization of field resources.  
Improve coordination among dispatch agencies regarding specific services and incidents.

Software (programming) related to the computer aided dispatch system includes time periods for determining input-output information requirements of each participating agency, training of all personnel in the use of the system and on-site operational support.

The recording system for the call-takers consists of two separate devices. To provide long term documentation of all calls a 24-hour, multi-channel recorder is recommended. This recorder will permit calls for service information to be stored for a predetermined period in case such information needs to be verified at some future date. It is also recommended that each call taking position be equipped with an instant playback recorder. The playback recorders will permit any call-taker to clarify information immediately without interrupting the answering services.

The microfiche viewer is a device that stores special messages, maps, illustrations and drawings of vital dispatch information on micro-film. Information can be retrieved within seconds on its illuminated screen when needed. This device eliminates the need for dispatchers to search files and/or directories by hand and thus, saves precious seconds or minutes in an emergency situation. One microfiche viewer will be shared by New Castle County and Delaware State Police. The remaining one will be utilized by the Wilmington and Newark Police.

It is also recommended that additional equipment (such as monitors, alarms and dispatch recorders) needed to support

the dispatch functions be moved from the various existing facilities to the Center.

Telephone Equipment/Line Needs:

- 15 Reporting Trunk Lines
- 8 Call Taking Positions Equipped for Termination of 911 Lines
- 10 Access Lines for Administrators and Shift Supervisors
- 1 Notification System for Fire Dispatch and Police Service Positions
- 1 Temporary Rehoming System for the Four Existing Emergency Seven Digit Numbers (1 year)

Explanation of telephone needs is consolidated with call taking staffing needs below.

Call Taking Staff Needs:

- 24 Call-Takers (6 per shift)
- 1 Communications Center Manager

To determine the number of 911 call-takers and trunk lines required to process the volume of request for services, the Diamond State Telephone Company conducted a study of incoming calls received by RECOM, City of Wilmington (Fire and Police), Emergency Communications Center (NCC's Fire and Ambulance) and Newark Police. Covering the period from August 23 through September 10, 1977, the study addressed the length of time telephone lines were in use (call length) rather than the number of calls to determine peak traffic hours for each of the four locations. Although it was found that the peak traffic hours were different for each agency, the recommended six (6) call-takers per shift and fifteen (15) incoming trunk lines are based on what would be required to process the volume of requests for emergency services if all the traffic peaks occurred simultaneously. As with all emergency reporting systems, engineering criteria were based on the probability that one

tenth of one percent (one in a thousand) of the incoming calls would register a busy tone during peak traffic hours. It is further recommended that two additional call taking positions (a total of eight positions) be equipped in order that they may be manned when the volume of incoming calls so dictate.

It must be emphasized that the study was conducted over a very limited time period for the purpose of providing preliminary estimates and should not be considered definitive enough for determining final trunk lines or call taking needs. Additional studies will be undertaken for several months during the implementation phase of the Communications Center to determine up-to-date requirements. In addition, once the Center becomes operationalized, ongoing traffic data will be analyzed to permit adjustments for seasonal variations and growth.

The responsibility of supervising the call-takers rests with the Communications Center Manager. It must be reiterated that each dispatch agency will have complete control and authority over its dispatch personnel and functions. It is conceivable that each agency will have different methods for processing requests for service. Therefore, the Manager will have the duty of establishing procedures for the call takers to follow in operationalizing and executing the policies of each particular agency. It will also be the function of the Manager to work closely with the dispatch agencies in investigating citizen complaints lodged against the Center and solve technical problems. It is further recommended that the Manager be employed shortly after the agencies have agreed to participate in the Center. This would permit the Manager

to occupy the role of coordinating the activities among various parties involved in equipping and staffing the Center.

Space Needs:

Communications Center - Police Dispatch Area  
Fire/Ambulance Area  
Call-Takers Area  
Administrative Offices  
Computer Room  
Logistic Support Room  
Equipment/Meeting Room  
Men's Rest/Locker Room  
Women's Rest/Locker Room  
Kitchenette  
Lounge/Lunch Area

New Castle County has offered a new facility currently being constructed on the Old Minquadale School site to accommodate the "911" project. The facility is designed to meet the above space needs and conforms with the parameters established by the 911 Feasibility Committee. The building has its own identity and will support a 24-hour, 7 days a week dispatch operation. The interior layout is flexible to permit unforeseen changes. See Appendix II for the building design.

COST ESTIMATES TO EQUIP THE COMMUNICATIONS CENTER

Direct Dispatch Equipment: <sup>1</sup>	
Dispatch Console System	\$ 75,000
Support Dispatch Equipment: <sup>2</sup>	
Computer Aided Dispatch System	376,000
Software	200,000
Microfiche Viewers	18,000
Recorder for Call-Takers	24,000
Instant Playback Recorders for Call Takers	12,000
Installation:	
Telephone System <sup>3</sup>	11,000
CLUES System	1,000
Furniture/Fixtures:	
Desks and Chairs	9,000
Lockers	2,000
Kitchenette	3,000
Lounge Chairs and Table	3,000
Total	\$734,000

In addition to providing a new facility to house the 911 participants, New Castle County has extended an offer to finance the cost of equipping the Communications Center up to the amount and within the restrictions of the Economic Development Administration Local Public Works (EDA) Grant Equipment allocation (\$€85,000). It must be emphasized that the actual costs of this project cannot be determined until the various vendors have been determined through the bid process. If the actual costs exceed the EDA Grant equipment allocation, funding from other sources will be sought or items will have to be eliminated based on a mutually agreed upon predetermined plan.

<sup>1,2</sup> Includes installation costs.

<sup>3</sup> Includes cost of installing the telephone system of each participating agency.

COST ESTIMATES TO OPERATE THE COMMUNICATIONS CENTER  
 (Excludes operating expenses incurred by the individual participating agencies).

	<u>First Year</u>	<u>Second Year</u>
Telephone System <sup>4</sup>	\$ 37,000	\$ 32,000
Call Takers <sup>5</sup>	\$150,000	\$300,000
Communications Center Mgr.	\$ 25,000	\$ 25,000
Computer Maintenance <sup>6</sup>	\$ 36,000	\$ 48,000
Building Utilities and Services	\$ <u>12,000</u>	\$ <u>12,000</u>
TOTAL	\$260,000	\$417,000

Since the responsibility of executing dispatch functions remains with each particular agency, cost factors to operate the Communications Center focus upon only those items that would be shared by all participating agencies. That is, costs identified with the Center rather than with any particular agency. An important aspect of the project is to have the dispatch functions of participating agencies located in the Center. Based on the building schedule of the new facility, such relocation could begin after November, 1978, and extend through June, 1979. Therefore, the above shared costs are estimated to be \$260,000 for the first year. The increase in shared operating cost is necessitated by the need to have a complete staff of call takers employed by the time the last agency moves into and begins dispatching from the Center.

At this stage of the "911" endeavor, there are two questions remaining to be addressed: (1) What organization

<sup>4</sup> Excludes the estimated on-going telephone expense of each participating agency:	New Castle County - Police	\$ 3,864
	New Castle County - Fire/Ambulance	24,588
	State of Delaware - Police	3,864
	City of Wilmington - Police/Fire	58,236
	City of Newark - Police	1,332

5,6 First year reflects a phasing-in process.

will employ the Call-Takers and Communications Center Manager?  
(2) Can the dispatch agencies finance their fair share of the on-going operating expenditures? The answer to each question is contingent upon which agencies actually decide to enter into a formal agreement to participate in the Communications Center. As a result, County Executive Mary D. Jornlin has written to Governor Pierre S. duPont, Mayor William T. McLaughlin and Mayor William M. Redd requesting that each submit a formal letter of his position regarding participation in the proposed Communications Center. Responses are to be forwarded to the Executive Office no later than February 1, 1978.



APPENDIX I

911 FEASIBILITY COMMITTEE

CHAIRMAN

JOHN T. MCCOOL  
DEPARTMENT OF PUBLIC SAFETY  
NEW CASTLE COUNTY

MEMBERS:

JAMES T. CORLE  
CIVIC LEAGUE OF NEW CASTLE COUNTY

IRVIN B. SMITH, JR.  
DELAWARE STATE POLICE

HARRY F. MANELSKI  
BUREAU OF POLICE  
CITY OF WILMINGTON

DR. BEN CORBALLIS  
WILMINGTON MEDICAL CENTER

MS. CHRISTINE HARKER  
GOVERNOR'S COMMISSION ON CRIMINAL JUSTICE

HARVEY JACOBS  
COUNCIL OF CIVIC ORGANIZATIONS OF  
BRANDYWINE HUNDRED

JOSEPH IRONS  
DIAMOND STATE TELEPHONE COMPANY

WILLIAM BRIERLY  
REGIONAL CHIEFS OF POLICE

WILLIAM E. MCCRACKEN  
DEPARTMENT OF PUBLIC SAFETY  
NEW CASTLE COUNTY

RICHARD W. KENDALL  
DEPARTMENT OF PUBLIC SAFETY  
NEW CASTLE COUNTY

JAMES P. BLACKBURN  
BUREAU OF FIRE  
CITY OF WILMINGTON

JOSEPH HOJNICKI  
FIRE ADVISORY BOARD

INVITED  
PARTICIPANTS:

WILLIAM O'ROURKE  
DEPARTMENT OF PUBLIC SAFETY  
STATE OF DELAWARE

NATHAN HAYWARD, III  
OFFICE OF MANAGEMENT, BUDGET  
AND PLANNING  
STATE OF DELAWARE

RUSSELL LEE  
COMMUNICATIONS DIVISION

RICHARD DULL  
BUREAU OF COMMUNICATIONS

911 PLANNING WORKSHOP  
PARTICIPANTS

CHAIRMAN:

RICHARD W. KENDALL  
DEPARTMENT OF PUBLIC SAFETY  
NEW CASTLE COUNTY

CONSULTANT:

BRUCE WALLMAN  
PINKERTON COMPUTER CONSULTANT, INC.

REGULAR  
PARTICIPANTS:

THEODORE LENICK, CAPT.  
BUREAU OF POLICE  
CITY OF WILMINGTON

JAMES E. MCNAIR, SGT.  
BUREAU OF POLICE  
CITY OF WILMINGTON

JAMES WILSON, SGT.  
POLICE  
NEW CASTLE COUNTY

GEORGE LIGHTCAP, LT.  
DELAWARE STATE POLICE

BRUCE C. ENNIS, CAPT.  
DELAWARE STATE POLICE

JOSEPH W. HOJNICKI  
FIRE ADVISORY BOARD

JAMES W. BELL  
EMERGENCY COMMUNICATIONS CENTER  
NEW CASTLE COUNTY

WILLIAM L. MAICHLE, LT.  
BUREAU OF FIRE  
CITY OF WILMINGTON

JOSEPH J. CATALOGNA, LT.  
BUREAU OF FIRE  
CITY OF WILMINGTON

JOSEPH IRONS  
DIAMOND STATE TELEPHONE COMPANY

APPENDIX II

PROPOSED COMMUNICATIONS CENTER

BUILDING DESIGN .



911

COMMUNICATIONS CENTER

PROPOSAL

ATTACHMENT

COMPARATIVE OPERATING COST FOR  
NEW CASTLE COUNTY  
(CURRENT OPERATIONS VS. PROPOSED CENTER)

The proposal states that each agency's fair share of the ongoing operating expenditures is contingent upon which agencies actually decide to participate in the Center. Anticipating that a "fair share" will be determined through negotiations, the Department of Public Safety has undertaken a comparative analysis of the cost of executing its current dispatch responsibilities and what the Center could cost the County.

Table I (Page 3 ) reveals that New Castle County could absorb at least forty (40) percent of the cost of participating in the Communications Center (\$654,921), as proposed by this report, before incurring additional costs for executing current dispatch responsibilities (\$669,911). Major cost reductions are reflected in two (2) of the five (5) expense items analyzed. By operating in a common Communications Center, the County will save approximately \$6,500 per year in telephone expenses and \$12,000 in computer services. The cost reduction in computer services is attributed to the fact that the existing fire/ambulance dispatch functions are aided by a computer system. Currently, approximately \$31,000 is budgeted (FY 78) to support that system. Under the proposed Communication Center, the total cost of maintaining a

computer aided dispatch system to be utilized by all agencies is estimated at \$48,000 per year. Based on a forty (40) percent cost sharing arrangement, only \$19,200 would be charged to the County.

It must be emphasized that the cost sharing projection of forty (40) percent has not been confirmed through negotiations with the other potential participating agencies. It is used here as a basis for determining if New Castle County can support its fair share of the 911 Communications Center relative to existing dispatch obligations.







APPENDIX B

COPY OF ORIGINAL REQUEST FOR PROPOSAL

REQUEST FOR PROPOSAL  
NEW CASTLE COUNTY  
EMERGENCY CENTER CONSOLES  
AND ASSOCIATED ELECTRONICS

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## I. OVERVIEW

New Castle County is implementing a 911 communications center including within it the current dispatching staffs of the City of Wilmington, the Delaware State and New Castle County Police (RECOM), and New Castle County Fire and Ambulance. This center requires a total of fourteen console positions. Most of these consoles will be new; however, some consoles will be provided by modifying existing consoles during their move to the new center. The purpose of this Request for Proposal (RFP) is to solicit proposals for the purchase of new consoles and the modification of existing ones. Two bid sheets should accompany each proposal. One bid sheet will be for eleven new consoles and the modification of three existing consoles at County Fire and Ambulance and the other bid sheet will be for nine new consoles and the modification of the three existing County Fire and Ambulance consoles and two existing Wilmington Police consoles. These sheets are found at the end of this RFP.

The word contractor as used in this specification means the successful bidder. The word purchaser means New Castle County through its contract administrator. The contract administrator is currently Mr. Richard Kendall at the Engineering Building in Newark. The contractor will be responsible for accomplishing all actions covered by this RFP unless such actions are designated to an alternate authority in the RFP.

All minimum dimensions, maximum dimensions, and ranges given in this RFP must be met as given. Unless otherwise noted all exact dimensions have a plus or minus one inch tolerance.

All equipment covered by this RFP is to be delivered and installed at

the new center between November 1, 1978 and July 1, 1979 according to a schedule acceptable to the purchaser. Any exceptions to this RFP made in a proposal are allowed as long as such exceptions are listed immediately on the bid sheet involved. No proposal that does not attempt to relate to this RFP through specific exceptions on the bid sheets will be considered. If no exceptions exist, the words no exceptions should appear on the bid sheet involved. Since the purchaser bears no responsibility for proposal costs, it is recommended that proposals are kept brief. To be considered proposals must include as a minimum:

1. A bid bond or certified check in the amount of ten percent of the larger of the two bid options.
2. Two bid sheets including any exceptions to this RFP.
3. Overall drawings, component layouts, and facing sketches for new consoles.
4. A six month warranty following acceptance of all new consoles and modifications to existing consoles. Maintenance of old portions of existing consoles is a purchaser responsibility.
5. A list of all sites where the prospective vendor has done similar console work.
6. Literature indicating types of circuitry and components used and electrical specifications.

All console positions will be placed on raised floors. Running power from the service panel located in the same room as the consoles to the consoles will be the contractor's responsibility. No new console position should require more than ten amperes of 115 volt, single phase, 60 cycle

current. Two new consoles are to be placed on one twenty ampere breaker in the service panel.

Pricing for bids must include delivery, set up, testing, and acceptance as well as actual manufacture or purchase of consoles and interface equipment. All new consoles will be five feet wide and two and one-half to three feet deep. One pedestal and one turret shall exist at each new console. Removable, louvered panels will be provided for rear and side access to all new pedestals and turrets. Each new turret shall extend in height between sixteen and twenty inches above the table top, shall be between eighteen and twenty inches wide inside, shall be a minimum of thirteen inches deep inside, and shall include one 115 volt A.C. plug strip with four outlets (two wire plus ground). Each strip must contain its own five ampere breaker. Fifteen by two inch fully gasketed openings must exist lengthwise in the table top between each new turret and new pedestal (if the table top extends into this area) and at the bottom of each new pedestal for ease of wiring. The new pedestal must extend the entire console width and must be a minimum of thirteen inches deep inside and its bottom must be no more than four inches off the floor. A portion of the pedestal under the table top opposite the turret location must contain one shelf over one drawer each a minimum of ten inches high, a minimum of fifteen inches deep, and eighteen to twenty-two inches wide. New pedestals must have a minimum of eight adjustable, lockable, leveling legs. The new console table tops shall be finished with a high-pressure bonded laminate with self-edge design. New cabinetry interior and exterior finish shall be textured polyurethane enamel or baked enamel. Either must be applied over a rustproofing primer. One quart of touch up paint must be provided for each



new console color. A selection of colors for new cabinetry and table tops will be provided by the contractor. All new console table tops will be the same color. No more than three colors will be involved in new cabinetry. All components on the new consoles shall incorporate durable materials. Construction of enclosures, panels, mounting racks, and hardware shall be of sufficient hardness to prevent warping, sagging, or twisting in normal service. Console walls and closure panels shall be a minimum of 18 gauge steel. Internal structural members shall be a minimum of 14 gauge steel. There shall be adequate access from the rear of the new consoles to all internal spaces. Access to electronics for maintenance and service will be through sliding rail arrangements, circuit board extenders (provided by contractor), or hinged mounting racks. Table tops shall cover the entire width and depth of new consoles except in the turret area. Here table tops must extend a minimum of fifteen inches in front of new turrets. The areas between new turrets and pedestals can, but does not have to be, part of the table tops. The new writing desk tops shall be twenty-eight inches from the floor. The new turret control panels shall be sloped from the vertical to facilitate operations. All new cables shall be bundled, labeled, and routed so as to provide protection from swinging racks and doors and to minimize hum and cross-talk. Wires shall be individually labelled (identified). The individual labelling may be by color coding, heat stamping, or some other non-removable method of identification. Cables must be shielded when required by good engineering practice. All cabling, through and between consoles, shall be furnished by the contractor (telephone and computer cables excluded). A three inch diameter (plus or minus one-fourth inch) fully gasketed hole must exist in the rear of each new pedestal near the top of the

center line for the passage of telephone and computer cables to the table top from the pedestal.

Modifications to existing consoles will be made at the contractor's shop if major or at the new communications center if minor. The contractor will make this determination. In either case the contractor will be responsible for any moves including break down and rebuild of equipment and insurance in the amount of \$20,000 per console position from the time the equipment leaves purchaser possession until it is set up at the new center. When equipment insurance is required in this RFP, valid certificates must be given to purchaser before equipment is moved. Contractor is responsible for correcting any damage done during a move as quickly as possible without regard to delays in insurance payments.

Part of making any console fully operational will be setting up new and existing voice logging recorders at the new center. The contractor is responsible for these recorders in the same manner as the consoles. This includes new and existing recorders and consoles. Thus the existing RECOM recorder will be connected to the new RECOM consoles, the existing Wilmington recorder will be connected to new or existing Wilmington consoles, and the existing County Fire and Ambulance recorder will be reconnected to the existing County Fire and Ambulance consoles. Movement of existing recorders must be covered by insurance purchased by the contractor in an amount for each recorder equal to the price for the new recorder covered in this specification. This movement and connection of recorders must take place when the dispatch agency involved moves and must occur such that the agency is without recording capability for no more than forty-eight hours. One new recorder is necessary for the complaint

takers. This recorder must be delivered and attached by the contractor. All connections to recorders will be made using lug strips such that they are well labelled and easily changed.

All new consoles and other equipment acquired through this RFP will come with two sets of full drawings, schematics, and instruction (operation and maintenance) manuals. Console schematics will relate to the wiring identification system used. Any additional sets of drawings, schematics, or manuals required by the contractor for warranty or other use are his responsibility. He will not have access to the purchaser's documentation on a routine basis.

Two new Image Systems model 2098 or equivalent automatic retrieval microfiche systems are also required. One is to be shared by the eight RECOM positions and a second is to be shared by Wilmington Police and Fire. The machines supplied must use fiche and fiche indexing that are fully compatible (same button numbering system) with that existing at County Fire and Ambulance. Fiche capacity must be a minimum of 780 per machine each with a 7 x 14 format. A table with an eighteen inch by eighteen inch table top must be supplied for each new machine. This table will be solidly built to provide proper viewer stability. The term stability as used here and elsewhere in this RFP is defined as a lack of movement that is acceptable to the purchaser. Essentially, this means that pushing buttons on a viewer or keys on a CRT should not cause the device to wobble or vibrate on the stand provided.

Two lists or deliverables are given below. Each represents a separate bid sheet. With each item is an entry indicating in which sections of this document general (G) and specific (S) information can be found relating to

this item.

Bid Sheet 1

1. 8 new State and County Police consoles (GI, SII)
2. 2 new Wilmington Police consoles (GI, SIII)
3. 1 new Wilmington Fire console (GI, SIV)
4. 3 modified County Fire and Ambulance consoles (GI, SVI)
5. 1 new voice recorder (GI, SVII)
6. 2 new automatic retrieval microfiche viewers and tables (GI, SI)
7. Connections to service panels, connections to existing voice recorders, and insurance and move requirements (GI, SI)

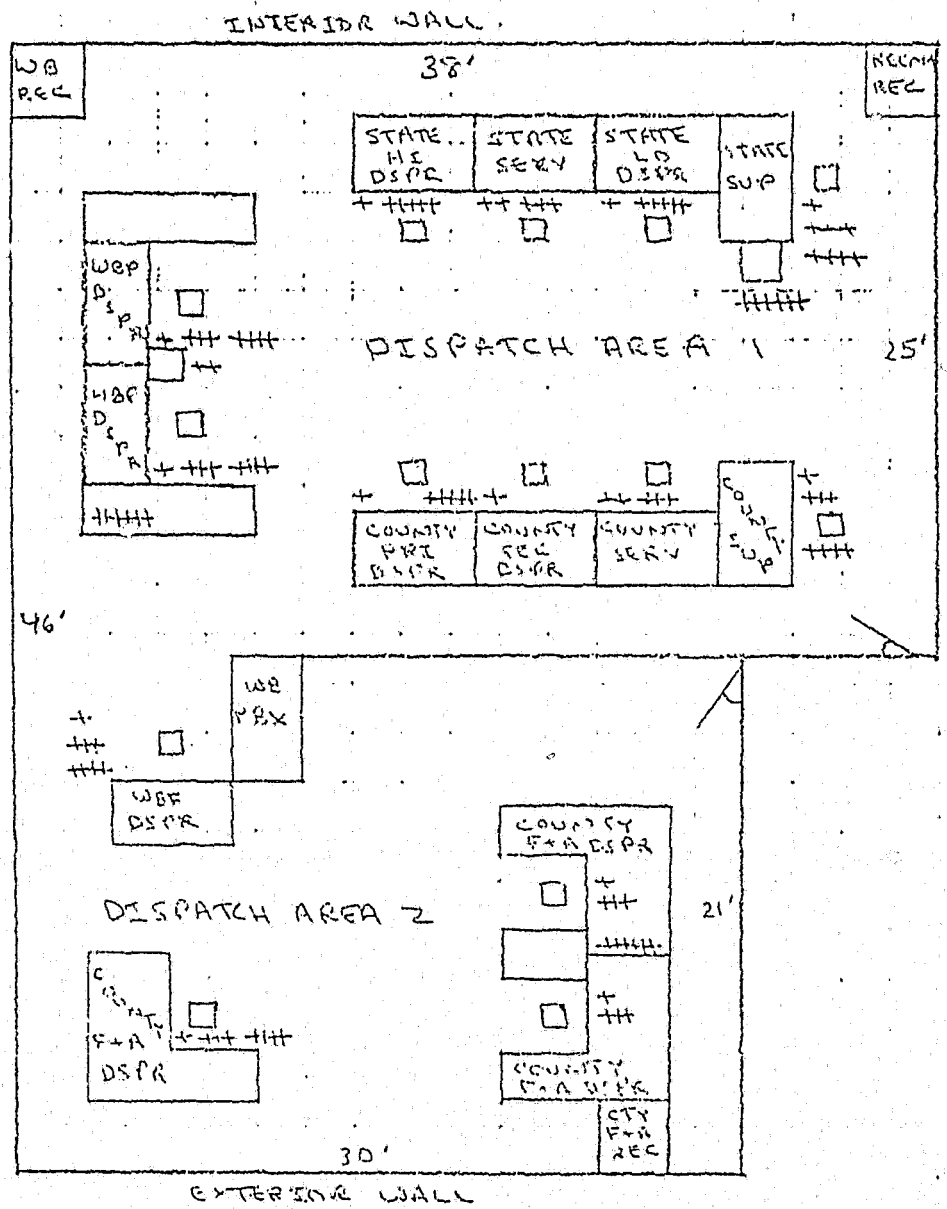
Bid Sheet 2

1. 8 new State and County Police consoles (GI, SII)
2. 1 new Wilmington Fire console (GI, SIV)
3. 2 modified Wilmington Police consoles (GI, SV)
4. 3 modified County Fire and Ambulance consoles (GI, SVI)
5. 1 new voice recorder (GI, SVII)
6. 2 new automatic retrieval microfiche viewers and tables (GI, SI)
7. Connections to service panels, connections to existing voice recorders, and insurance and move requirements (GI, SI)

Items on these lists described in sections II through VII are themselves composed of deliverables and these are listed at the end of each such section. Addendum 1 of this RFP contains some general New Castle County bid requirements.

# PROPOSED COMMUNICATIONS CENTER CONSOLE LAYOUT

SCALE: 1/8" = 1' APPROX.



- NOTES:
- + DISPATCH CRT
  - T CLOCK CRT
  - ## FULL 911
  - ### 911 LINE
  - ### SEPARATE LINE
  - #### MICROFICHE

FIGURE 1

## II. EIGHT NEW CONSOLES FOR STATE AND COUNTY POLICE

These eight console positions will be arranged in two groups of four approximately twelve feet apart in dispatch area 1 (see figure 1). While a particular arrangement is shown, the consoles must be designed so that rearrangement by dispatching personnel is feasible. That is, the positions should not be bolted together, complete wiring disconnects must exist, and cabinets must be fully enclosed on sides and back as well as front. Wiring between consoles should pass through gasketed holes large enough for connectors in the pedestal side walls. The types of equipment available at each position are also shown in figure 1. Each position involves either a dispatching or CLUES Cathode Ray Tube (CRT). These CRTs will sit near the middle of the console table top and are not included in this RFP. Of the eight consoles, four are shown with full sixty button 911 capability. The required telephone panels will be supplied by the telephone contractor and will be approximately twenty-four inches wide by ten inches deep by five inches high and meant for table top placement. The State supervisor and service sixty button positions will be mounted on the left hand side of the respective consoles while the County supervisor and service sixty button positions will be mounted on the right hand side of the respective consoles. Each County console will have a turret on its left hand side. The radio channel switches will be wired into special electronics boards. Drawings for fabricating these special boards are enclosed for bid purposes (see Addendum 2). The overall radio set up will be equivalent to that of the current RECOM center. If any or all of the special boards can be replaced by standard products, this is acceptable as long as the radio functions are not affected.

If any racks of electronics are needed as in RECOM, they must be enclosed in a neat cabinet matching the consoles and placed in dispatching area 1 or in a nearby telephone room. This cabinet should be no greater than seventy-two inches wide, thirty inches deep, and eighty-four inches high.

The eight new turrets involved for State and County Police will each contain:

1. A headset/lip microphone (lightweight Plantronics Part number HS0108-I-B or purchaser acceptable equivalent)
2. 12 channel monitor with all mute and all clear and two speaker volume
3. A digital clock
4. A footswitch
5. A twelve to thirty button telephone console with controlled simul-select, selected supervisory control, blink (when called) and wink (when selected elsewhere) capability
6. Repeater disable switch (normally enabled)
7. An alert tone button

The list of deliverables for State and County Police consoles is:

1. 8 new consoles
2. Insurance certificate for move of RECOM logging recorder
3. Set up of logging recorder
4. Set up of new consoles
5. Testing of new consoles
6. Warranty of new consoles
7. Documentation on new console circuitry

### III. TWO WILMINGTON POLICE CONSOLES

These two consoles would be the same as, and share common circuitry with, the eight new State and County Police consoles (see section II). Their arrangement is shown in figure 1. In this case the Police service position would have a left hand mounted turret while the Police dispatcher would have a right hand mounted turret. Both would have full sixty button 911 capability supplied by the telephone contractor and dispatching CRTs supplied by the computer contractor. An eighteen by eighteen inch table of suitable stability is needed between the two Police consoles to hold the purchaser supplied CLUES CRT. The deliverables in this case involves adding one CLUES CRT table and two more new consoles to the list of deliverables in section II as well as insurance for and the set up of the Wilmington logging recorder. The circuitry for consoles in Addendum I already shows some information for Wilmington Police positions.



#### IV. ONE NEW CONSOLE FOR WILMINGTON FIRE

The new console for Wilmington Fire will be a full radio position console. Its turret will be placed on the left hand side with space for sixty button telephone capability on the right and a CRT space in the middle. The table top areas and access holes needed will be similar in size and layout to the County Police supervisory position. In this case the turret will contain the following items:

1. A headset/lip microphone (same Plantronics model as Police or acceptable equivalent)
2. 10 channel monitor with all mute and all clear
3. A digital clock and VU meter
4. A footswitch
5. Call and transmit indicators
6. Repeater disable (normally enabled)
7. Main/standby
8. Alert tone (1000 cycle)

The list of deliverables for the Wilmington Fire console is:

1. 1 new console
2. Set up of new console
3. Testing of new console
4. Warranty on new console
5. Documentation on new console circuitry

## V. MODIFICATION TO TWO EXISTING WILMINGTON POLICE CONSOLES

One modification to the two existing Wilmington Police consoles located in Wilmington, Delaware must be made when these consoles are transferred to the new center. The purchaser will set up a visit to see these consoles for the technical representative(s) of any prospective bidders with a desire to see them.

The modification requirement is to supply table top additions to the existing Motorola consoles. Two of these additions must be attached at the far end of each console and must be seven feet wide by two feet deep and bolted to the respective console for stability (see figure 1). These extension pieces will be used to hold 60 button telephone and dispatching CRT equipment. Similarly, an eighteen inch by eighteen inch table must be supplied to hold a CLUES CRT in the area between the two consoles. It must provide proper viewer stability for this CRT while its keyboard is utilized. All table tops and support legs involved must be identical to or blend with those of the existing Motorola consoles. The extension piece table tops as well as the CLUES CRT table top must have a height two inches (plus or minus one-fourth inch) below that of the top of the existing table top.

The list of deliverables for modifications to the two existing Wilmington Police consoles is:

1. 2 extension and 1 CLUES CRT tables
2. Insurance Certificates for move of Wilmington logging recorder and 2 existing consoles
3. Set up of consoles and logging recorder

## VI. MODIFICATIONS TO THREE EXISTING NEW CASTLE FIRE AND AMBULANCE CONSOLES

Some modifications to the three existing County Fire and Ambulance consoles located at the New Castle County Engineering Building, 2701 Capitol Trail, Newark, Delaware must be made when these consoles are transferred to the new center. These consoles were originally purchased from Communications Control Center approximately three years ago and have been in use at the Engineering Building since. Again, a survey can be arranged through the purchaser. Their move must be staged so that current dispatching can make an orderly transition from one center to the other. The County Fire and Ambulance consoles will be moved separately. That is, the rear one position console will be moved, modified, and accepted as fully operational at the new center before the front two position console is moved. The entire County Fire and Ambulance modification and resulting move must be completed in one Monday to Friday period.

The only equipment in the current communications center not considered part of this move is the existing computer and status panel. CRTs built into the existing consoles will be removed from the consoles by the purchaser as the respective consoles are moved. CRTs will then be placed into the consoles at the new center by the purchaser. Four modifications must be made to the existing consoles during this move. First, the ceiling conduits utilized by the existing consoles must be removed and all wiring must be routed so that it passes into the raised floor in the new center. Second, the status panels must be replaced with a front plate and work tables the same size as the panels. The panels and their power

supplies will remain with the old computer and CRTs at the old center. The front plate should match or blend with the existing console. The work tables will exist wherever status panel buttons now exist and should match or blend with existing table tops and be the same height as CRT keyboard work surfaces. The status panel area in the single position rear console should be either filled with no surface lines to impede writing or the entire table top should be replaced. Third, the existing consoles must be refurbished by lowering writing surfaces to the level of CRT keyboard work surfaces and repainting in the original colors. Fourth, any needed line drivers to interface these consoles to the transmitters and receivers housed behind the Engineering Building in Newark must be provided by the contractor.

The list of deliverables for modifications to the three existing County Fire and Ambulance consoles is:

1. Modify consoles by closing off top conduits, creating work tables, refurbishing, and providing line drivers if needed
2. Insurance certificate for move of consoles and logging recorder
3. Set up rear console
4. Set up front consoles and logging recorder

## VII. ONE NEW VOICE RECORDER

A logging tape recorder shall be provided for the recording of all 911 telephone activity. It will be a dual transport tape recording/reproducing system with built in time generation, time reading, and display capability designed for continuous duty logging of voice communications messages. Each transport will have at least forty channel capacity for a minimum of twenty-four hours per tape. That is, it must be able to simultaneously record at least thirty-nine channels plus one timing channel for one day. The unit must have the capability to record on one transport with automatic switching to the second transport upon tape run-out or breakage. In addition, each transport must be capable of playing back any channel or channel pair and the timing channel simultaneously. This capability is needed even while the other transport is recording.

Each transport assembly shall have the following minimum controls:

- Record (with interlock)
- Playback
- Rewind
- Fast forward
- Cue
- Stop

During high speed tape movement the tape shall ride free of the heads unless cueing is active. The transport braking system must be such that high speed forward to reverse and reverse to forward switching will not cause tape stretch or breakage.

The time generator and time reader will be capable of operation at least 500 times record speed. The time generator will be capable of

producing a coded timing signal to either transport with a maximum fifteen second increment. It will incorporate the following minimum controls:

- Start
- Stop
- Reset
- Time set

The time reader shall have the capability to select and display input signals from the time generator or either of the tape transport unit playback timing signals. It will decode and display time in hours, minutes, and seconds.

Physically the unit shall be no larger than seven feet high by three feet by three feet and shall weigh no more than 600 pounds. It will be fully enclosed with a transparent front door over the tape transports. The digital time display will be mounted and visible at the front. All internal mechanics and electronics will be mounted on extendible slides or hinges to help repair and maintenance. The unit will operate on 120 VAC, 60 Hz, single phase current. Each record channel shall have variable line level control and a minimum 6:1 AGC or AVC compression ratio. The signal to noise ratio shall be 30 dB minimum per channel. Frequency response will be 300-3000 Hz  $\pm$  3 dB. Distortion shall not exceed 3% and wow and flutter shall not exceed 1%. The unit will be of solid state design and incorporate the following features:

- Power on/off switch and indicator
- Speaker
- Audio output jack
- Volume control
- VU meter
- Channel playback selection switches
- Two minimum ten and one-half inch take up reels

Also included shall be one metal tape storage cabinet with a capacity to hold a minimum of ninety tapes and lockable access.

Bid Sheet 1

This bid sheet is for the following items covered by the New Castle County  
Emergency Center Consoles and Associated Equipment RFP:

	<u>Item</u>	<u>Amount</u>
1.	8 new State and County Police consoles	_____
2.	2 new Wilmington Police consoles	_____
3.	1 new Wilmington Fire console	_____
4.	3 modified County Fire and Ambulance Consoles	_____
5.	1 new voice recorder	_____
6.	2 new automatic retrieval microfiche viewers and tables	_____
7.	Connections to service panels, connections to existing voice recorders, and insurance and move requirements	_____
	Total	_____

It is understood that price breakdowns are for information purposes only  
since this is a packaged bid. Exceptions to RFP assumed in above prices  
(may be continued on attached sheets) :

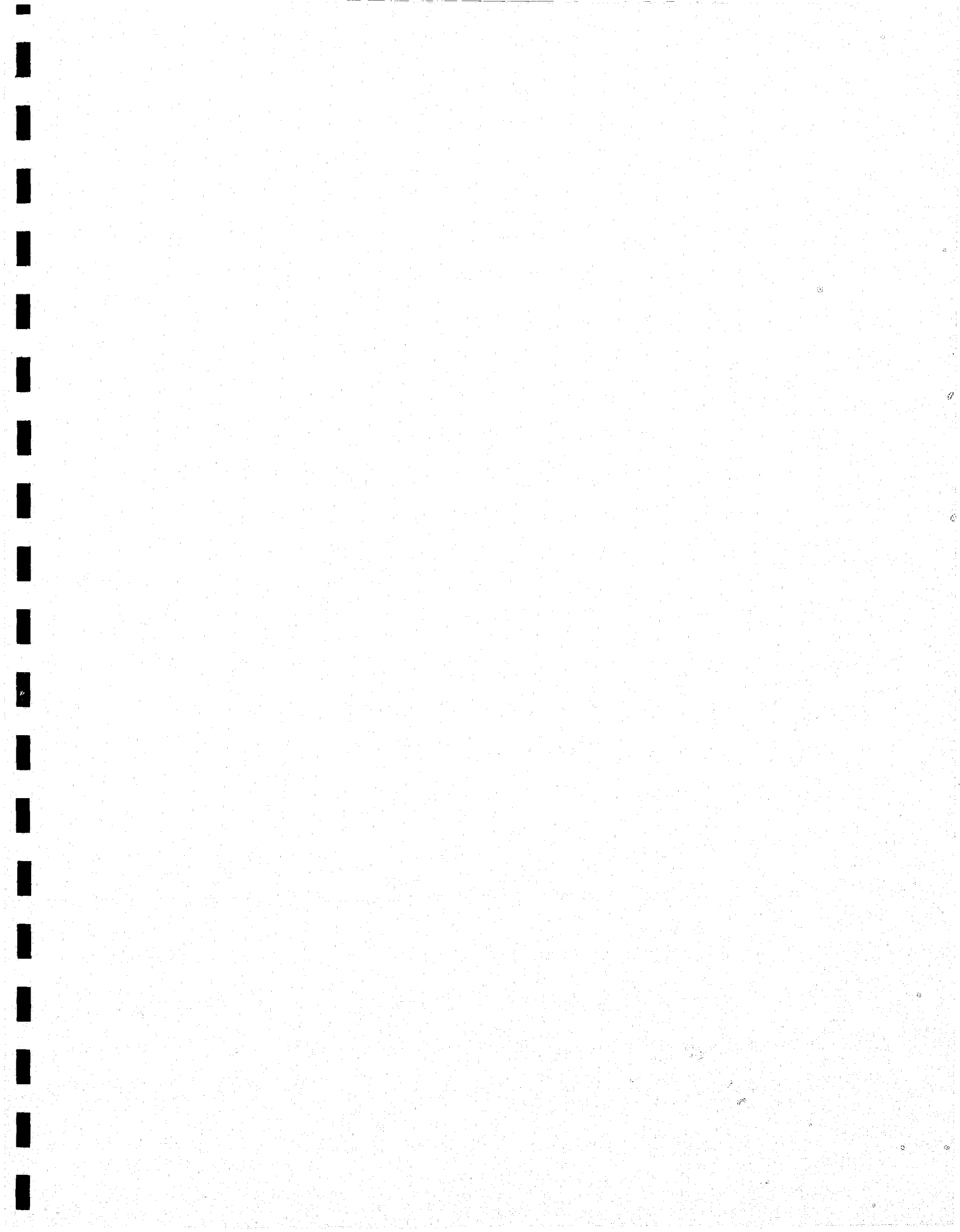
Bid Sheet 2

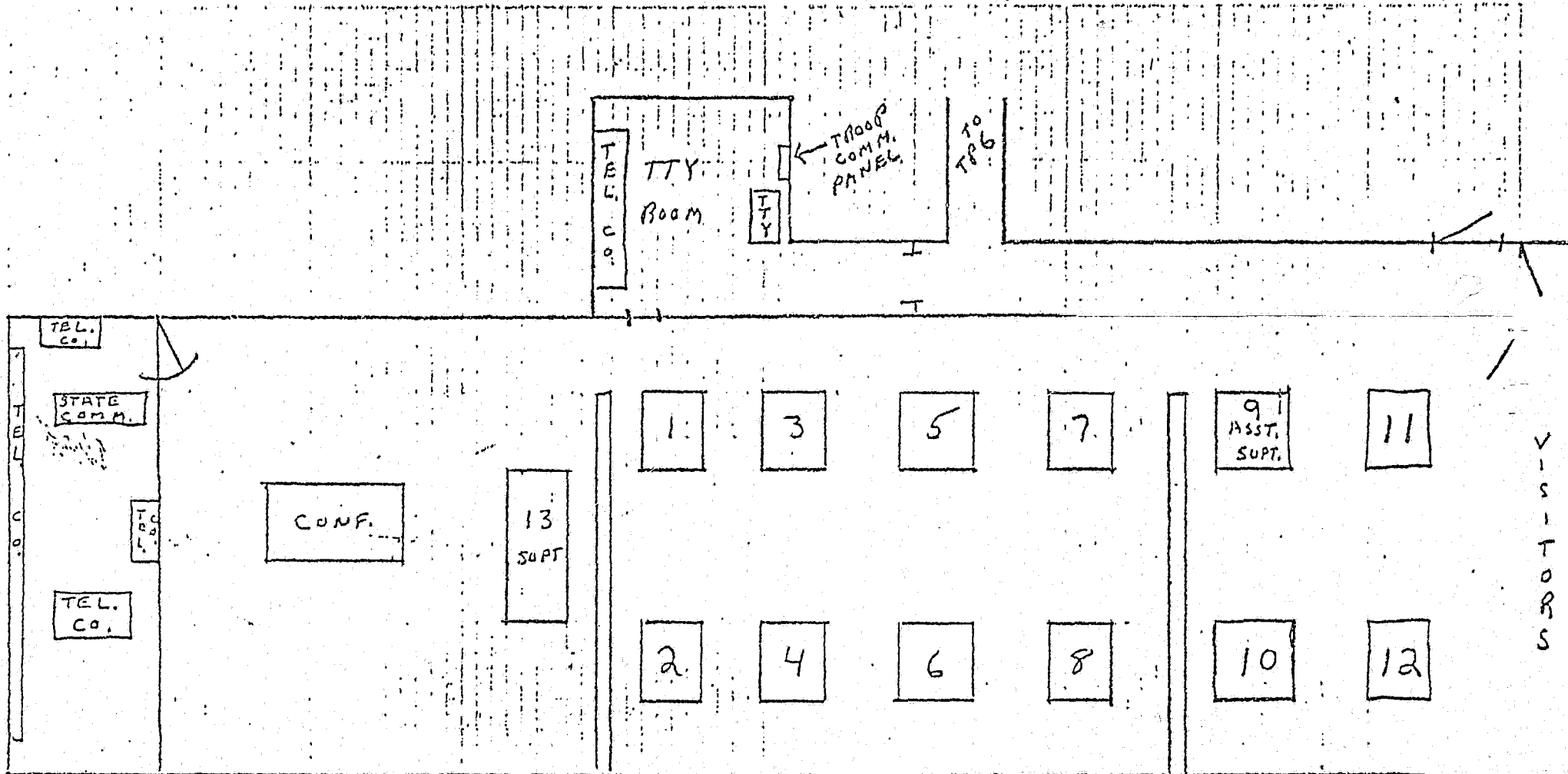
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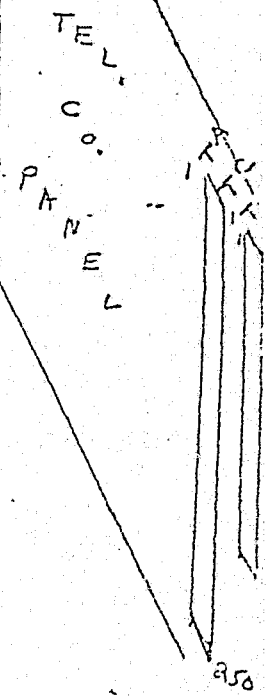


ADDENDUM 2

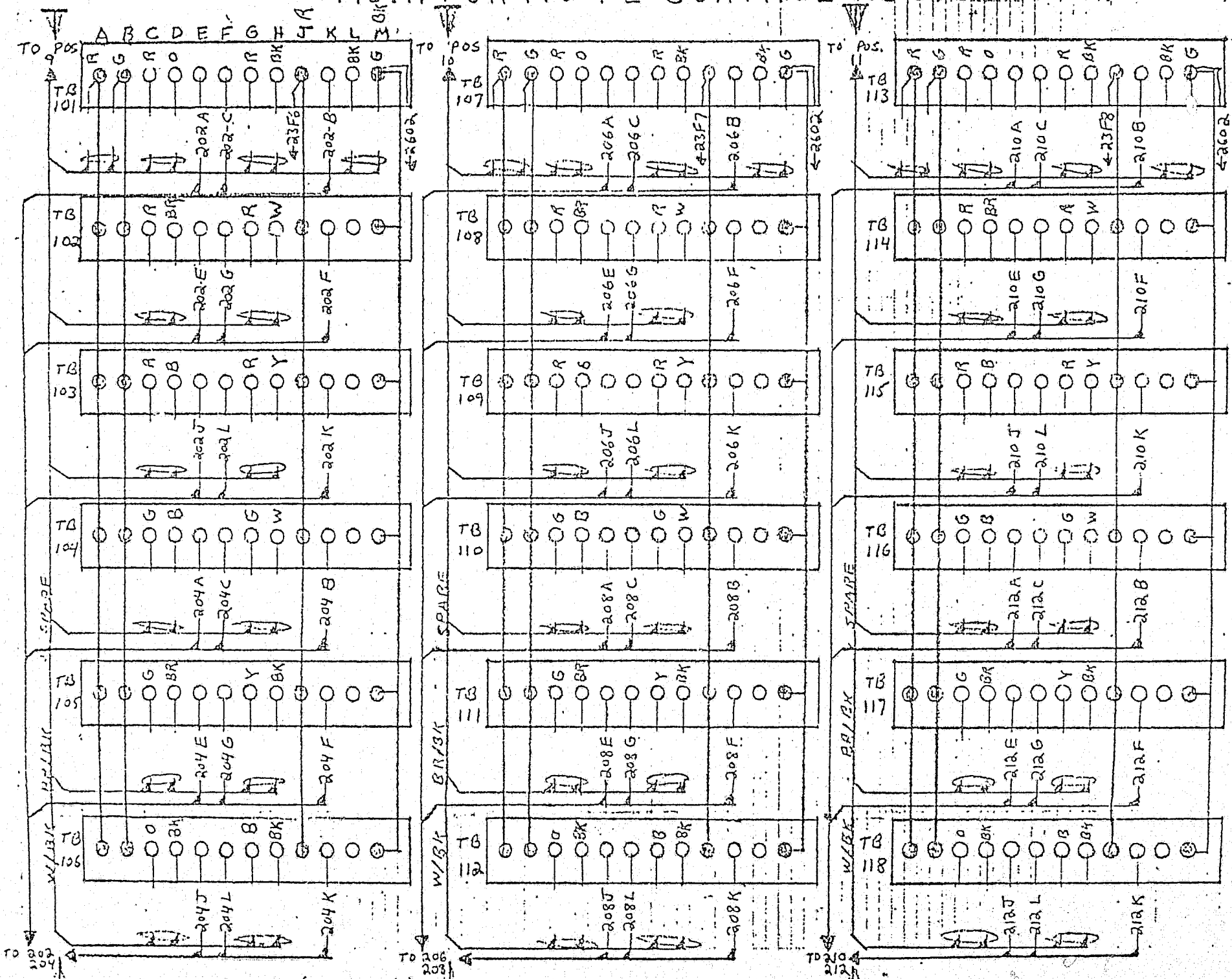
RECOM

# PANEL LOCATIONS

		Telco Radio Pairs			
1	MONITOR	27 MULT.		6	TEL.
	MUTE CONTROL	5 XFORMERS			LINE TRAMP.
2	MONITOR AMP	REMOTE 11	REMOTE 12	7	TEL.
		REMOTE 13	REMOTE 14		LINE TERM.
123	MULT.	PTT MATRIX		8	TEL.
3	MONITOR MUTE CONTROL	24			LINE TERM.
4	MONITOR AMP	15 REMOTE	16 REMOTE	SIMO + TONE	
		17 REMOTE	18 REMOTE	9	PTT CONTROL LOGIC
STATE VOTER		19 REMOTE	20 REMOTE		10
		25 FUSES		21	
POWER SUPPLY		POWER SUPPLY'S			22
		26			



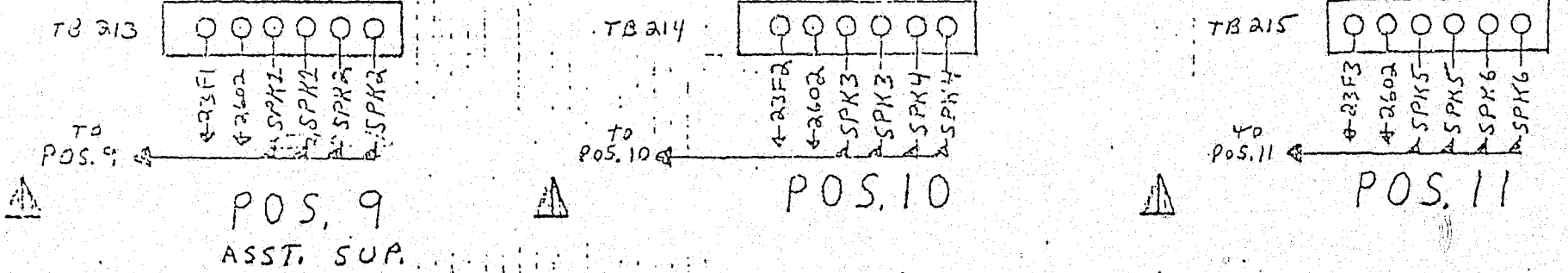
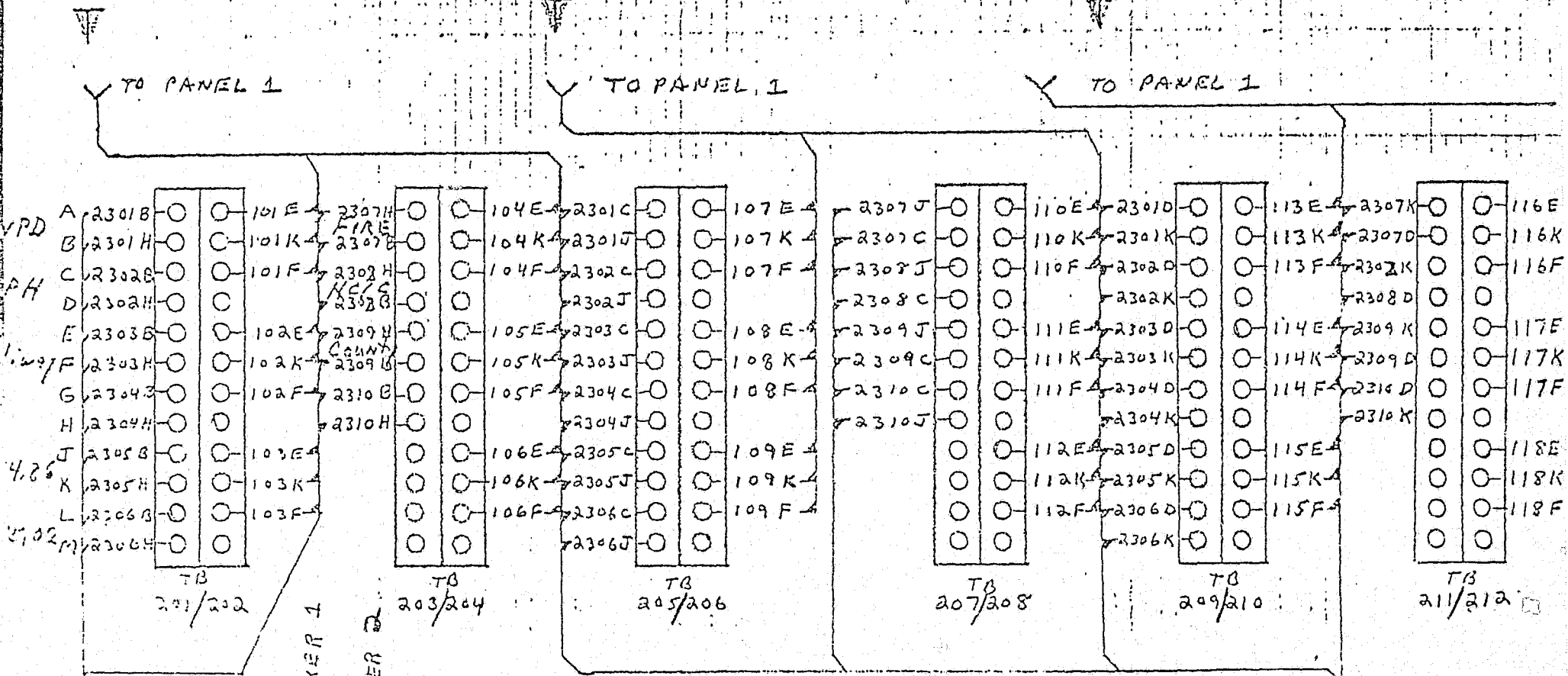
# MONITOR MUTE CONTROL LOGIC



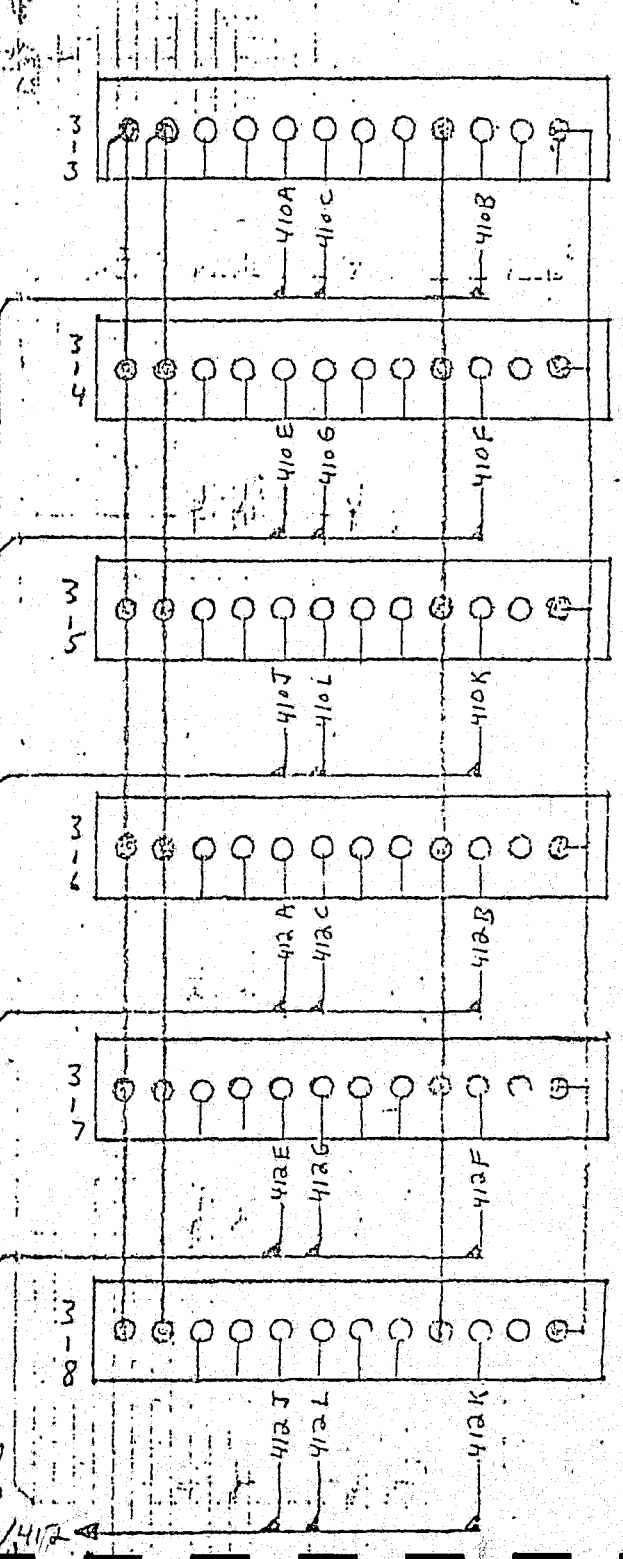
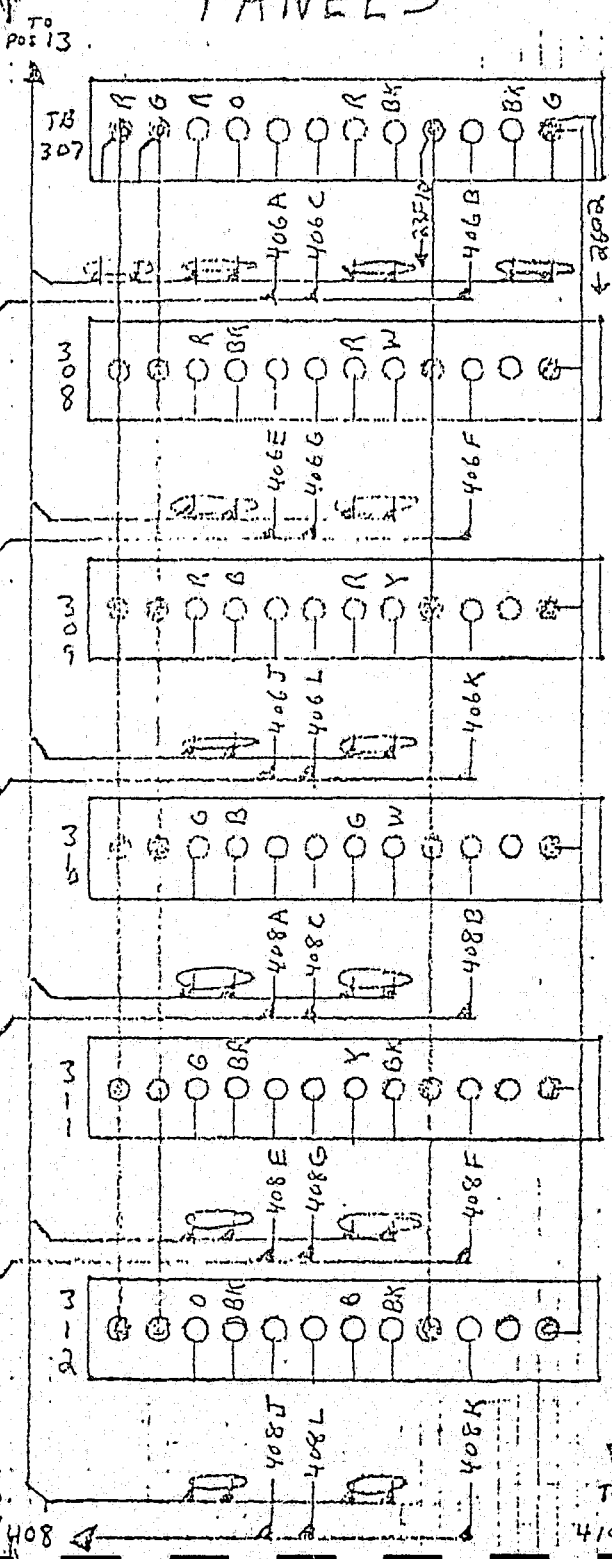
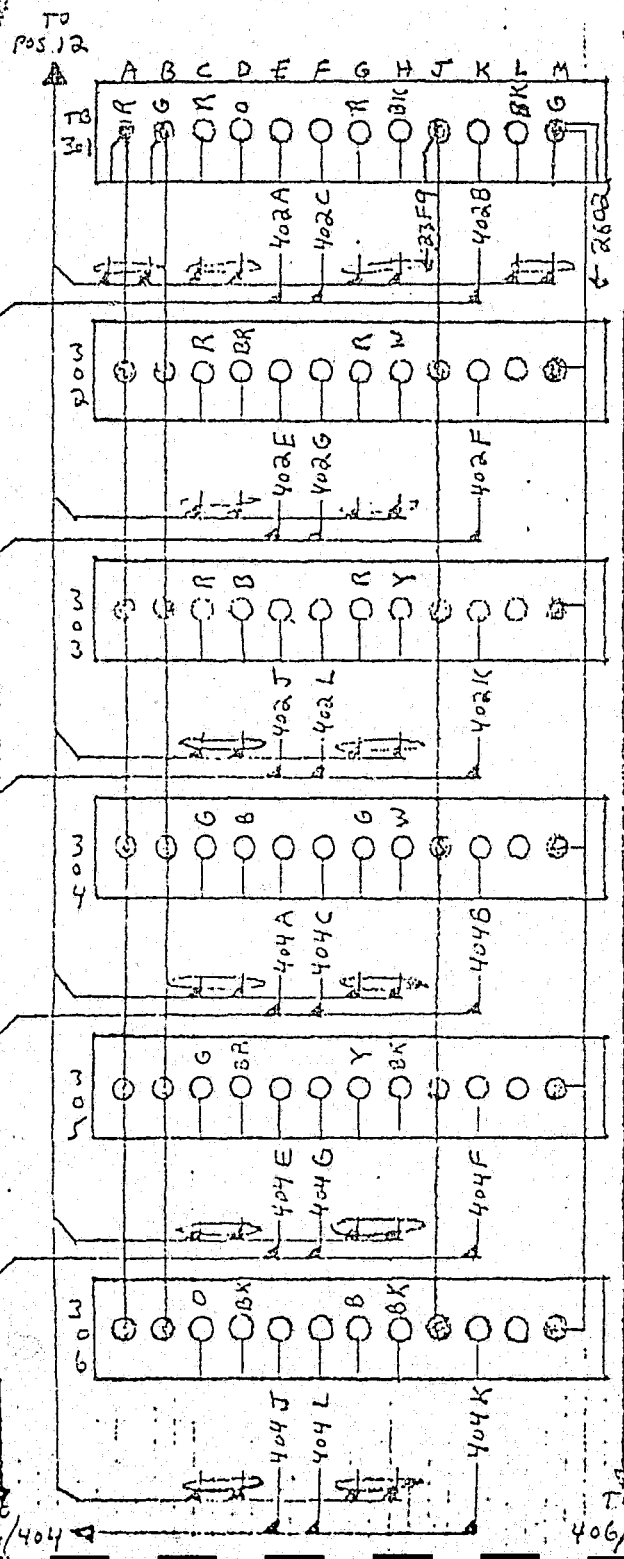
- TERM VS
- A - CLR
  - B - MUT
  - C - SW1
  - D - SW2
  - E - GATE
  - F - GATE
  - G - LAMP
  - H - LAMP
  - I - VCC
  - J - GND
  - K - GND
  - L - GND
  - M - GND
- CODE COLOR
- G - GRN
  - R - RED
  - O - ORN
  - W - WHT
  - B - BLU
  - Y - YEL
  - BR - BRN
  - BK - BLK
  - V - VIO
  - SL - SLAT

1

# PANEL 2 MONITOR AMP. PANEL

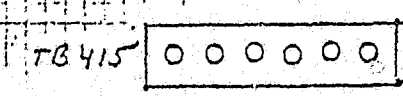
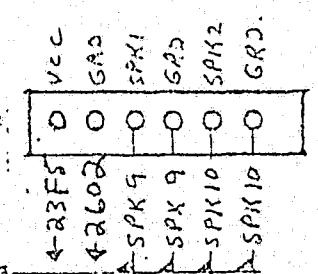
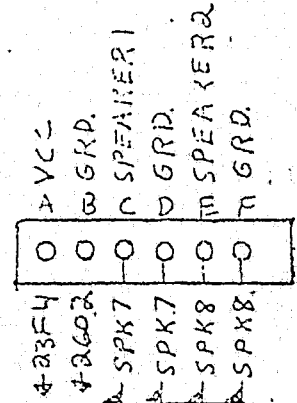
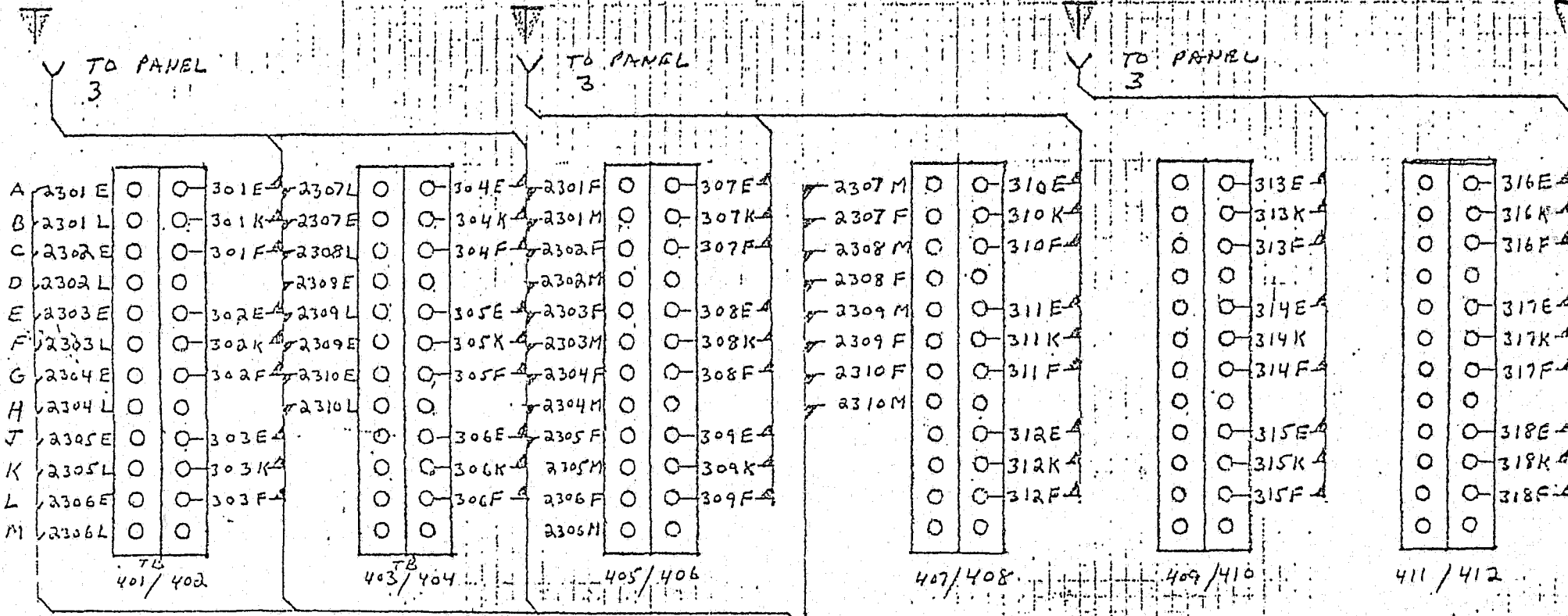


# PANELS



- T
- A-
- B-
- C-
- D-
- E-
- F-
- G-
- H-
- J-
- K-
- L-
- M-
- W-
- B-
- Y-
- V-
- BR
- BK
- SL

# PANEL 4 MONITOR AMP. PANEL



POS. 12

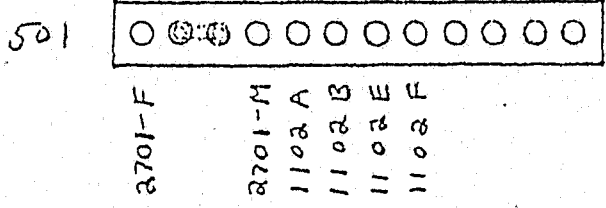
POS. 13  
SUPT.

SPARE

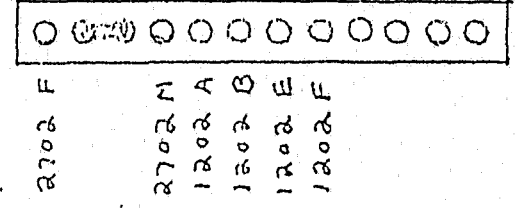
# PANEL 5

# TRANSFORMERS 12

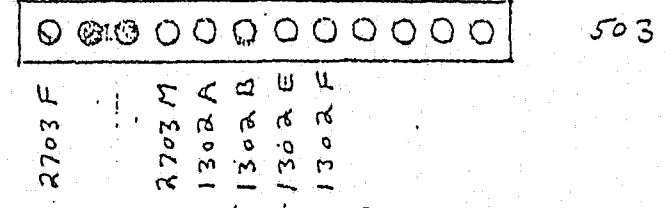
Recorder 16  
 SP LB ↑ BIK/for



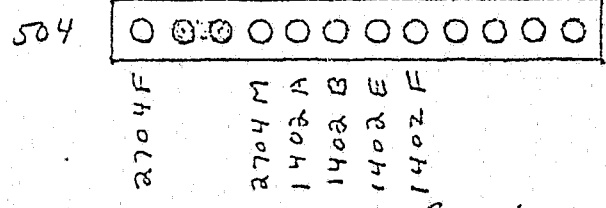
Recorder 17  
 SP HB ↑ BIK/for



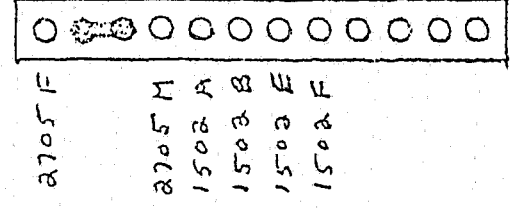
Hwy



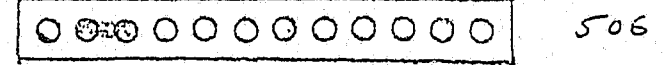
Recorder 18  
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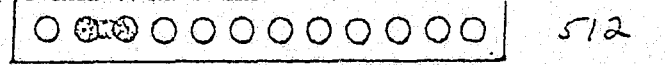
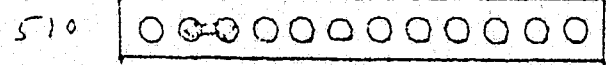
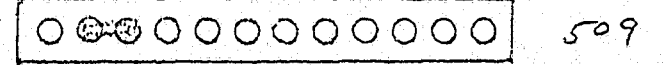
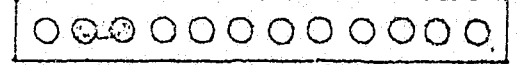
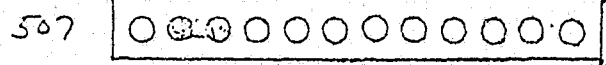
Recorder 14  
 CITY P.D. ↑ BIK/for



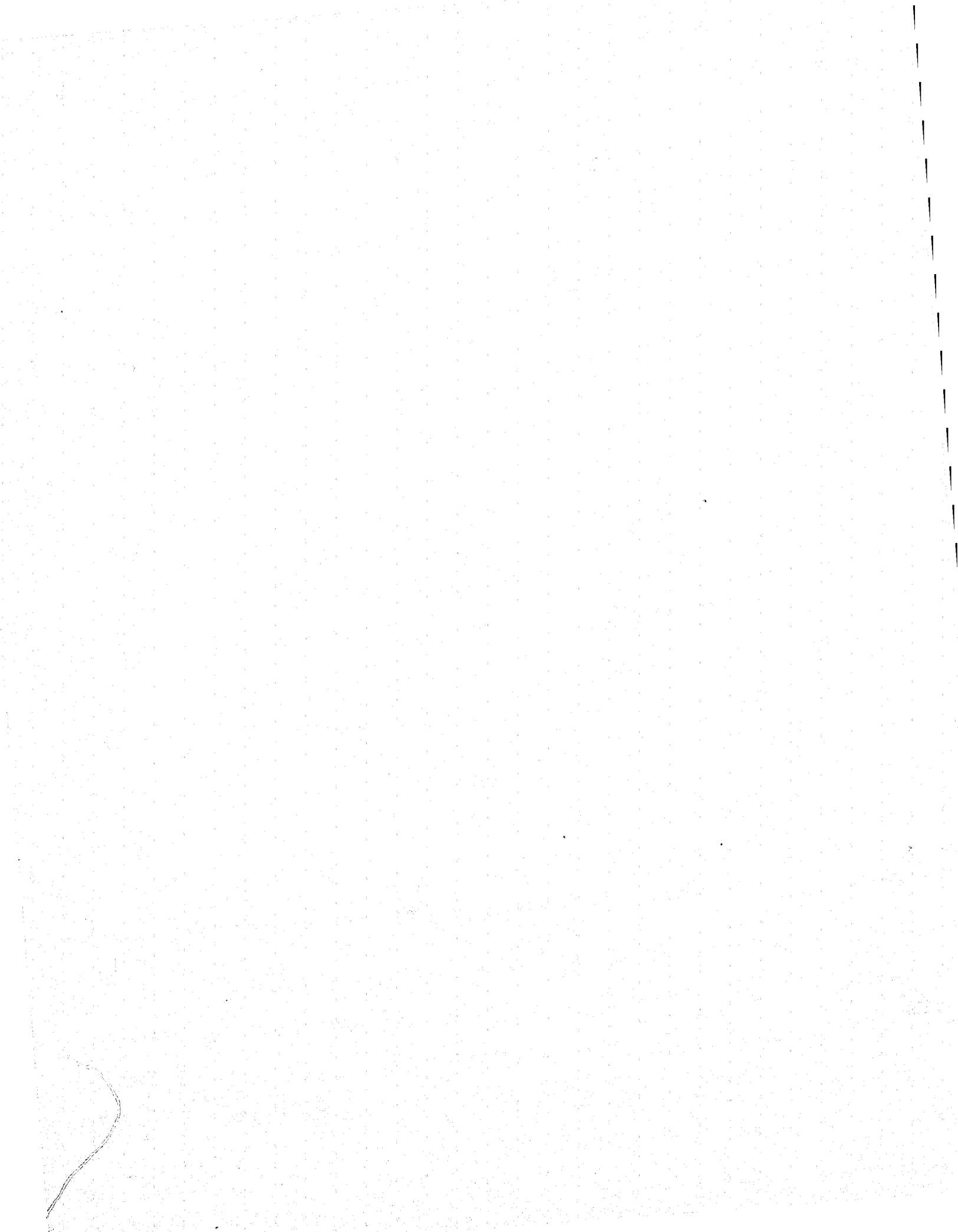
Recorder 19  
 UCIC ↑ BIK/for



Recorder 15  
 Wilm F-2 ↑ BIK/for







**CONTINUED**

**1 OF 3**

010) T/R  
 " (CONTAIL)  
 ALEAD  
 GRD  
 VCC  
 LAMP



FROM TELEPHONE PANEL  
 ON OUTSIDE WALL  
 75 PR. - 54 PR. USED - 21 PR. SPARE

TB 619 TO 636

(6R)

FROM TERMINAL PANEL  
ON OUTSIDE WALL

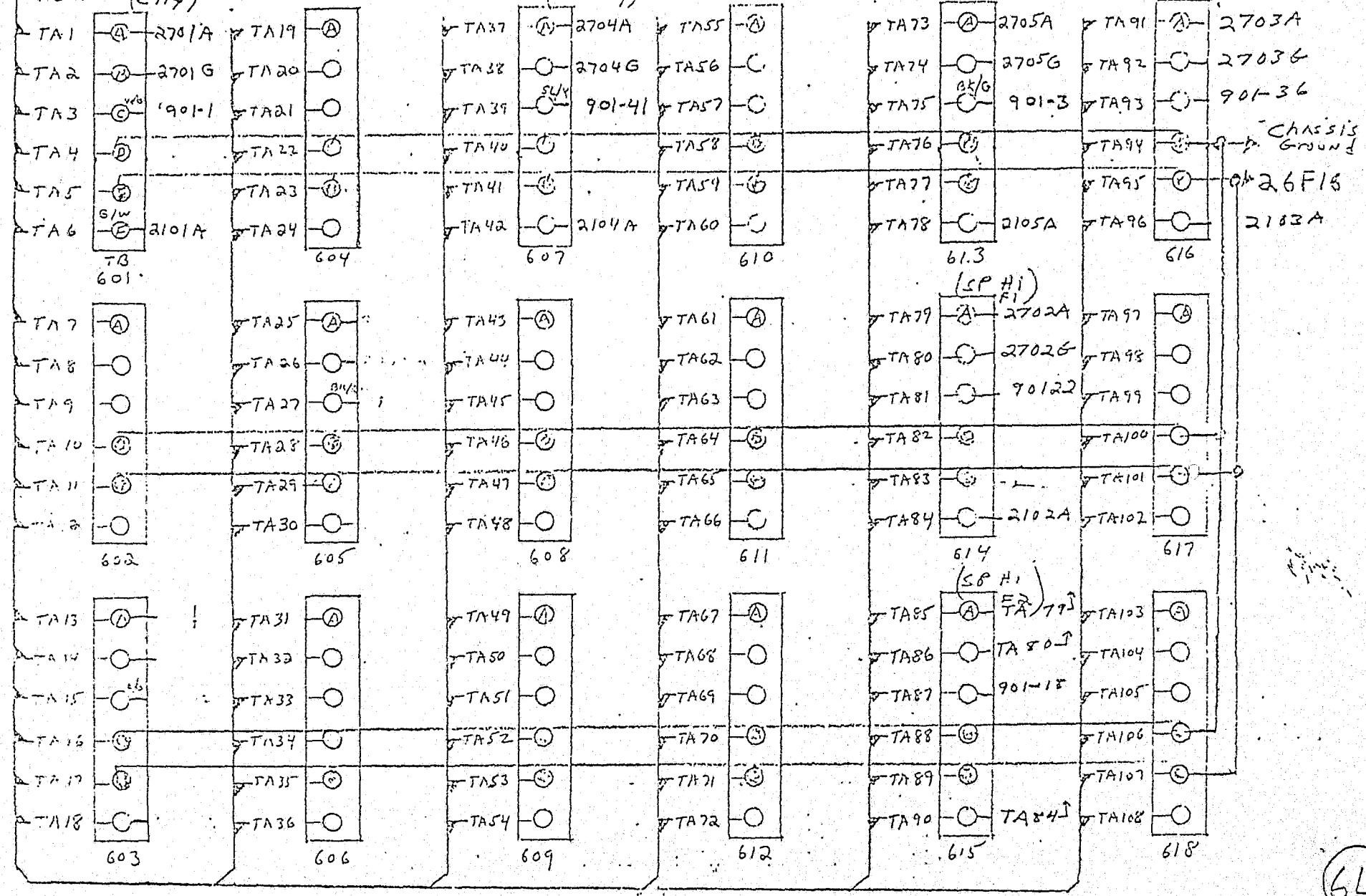
LEFT PANEL TITLE LBL  
# 6 (POS 9)

75 PR.  
CABLE 2  
T/R  
2 HAND  
GRD  
VCC  
LAMP

75 PR. - 54 PR. USED REST TIED BACK. SPARE  
CABLE 1 (CITY)  
(COUNTY)

(S.P. LOW)

(ST. HWY)



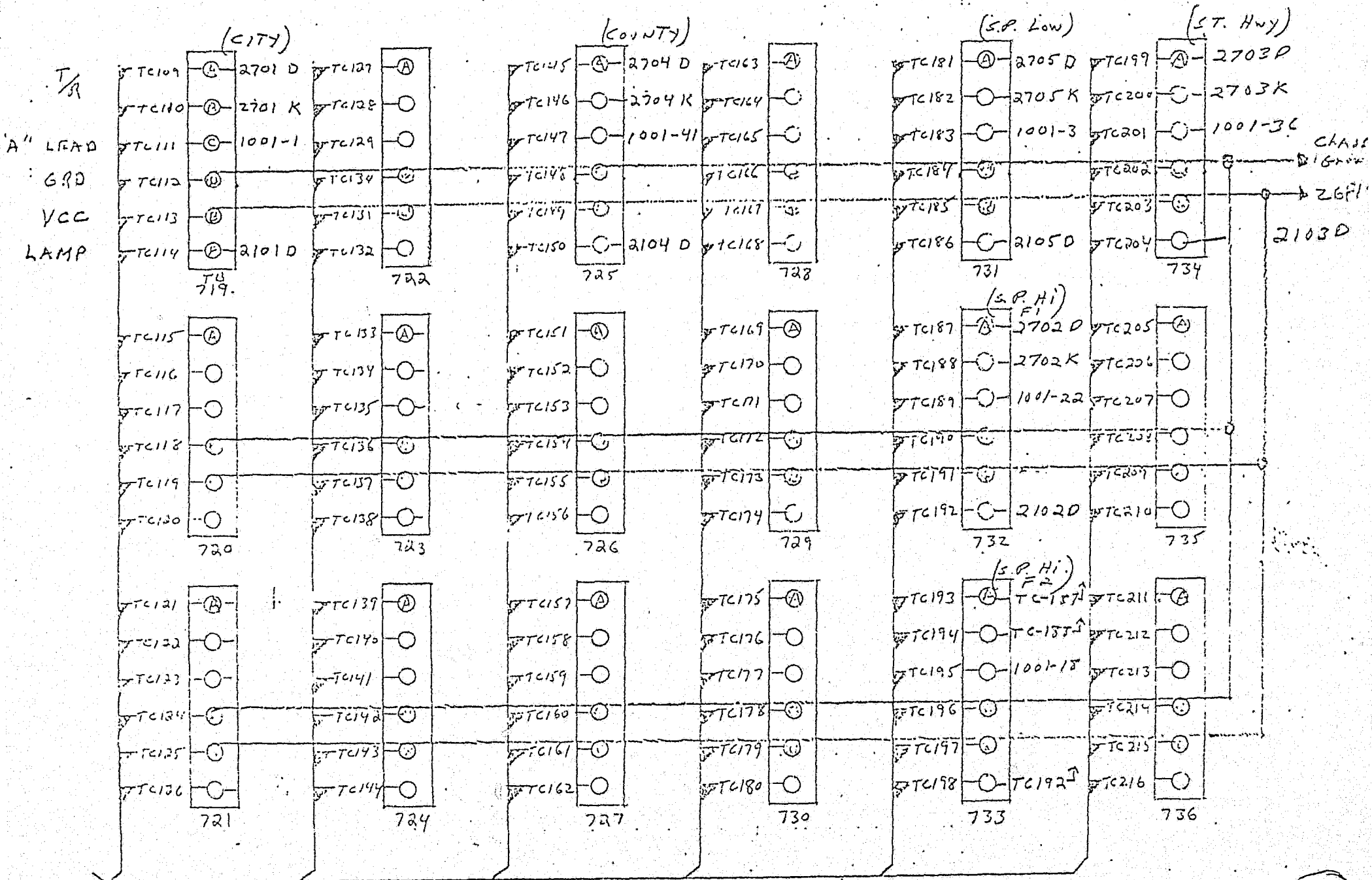
TB 601 TO 618

TO  
RIGHT HALF  
PANEL # 6

6L

# RIGHT HALF PANEL

## #7 (POS 12)



75 PPR FROM TEL. PANEL. 54 USED 21 SPARE  
CABLE 4

TB 719 TO 736

(78)

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# LEFT HALF PANEL #7 (POS 11)

FROM TELEPHONE PANEL,  
ON OUTSIDE WALL  
75 PA. 54 PR USED 21 PR SPARE  
CABLE 3 (CITY)

75 PA.  
CABLE 4

20) T/R  
A" LEAD  
(CONTROL)  
GRD  
VCC  
LAMP

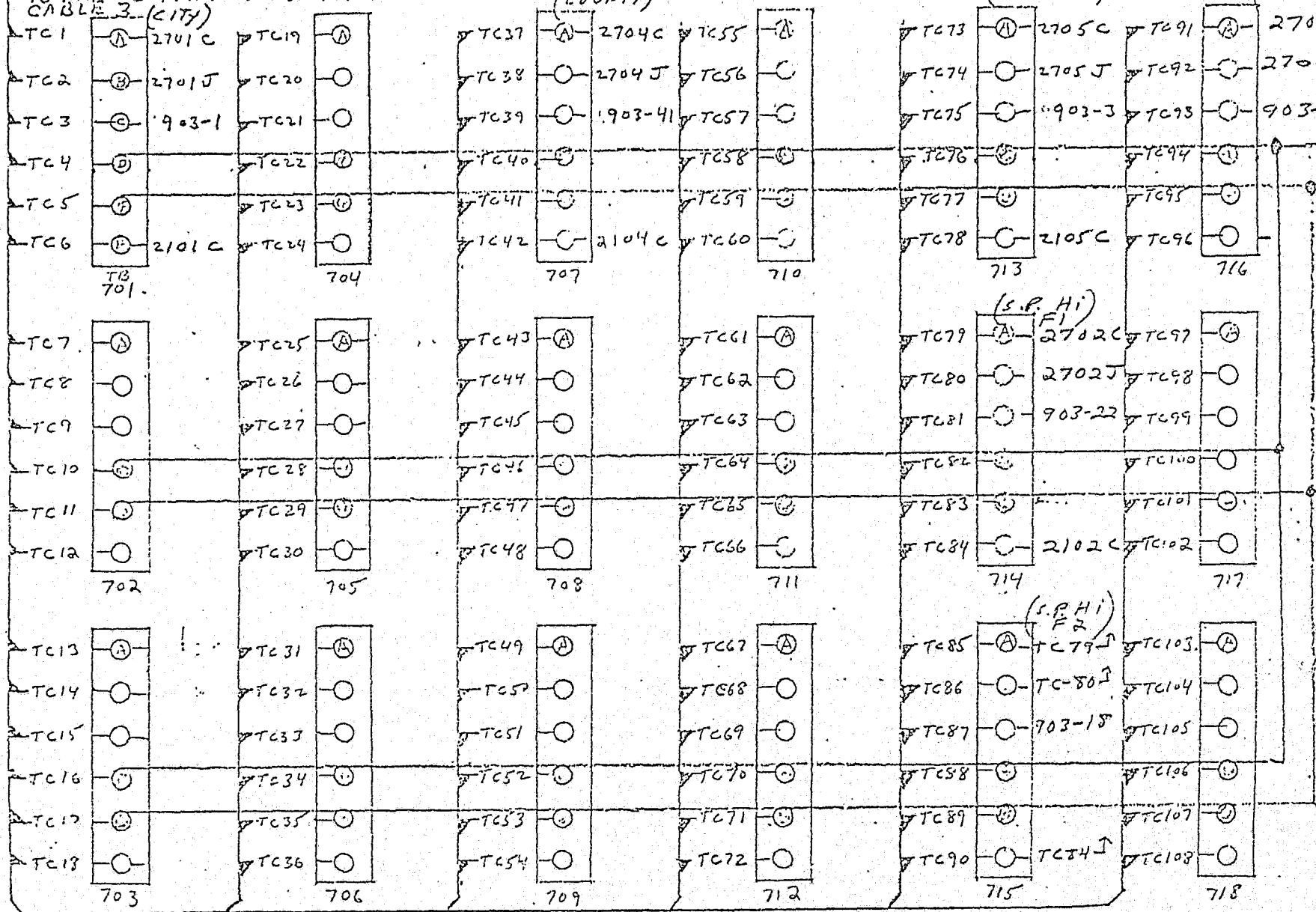
(COUNTY)

(S.P. LOW)

(ST. HWY)

(S.P. HI)  
F1

(S.P. HI)  
F2

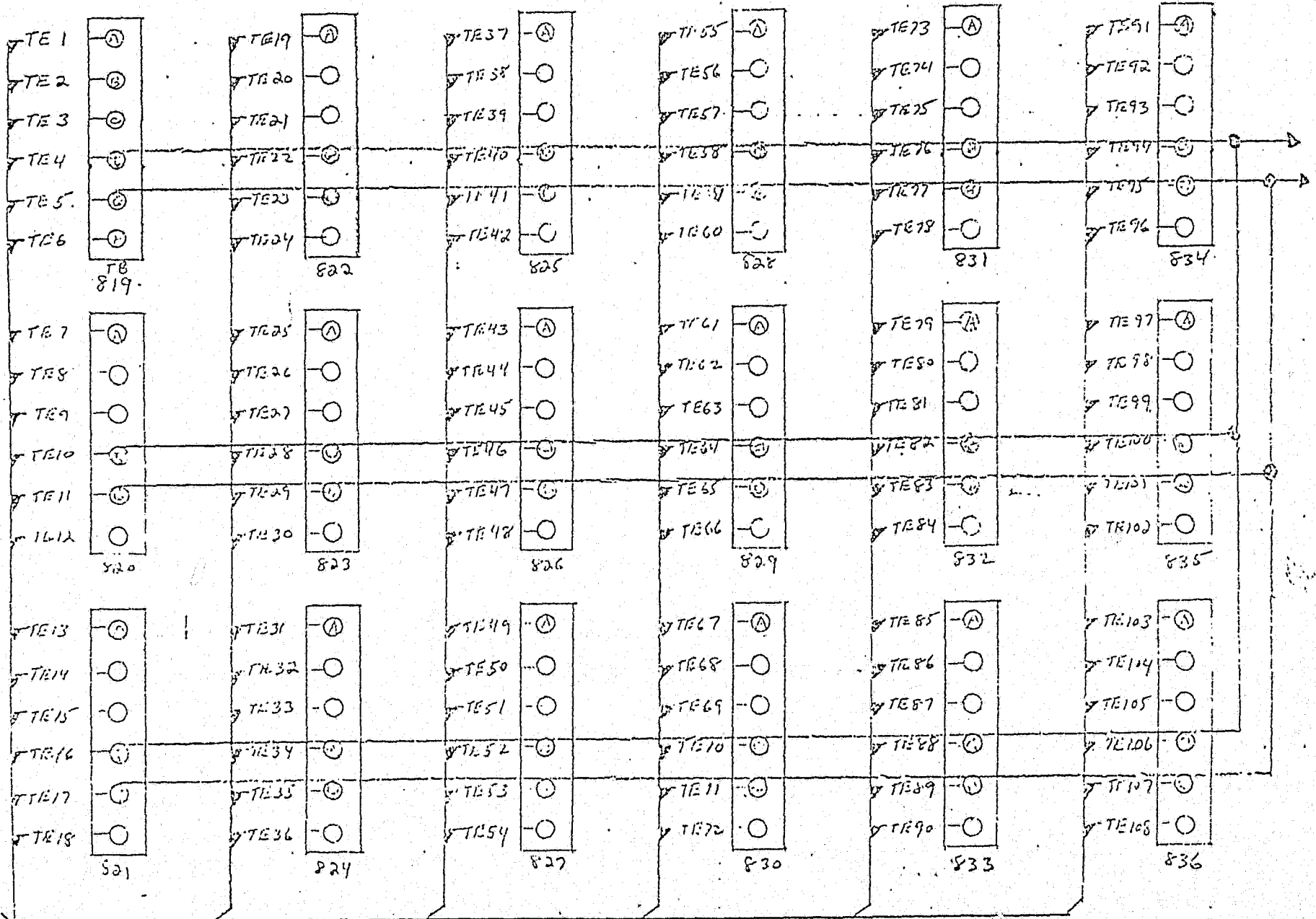


75 PA. TO RIGHT  
HALF PANEL  
#7

TB. 701 TO 718

# 8

(SPARE)



CABLES FROM TEL. PANEL.  
 75 PR. 54 PR. USED 21 PR. SPARE.

88

DWN BY KCL 5-73

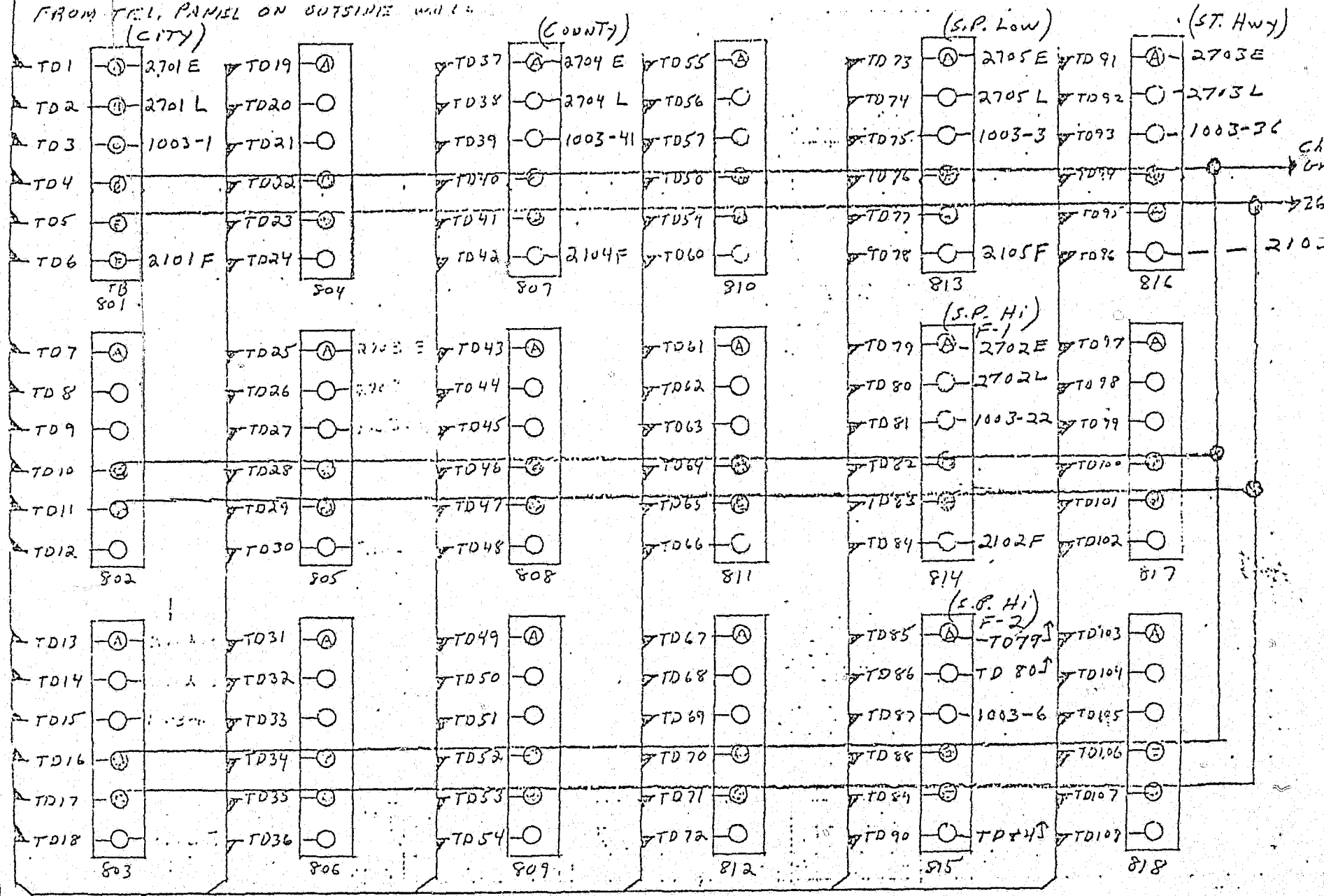
# LEFT HALF PANEL

# 8

(POS 13) SUP.

CABLE 5 75 PR. 54 PR. USED FROM TEL. PANEL ON OUTSIDE WALL (CITY)

NO T/R  
CONTROL "A" LEAD  
GRD  
VCC  
LAMP



TO RIGHT HALF PANEL #8

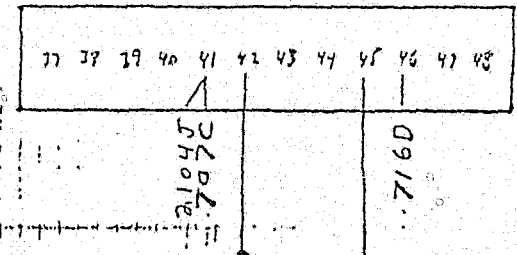
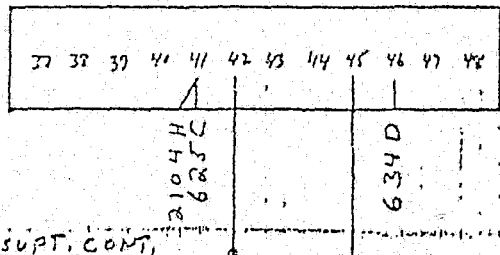
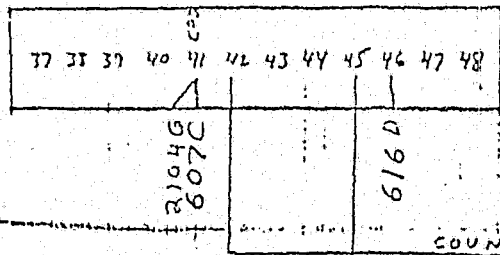
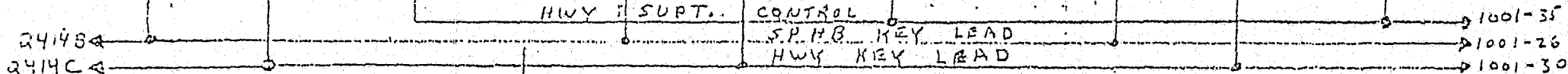
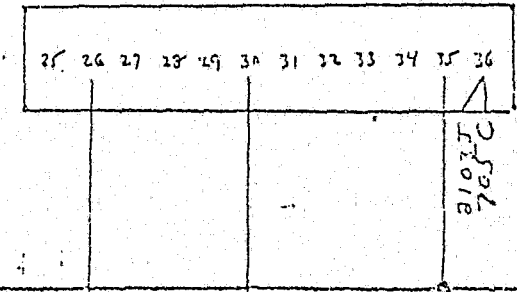
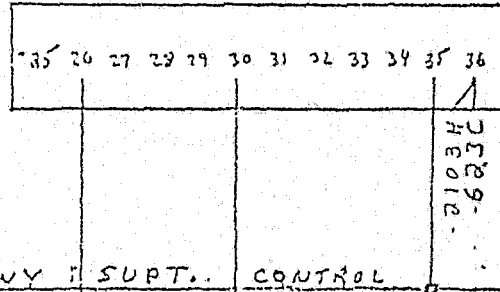
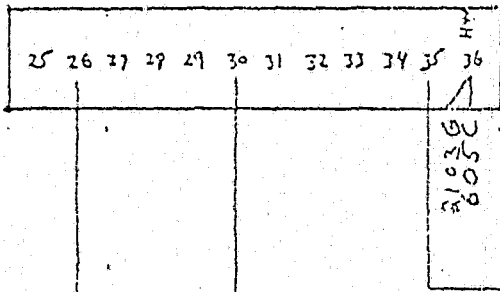
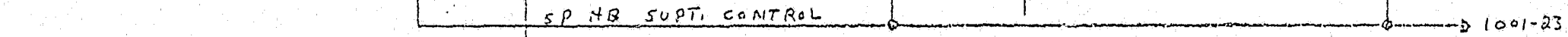
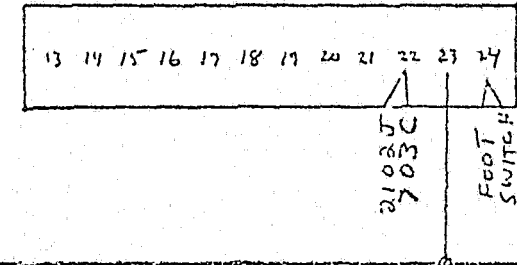
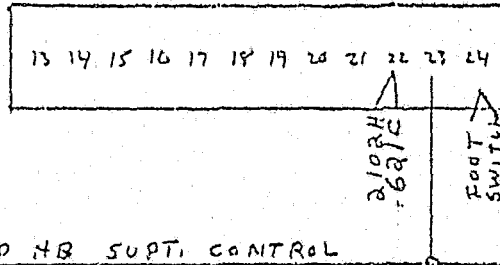
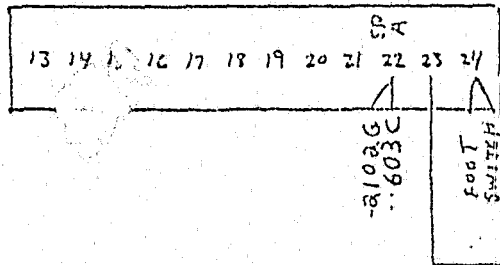
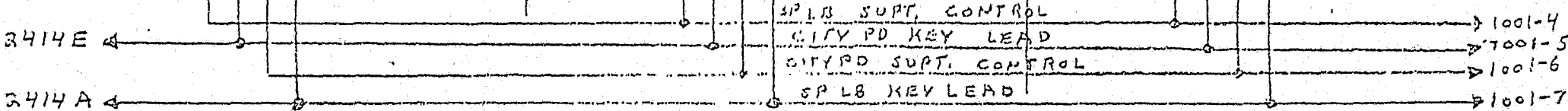
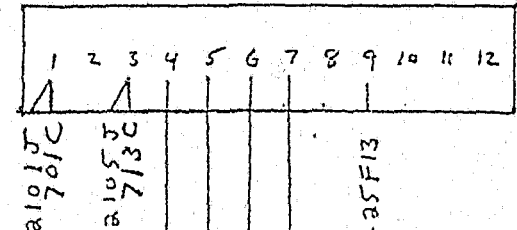
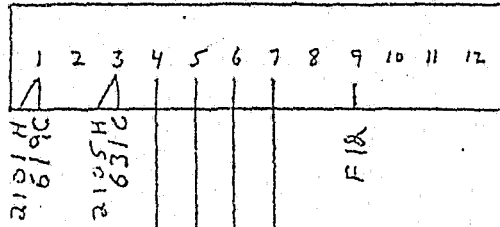
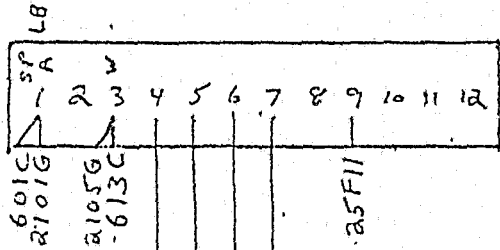
8



(pos 9) ASST. SUPT.

PANEL 9  
(pos 10)

(pos 11)

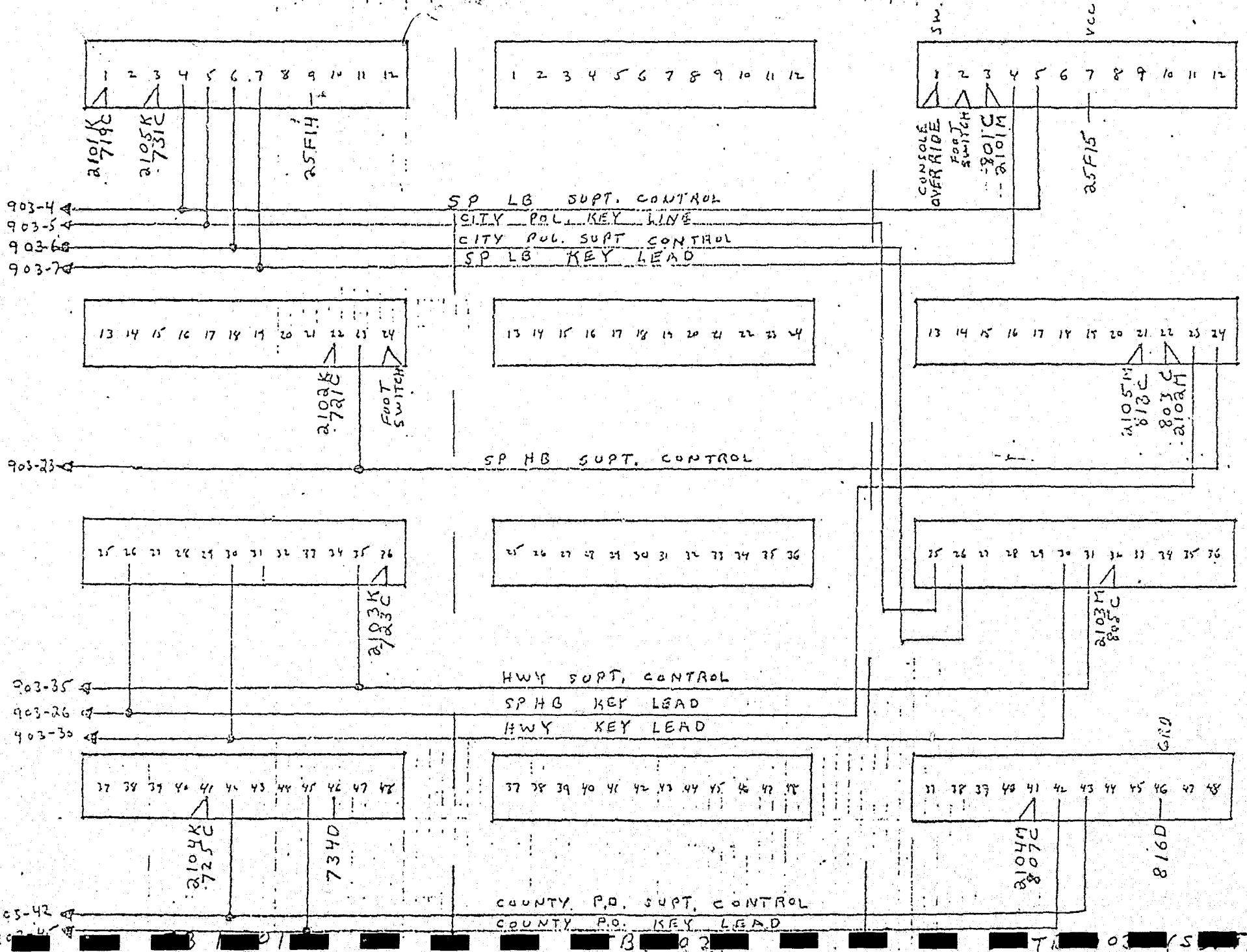


9  
DWA  
12/15/5-

(Pos 12)

# PANEL 10 (SPARE)

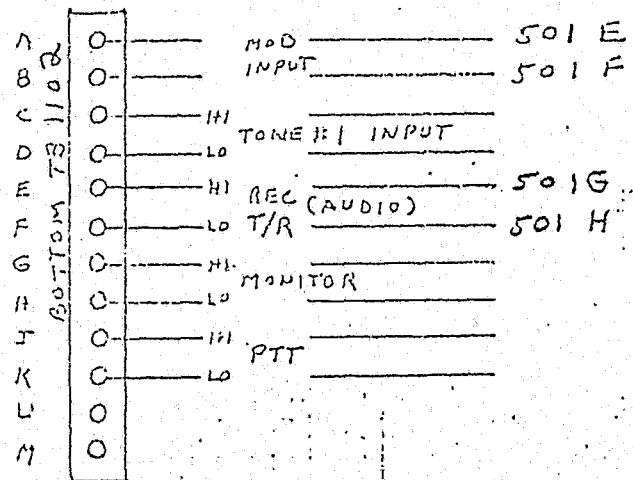
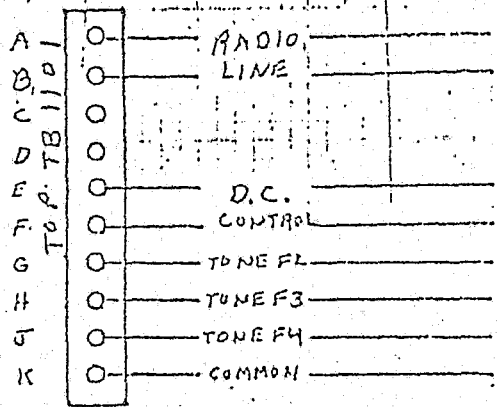
(POS 13 SUPT)



# PANEL II

STATE POLICE LOW BAND

D  
E  
S  
K  
O  
N

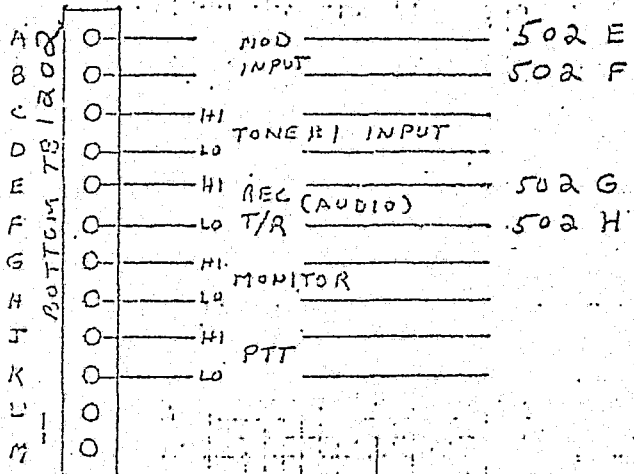
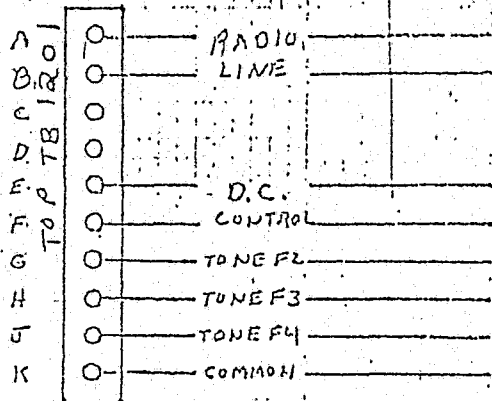


11

DWH BY  
KCL 5-73

PANEL 2  
STATE POLICE HIGH BAND

D  
E  
S  
K  
O  
N

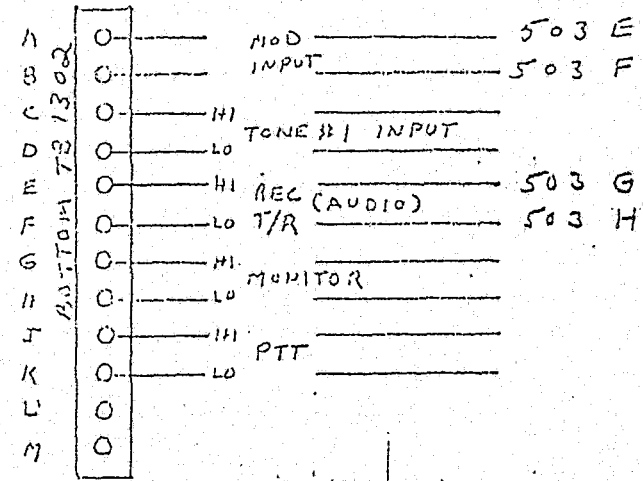
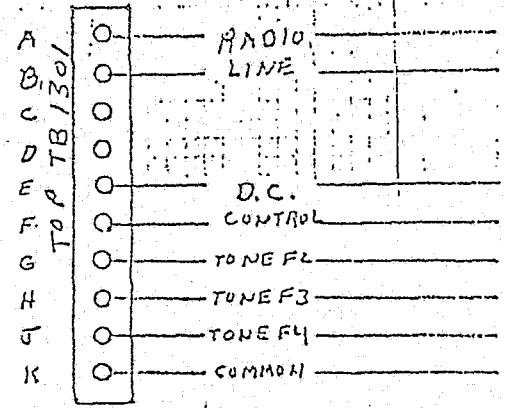


12

DWN BY  
KCL 5-13

# PANEL 13 HIGHWAY

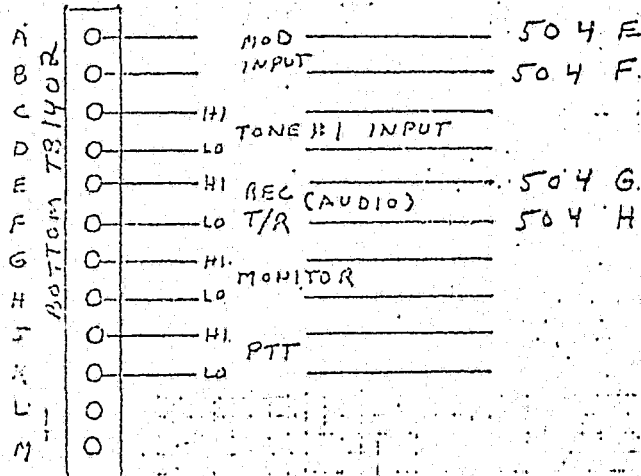
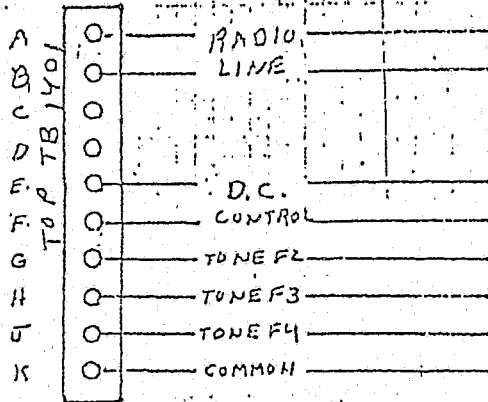
D  
E  
S  
K  
O  
N



# PANEL 14

## COUNTY POLICE LOW BAND

D  
E  
S  
K  
O  
N

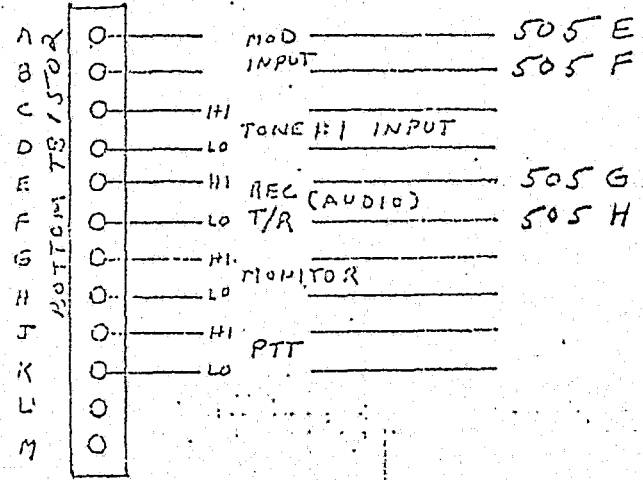
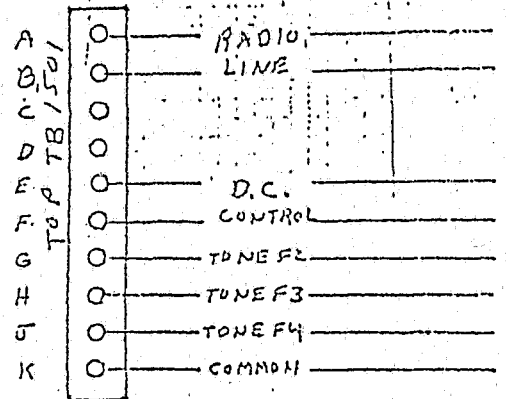


14

DWN BY  
KCL 5-73

PANEL 15  
 WILMINGTON CITY POLICE HIGH BAND

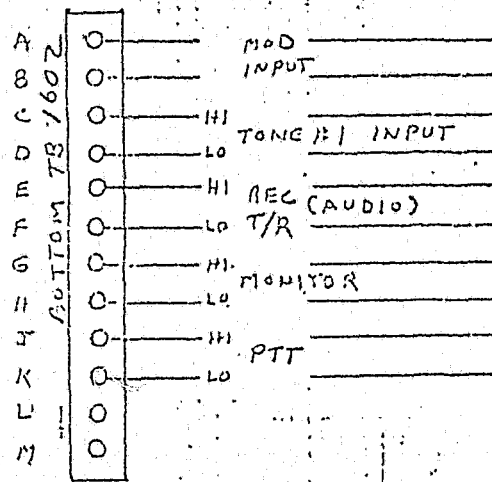
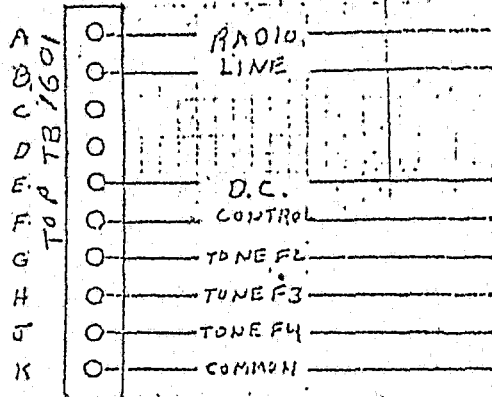
DESK  
ON



15  
 DWN BY  
 JCL 5-73

# PANEL 16

D  
E  
S  
K  
O  
N



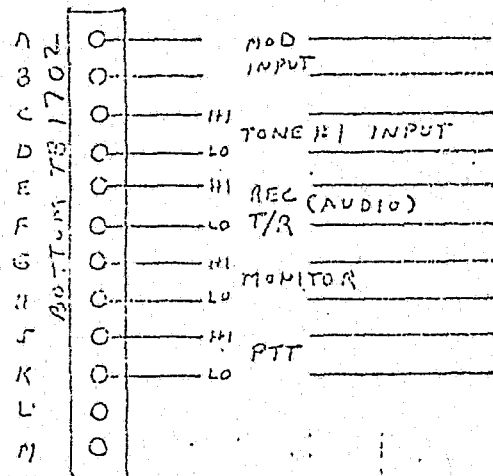
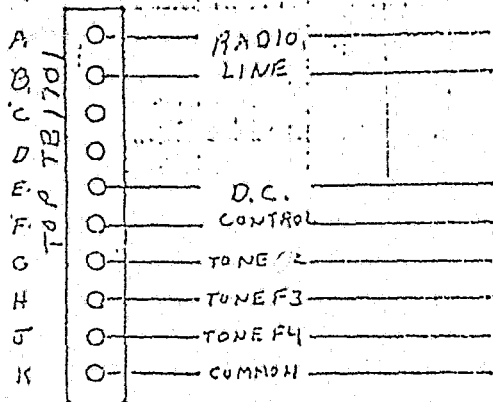
16

DWN BY  
JCL 5-73



# PANEL 17

D  
E  
S  
K  
O  
N

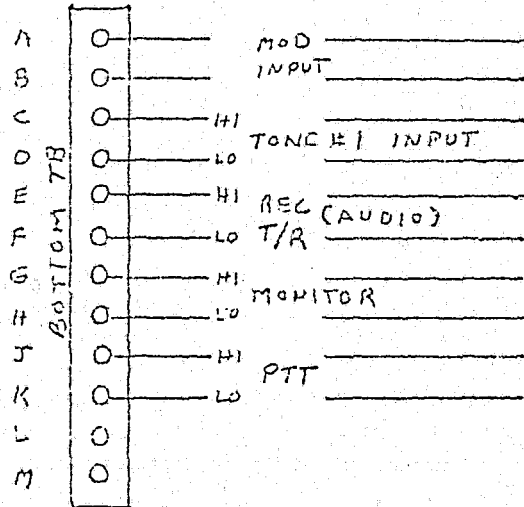
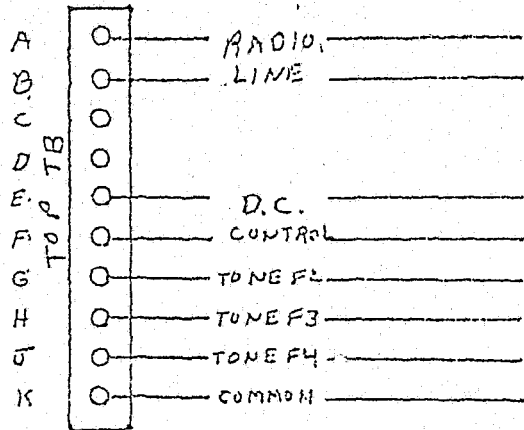


17

DWN BY  
KEL 5-73

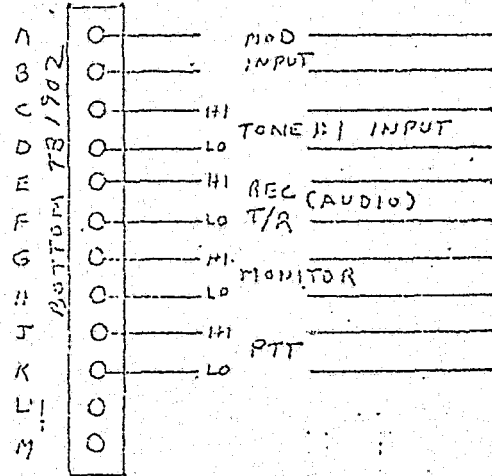
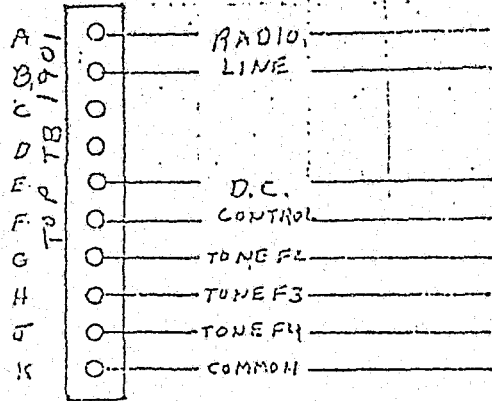
# PANEL 18

DESKON



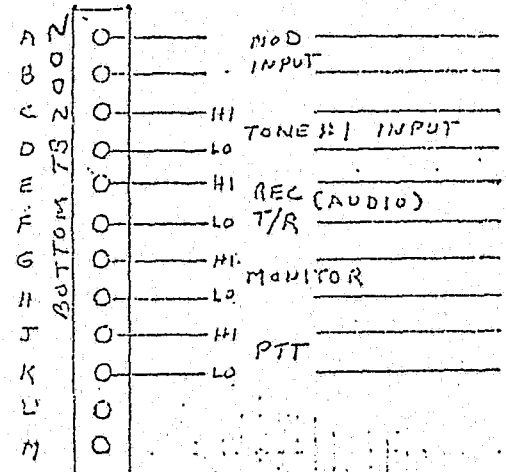
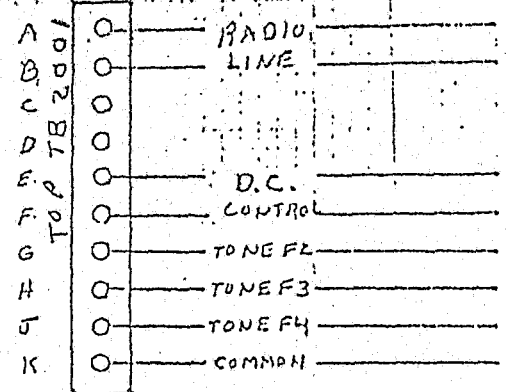
# PANEL 19

D  
E  
S  
K  
O  
N



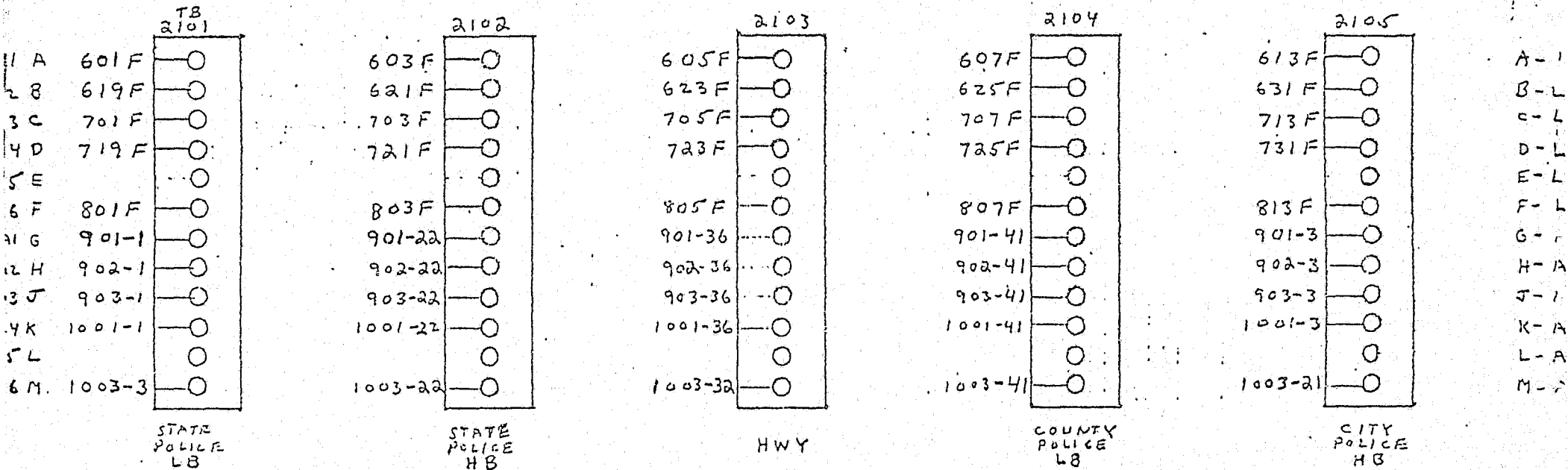
# PANEL 20

DESK  
ON

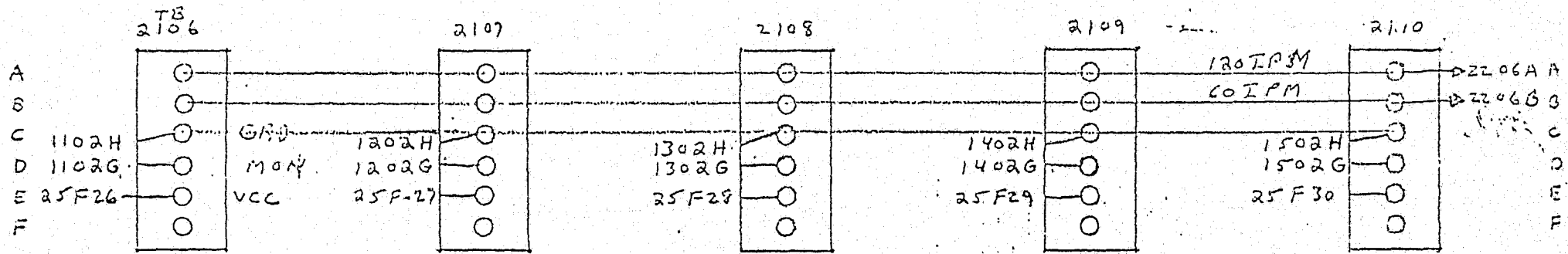


20  
DRAWN BY  
KEL 5-73

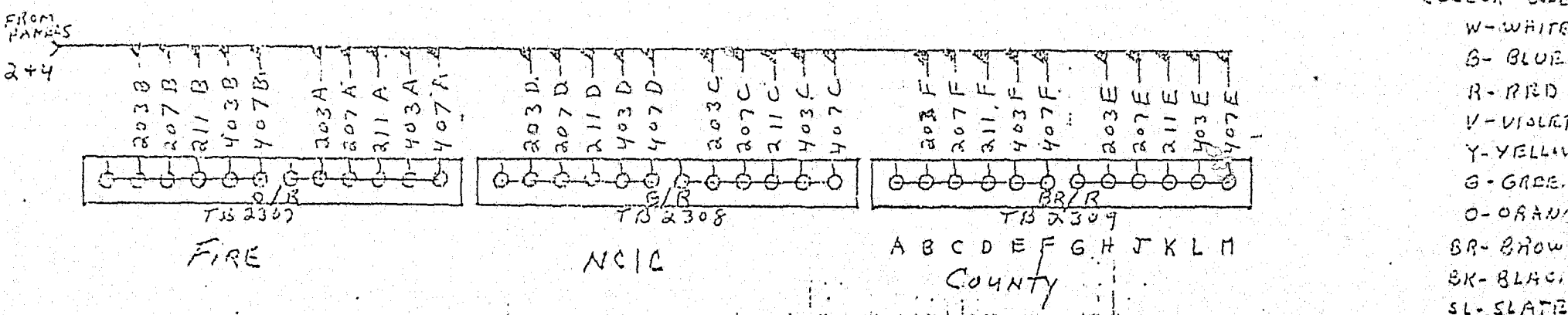
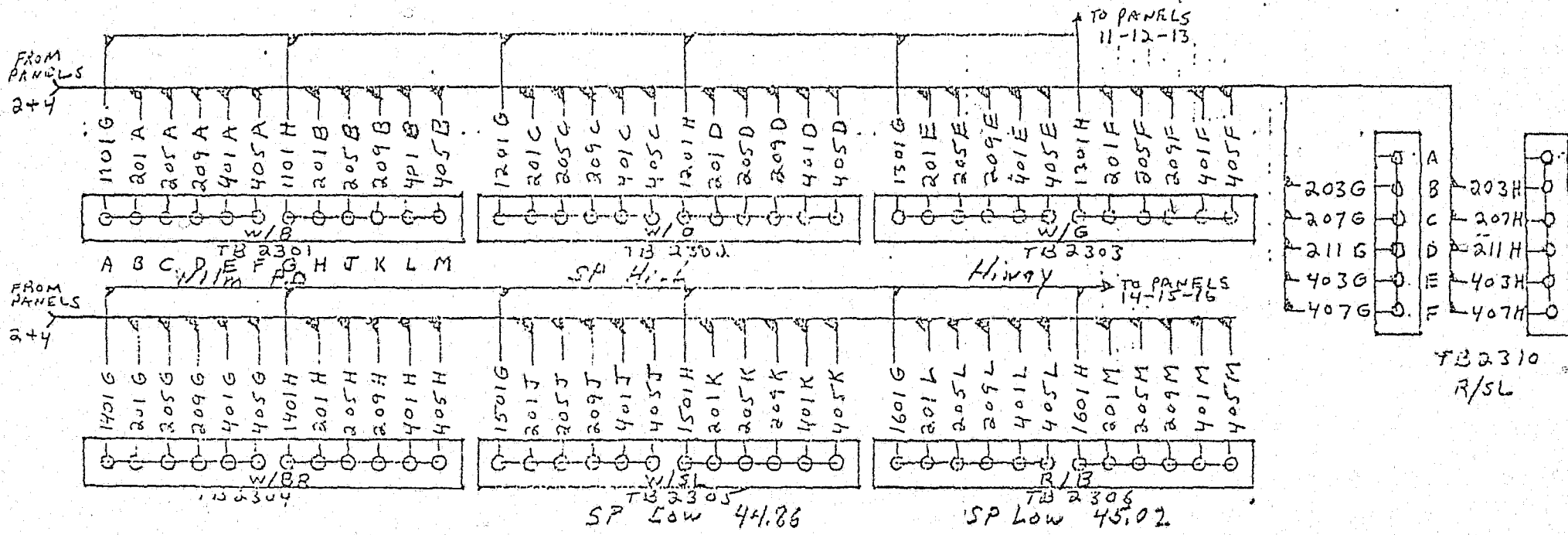
# PANEL 21



- A - 1
- B - L
- C - L
- D - L
- E - L
- F - L
- G -
- H - A
- J - 1
- K - A
- L - A
- M -



- 2206A A
- 2206B B
- C
- D
- E
- F



- COLLOR CODE
- W-WHITE
  - B-BLUE
  - R-RED
  - V-VIOLET
  - Y-YELLOW
  - G-GREEN
  - O-ORANGE
  - BR-BROWN
  - BL-BLACK
  - SL-SLATE

# MATRIX PANEL 24 RIGHT

TB  
2410

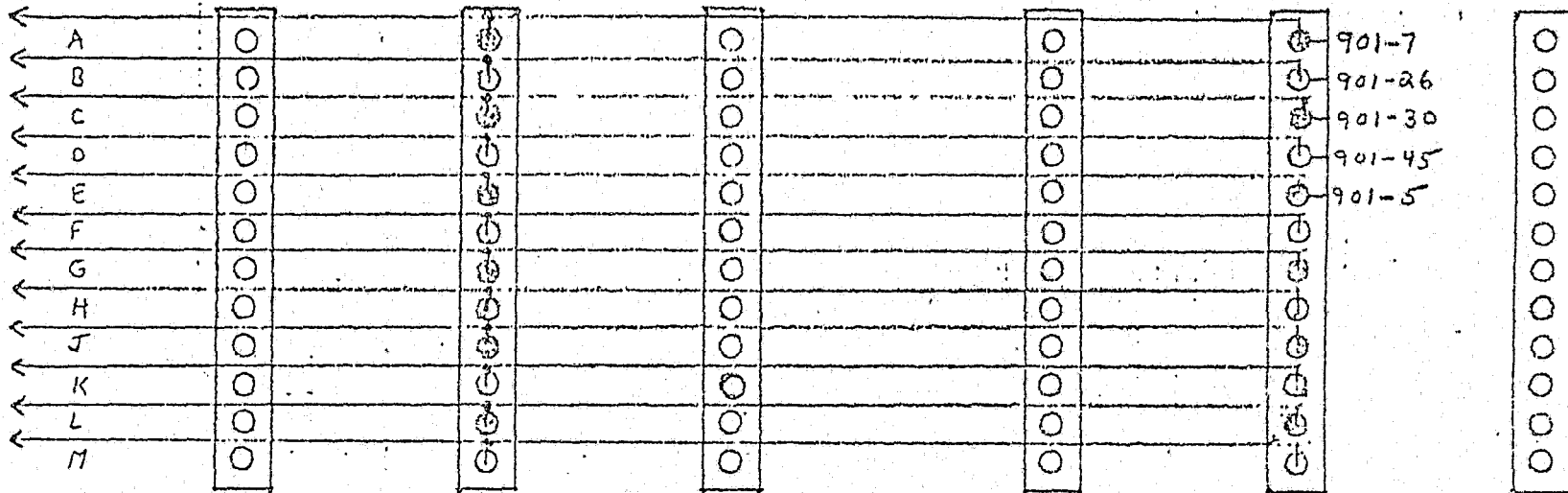
TB  
2411

TB  
2412

TB  
2413

TB  
2414

TB  
2415



A  
B  
C  
D  
E  
F  
G  
H  
J  
K  
L  
M

24R

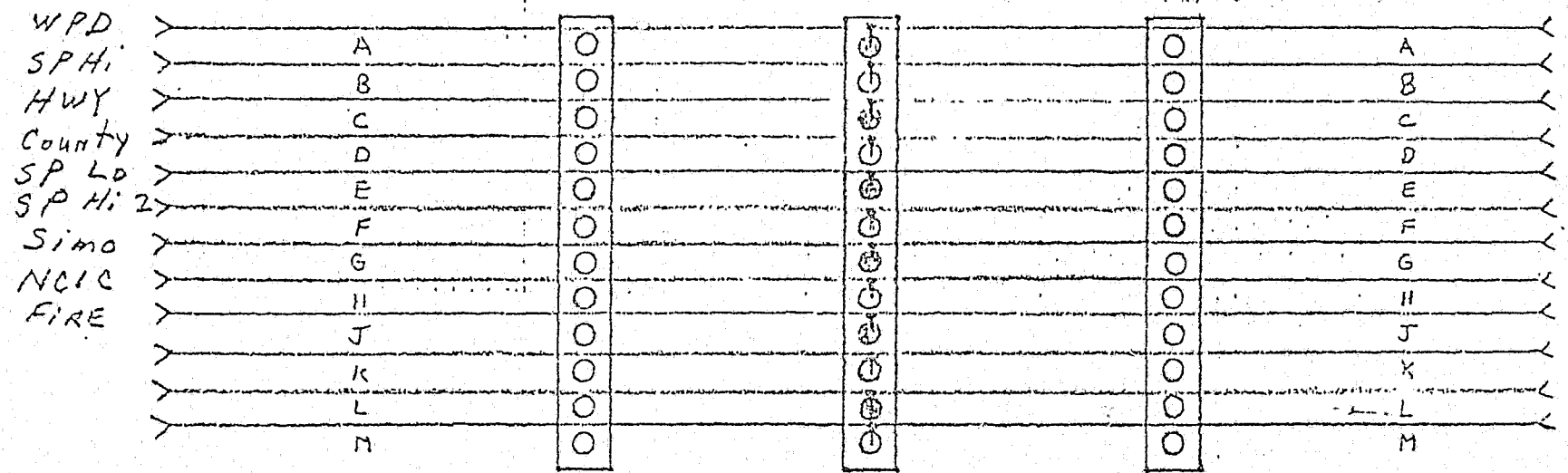
DRN BY  
10-5-7

# MATRIX PANEL 24 CENTER

TB  
2407

TB  
2408

TB  
2409



24C  
DWN BY  
KCC 5-



# MATRIX PANEL 24 LEFT

TB  
2401

TB  
2402

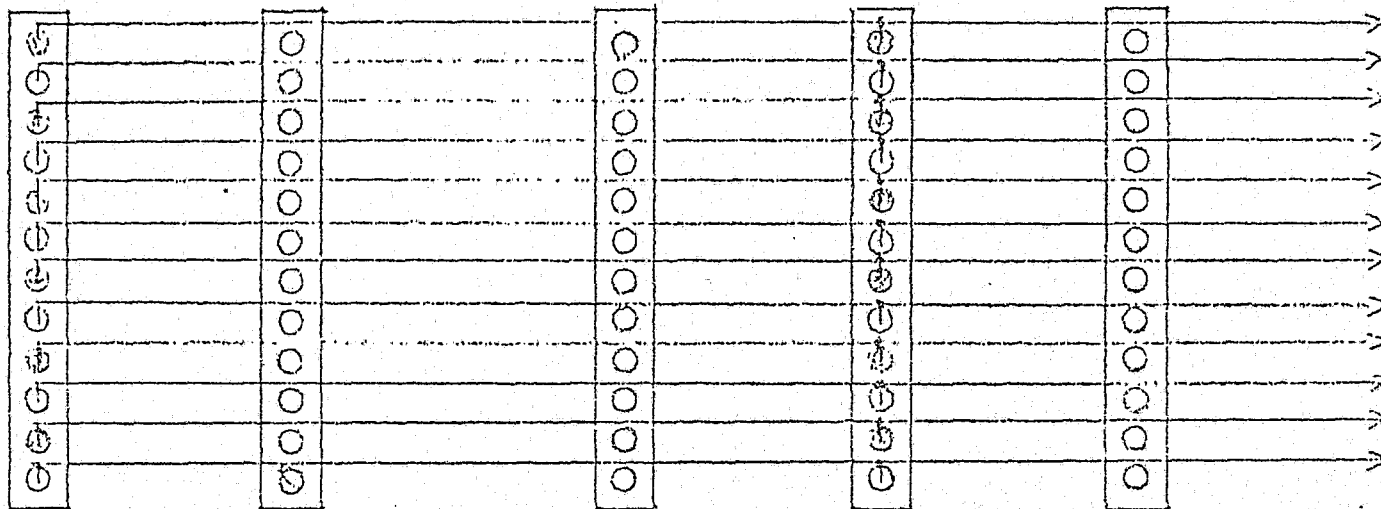
TB  
2403

TB  
2404

TB  
2405

TB  
2406

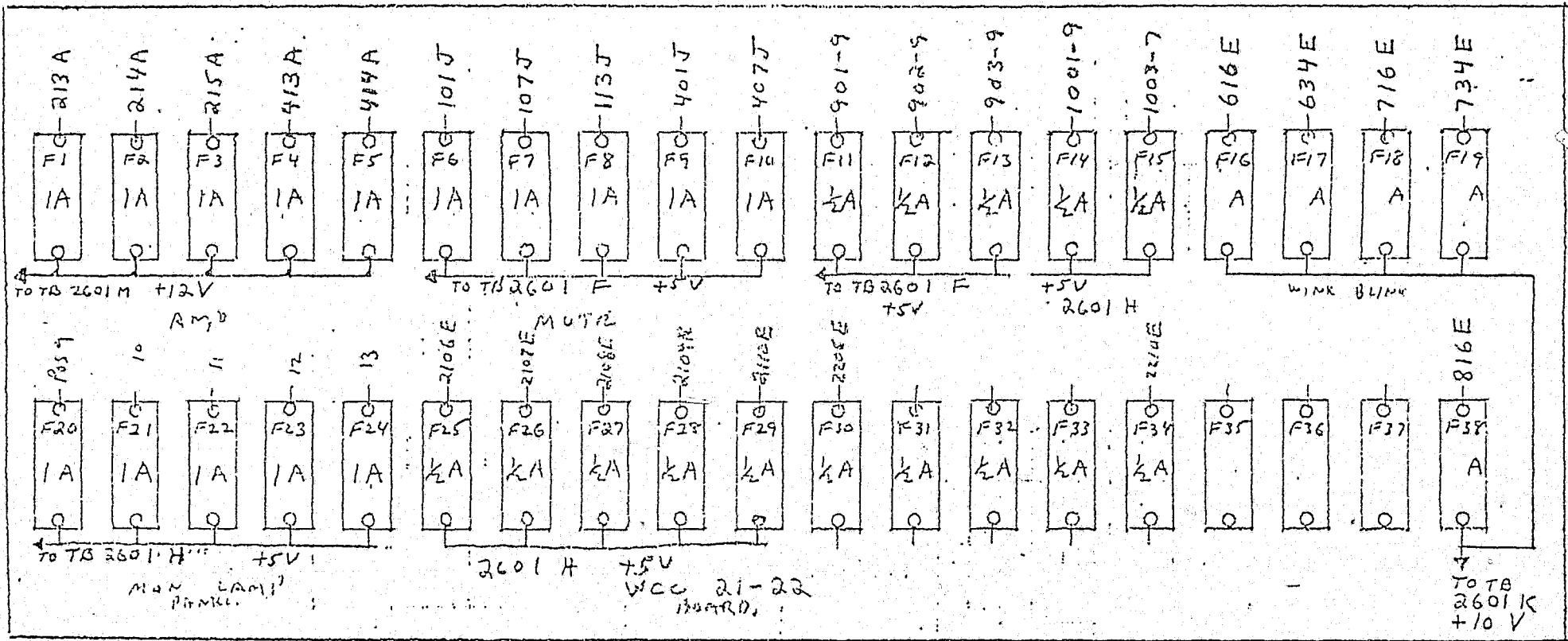
A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
M



A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
M

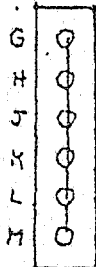
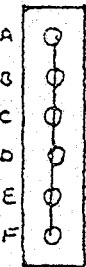
24L  
DWN BY  
[Signature]

# PANEL 25 FUSES



# PANEL 27

T/R (AUDIO) MULT.



TB2710

601A 619A 701A 719A 801A 501A  
601B 619B 701B 719B 801B 501D

A B C D E F G H J K L M

SP LB

603A 621A 703A 721A 803A 503A  
603B 621B 703B 721B 803B 503D

A B C D E F G H J K L M

SP HB

605A 623A 705A 723A 805A 503A  
605B 623B 705B 723B 805B 503D

A B C D E F G H J K L M

HWY

607A 625A 707A 725A 807A 504A  
607B 625B 707B 725B 807B 504D

A B C D E F G H J K L M

COUNTY PD

613A 631A 713A 731A 813A 505A  
613B 631B 713B 731B 813B 505D

A B C D E F G H J K L M

CITY PD

A B C D E F G H J K L M

3706

A B C D E F G H J K L M

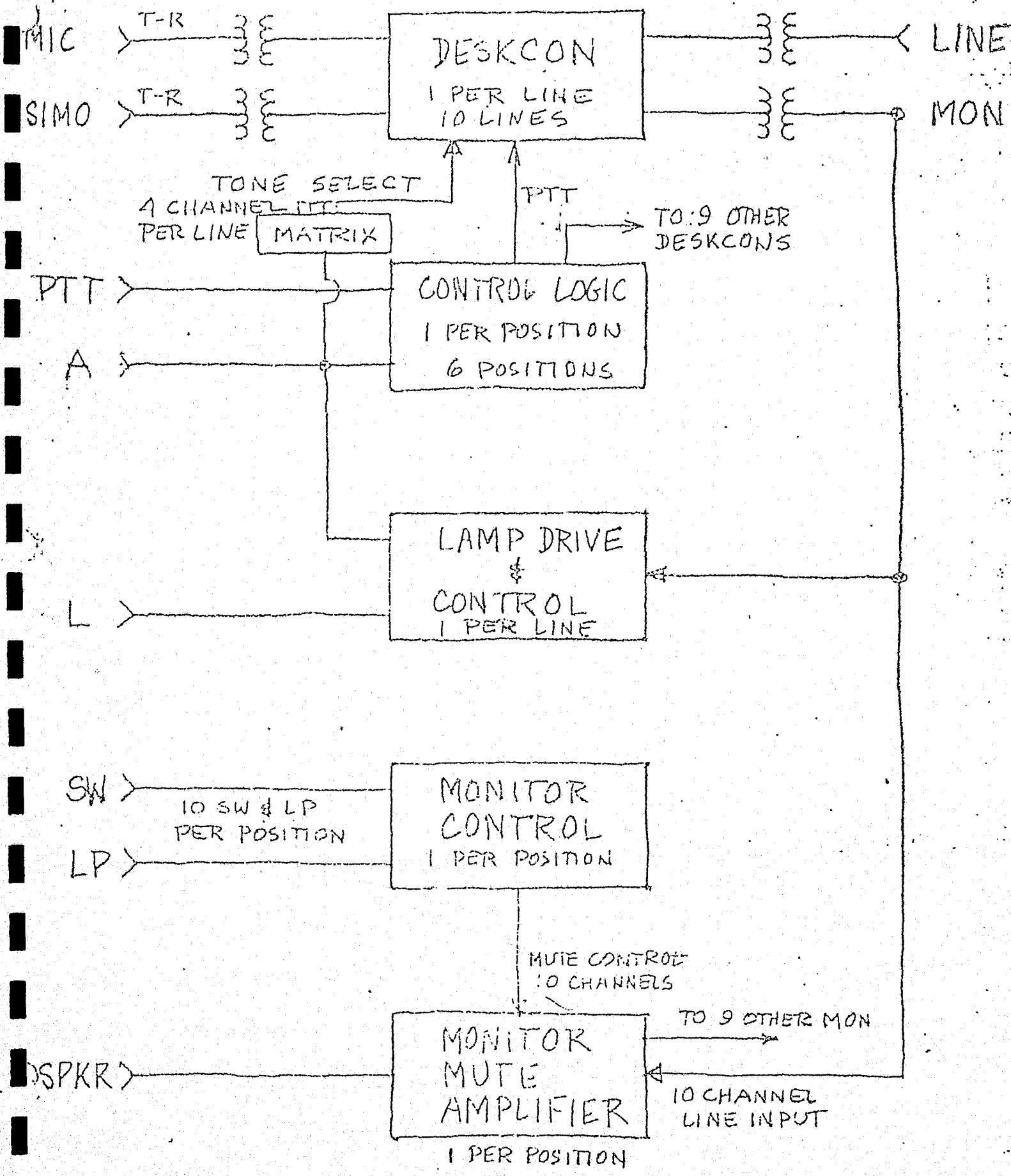
3707

A B C D E F G H J K L M

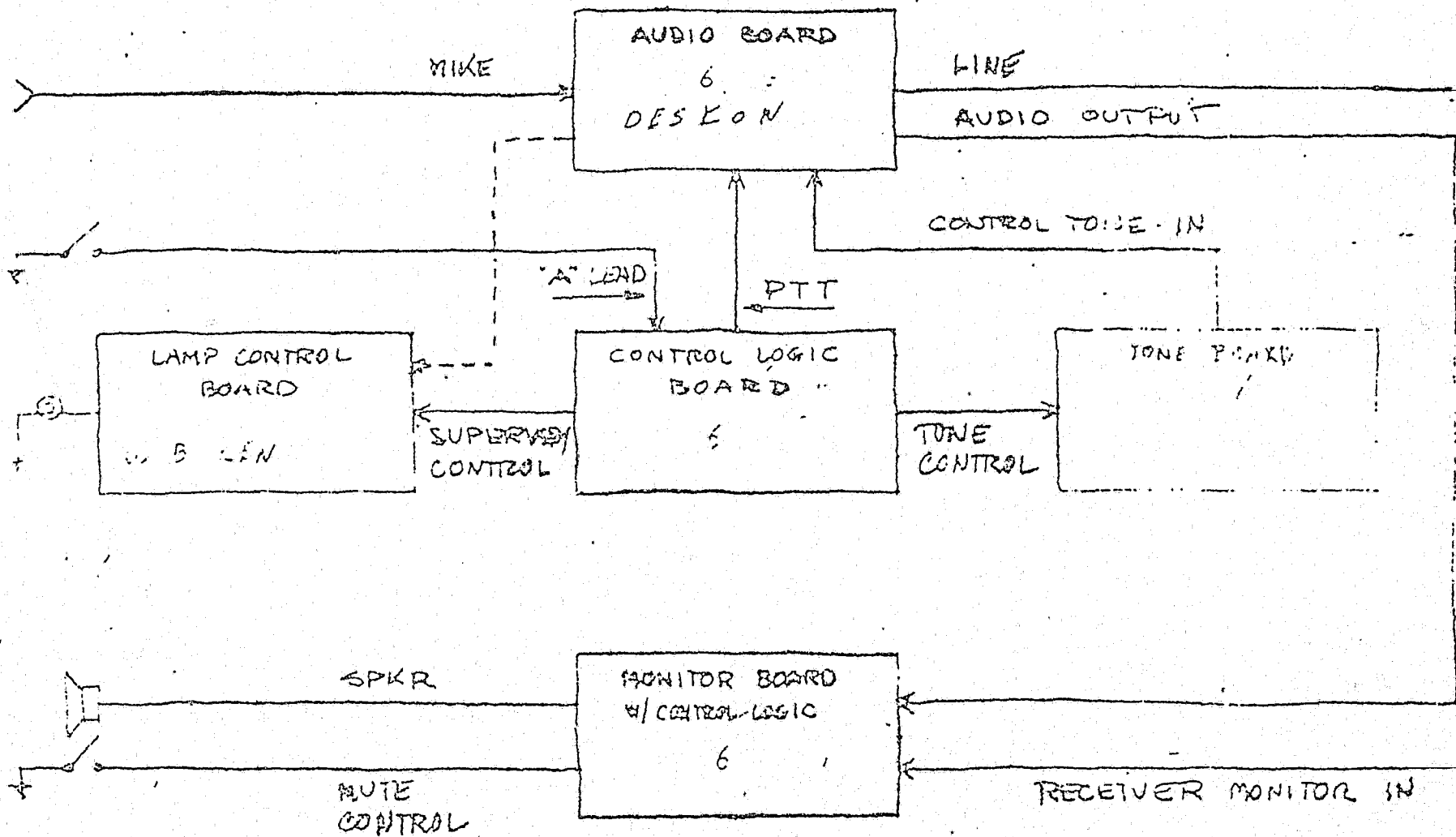
3708

A B C D E F G H J K L M

3709







# RADIO AUDIO & CONTROL SYSTEM

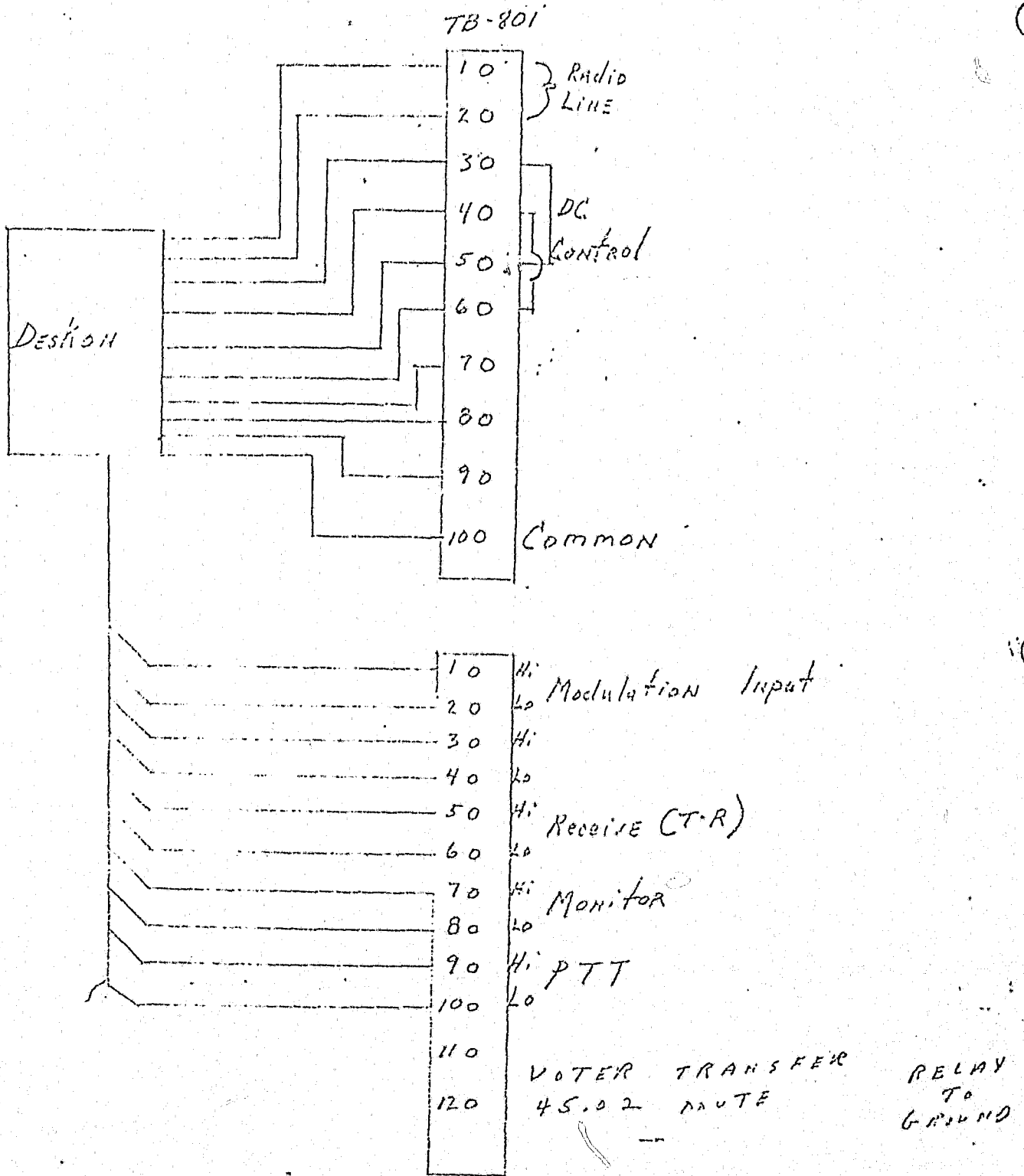
NAME / ASSIGNMENT	KEY ASSIGNMENT				
	POS 9	POS 10	POS 11	POS 12	POS 13
DEL SP LO	85	25	25	25	115
DEL SP HI F1	86	26	26	26	116
DEL SP HI F2	87	27	27	27	117
DEL STATE HWY	88	28	28	28	118
NCC POLICE	79	19	19	19	109
NCIC	80	20	20	20	110
SIMO-CAST	81	21	21	21	111
WILM PD	73	13	13	13	103
UNASSIGNED	74	14	14	14	104
<del>WILM PD</del>	75	15	15	15	105
WPD SCRAMBLE	76	16	16	16	106

PICK-UP REQUIRES ONE RELAY PER KEY, PER POSITION  
 60 RELAYS ARE INSTALLED = 12 CIRCUITS  
 55 RELAYS ARE WIRED = 11 CIRCUITS  
 5 RELAYS = 1 CIRCUIT AVAILABLE

DESIGN

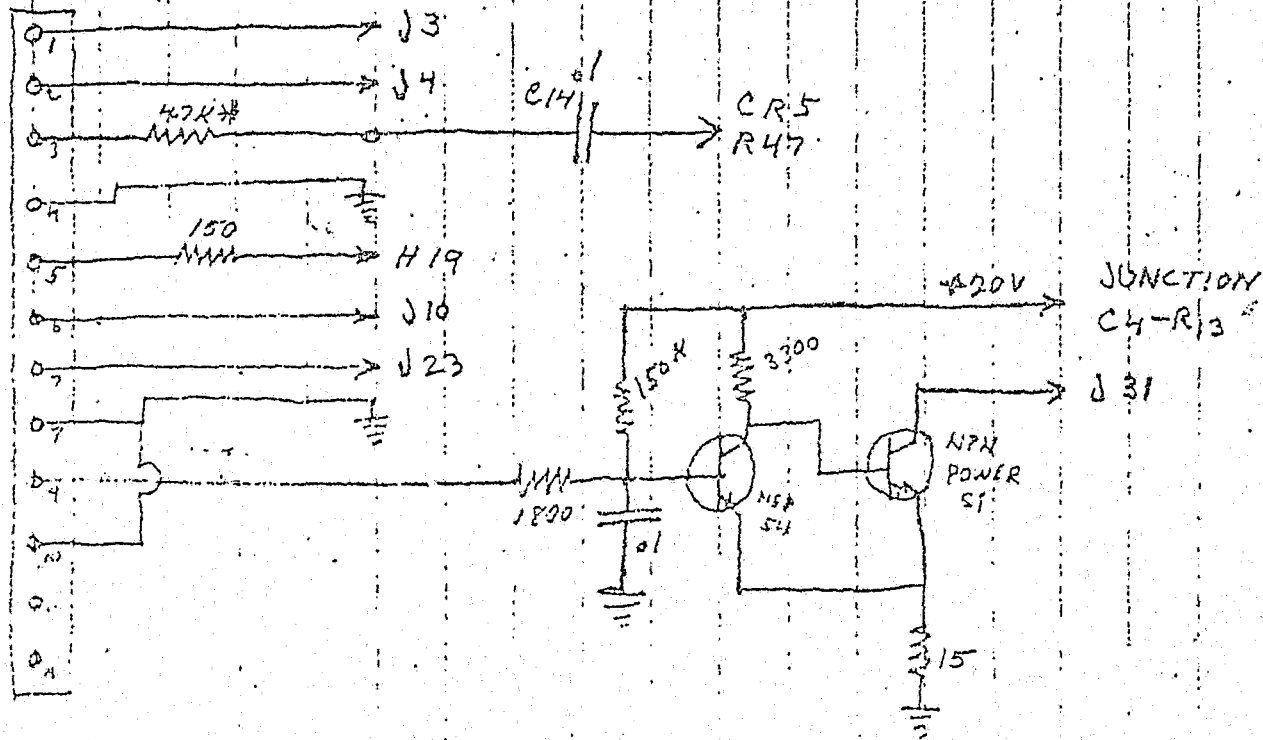
REVISED

TERMINATIONS



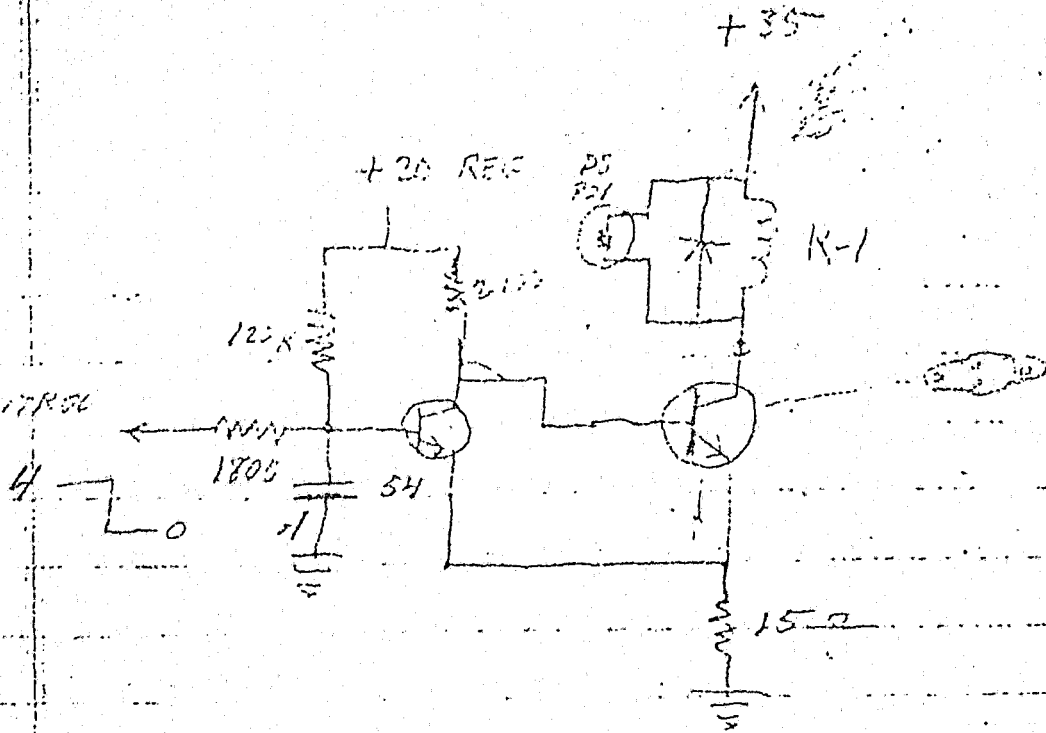


AUXILIARY  
TERMINALS



DESIGN  
REVISIONS

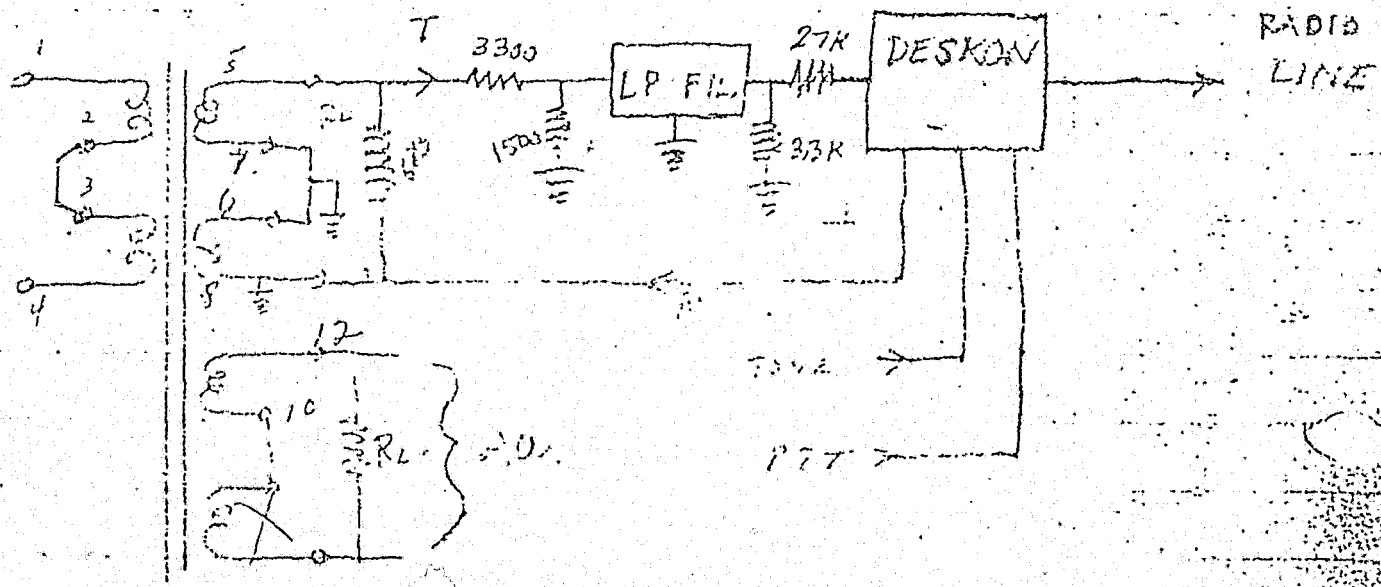
TO CONTROL  
LOGIC

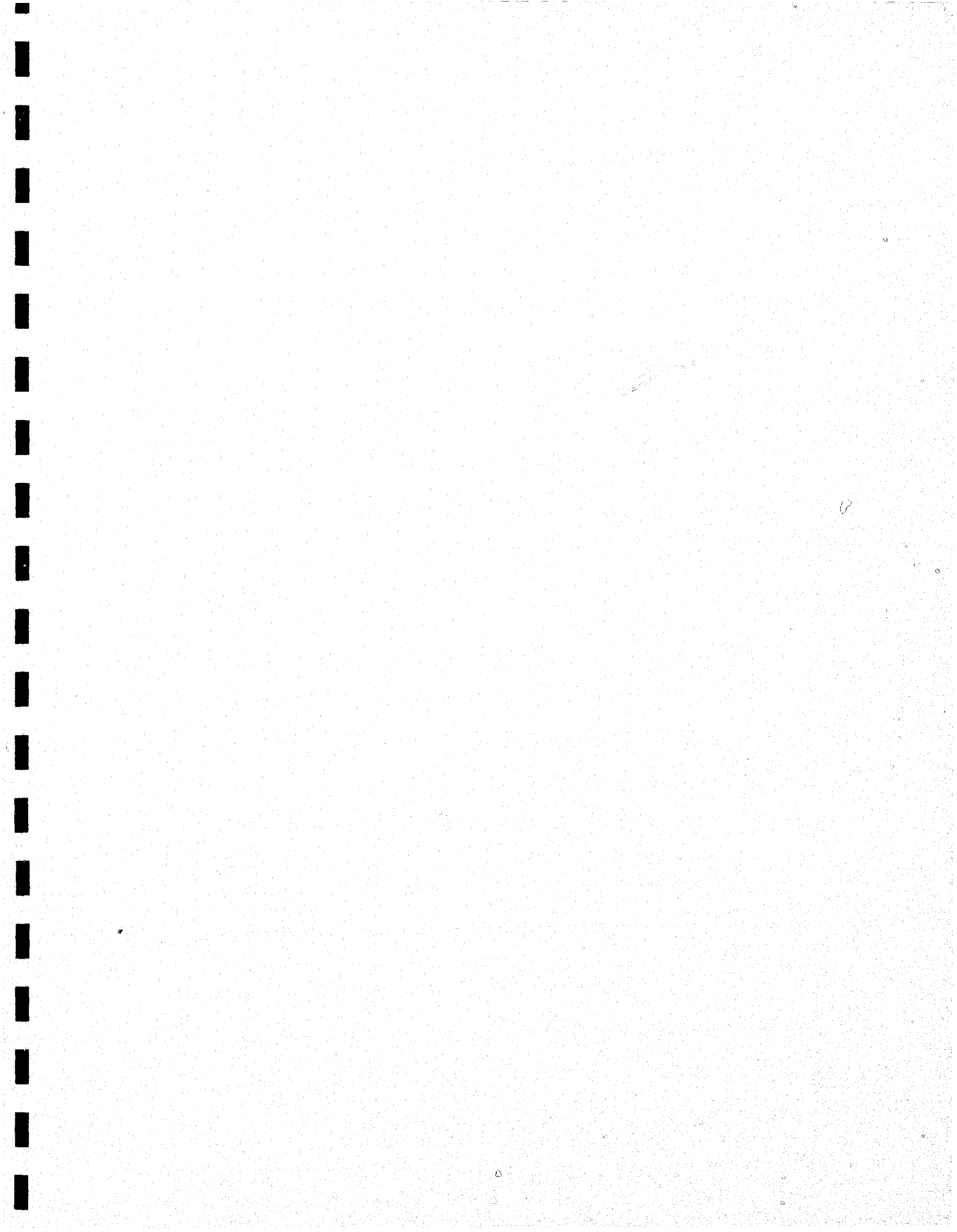


# DESKON KEYING INTERFACE

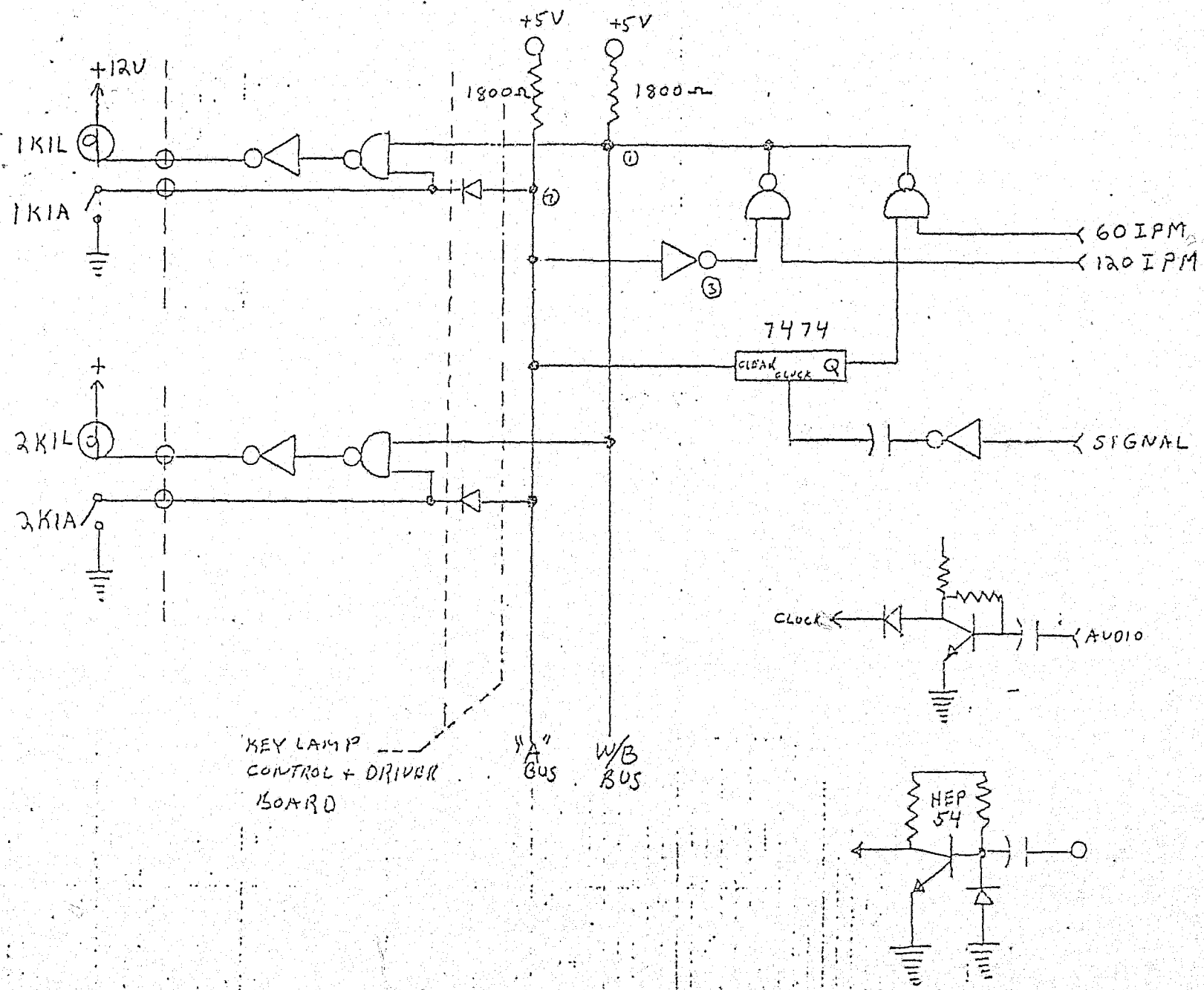
## DESKON T-R INTERFACE

T-R





# CALL DETECTOR + SUPERVISORY LAMP CIRCUITS

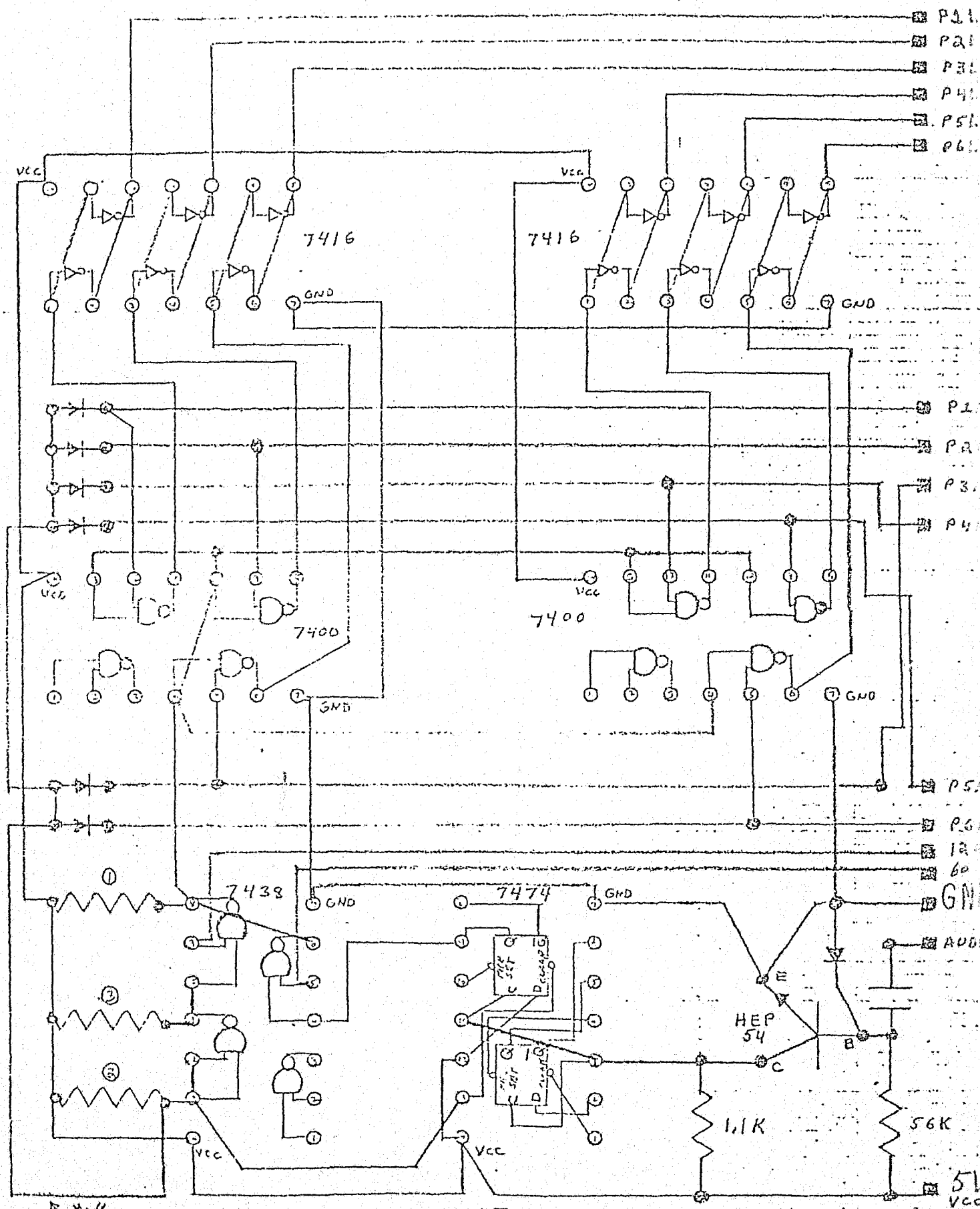


KEY LAMP  
CONTROL + DRIVER  
BOARD

"A"  
BUS

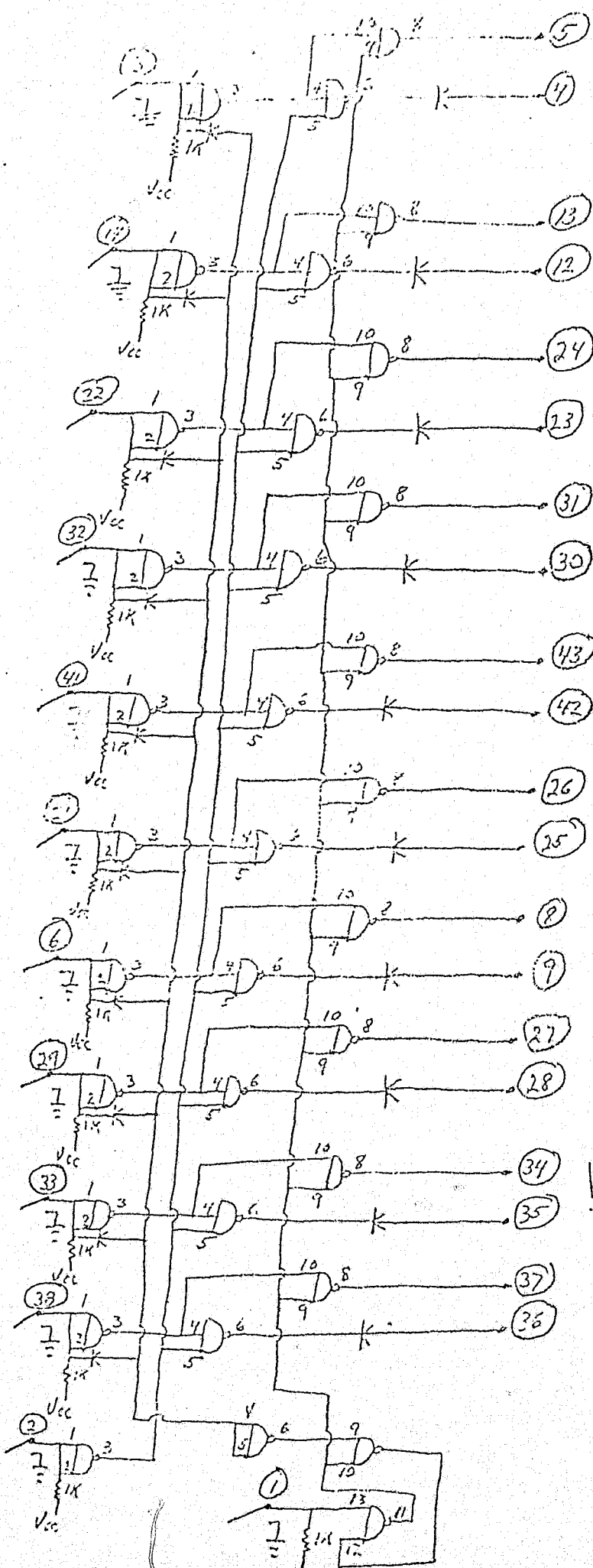
W/B  
BUS

# CALL DETECTOR & SUPERVISORY LAMP CIRCUITS



↳ "A" BUS GND TO CLEAR + STEADY LIGHT

5V VCC



SP Low

Vcc — (7)

Gnd — (46)

Simio

PTT — (2)

Override — (1)

SPHi F-1

S Hiway

County

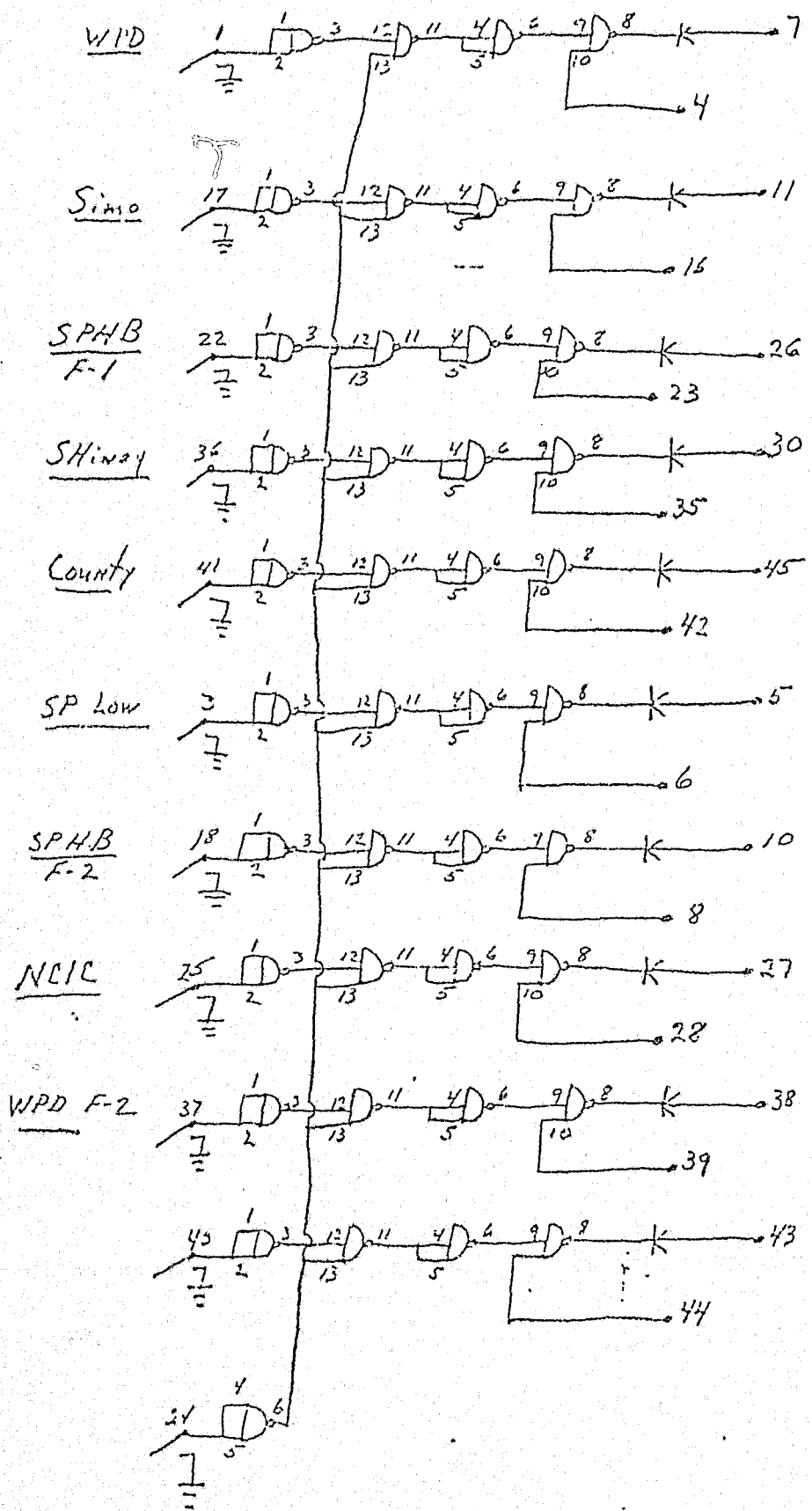
~~WPD~~  
SP Low

SPHi F-2

NCIC

WPD F-2

Supervisor PTT Control Logic

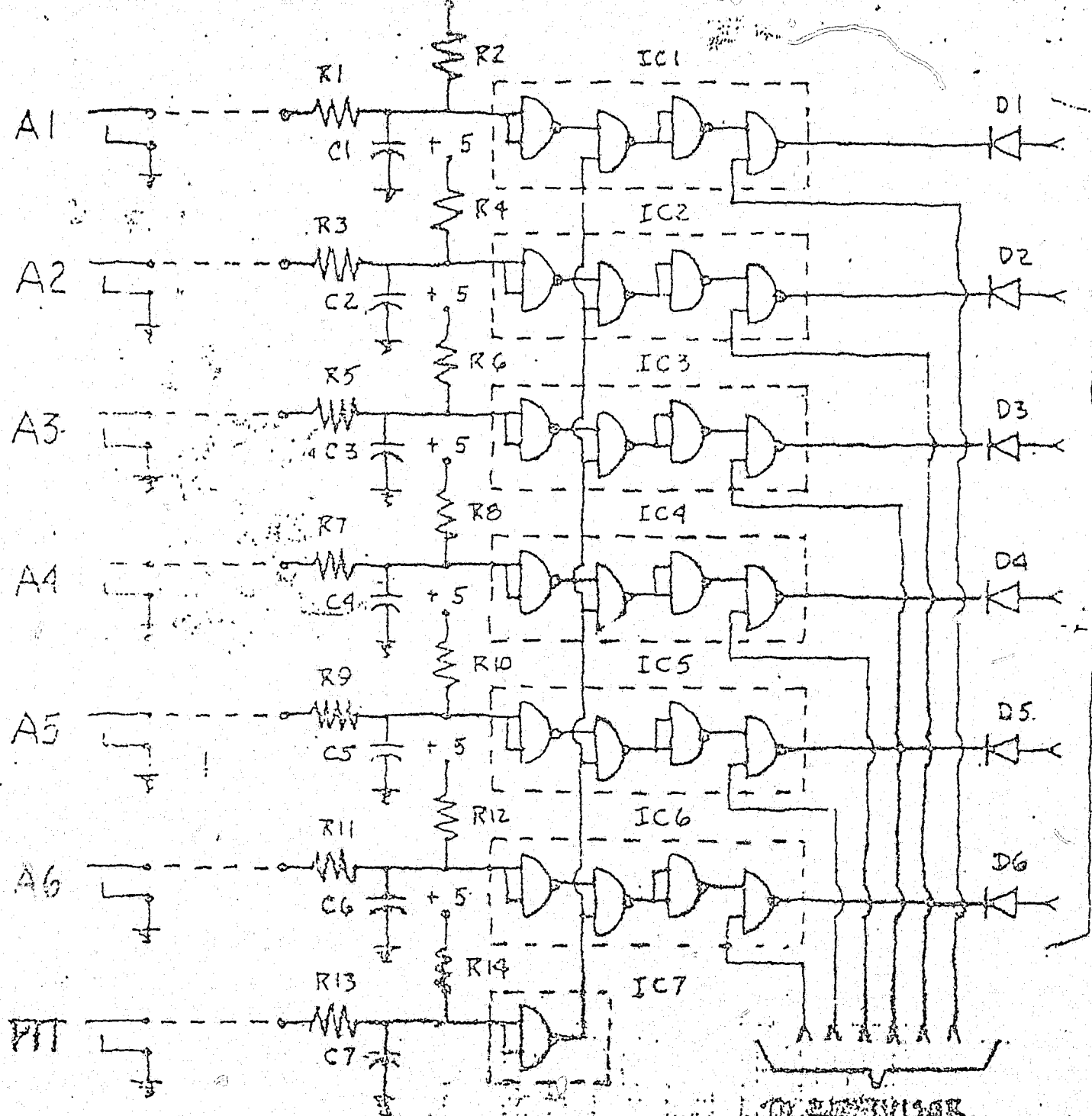


$V_{cc}$  — 9  
 $\frac{1}{2}$  — 46

PTT Control Logic







C1 THRU C7 - 2.2 μF  
 R1, R3, R5, R7 } 330 Ω  
 R9, R11, R13 } 330 Ω

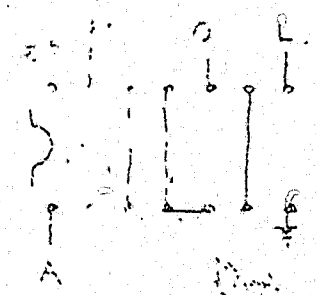
R2, R4, R6, R8 } 1800 Ω  
 R10, R12, R14 } 1800 Ω

IC1 THRU IC6 - 7400

IC7 - 7401

D1 THRU D6 - GERMANIUM DIODE

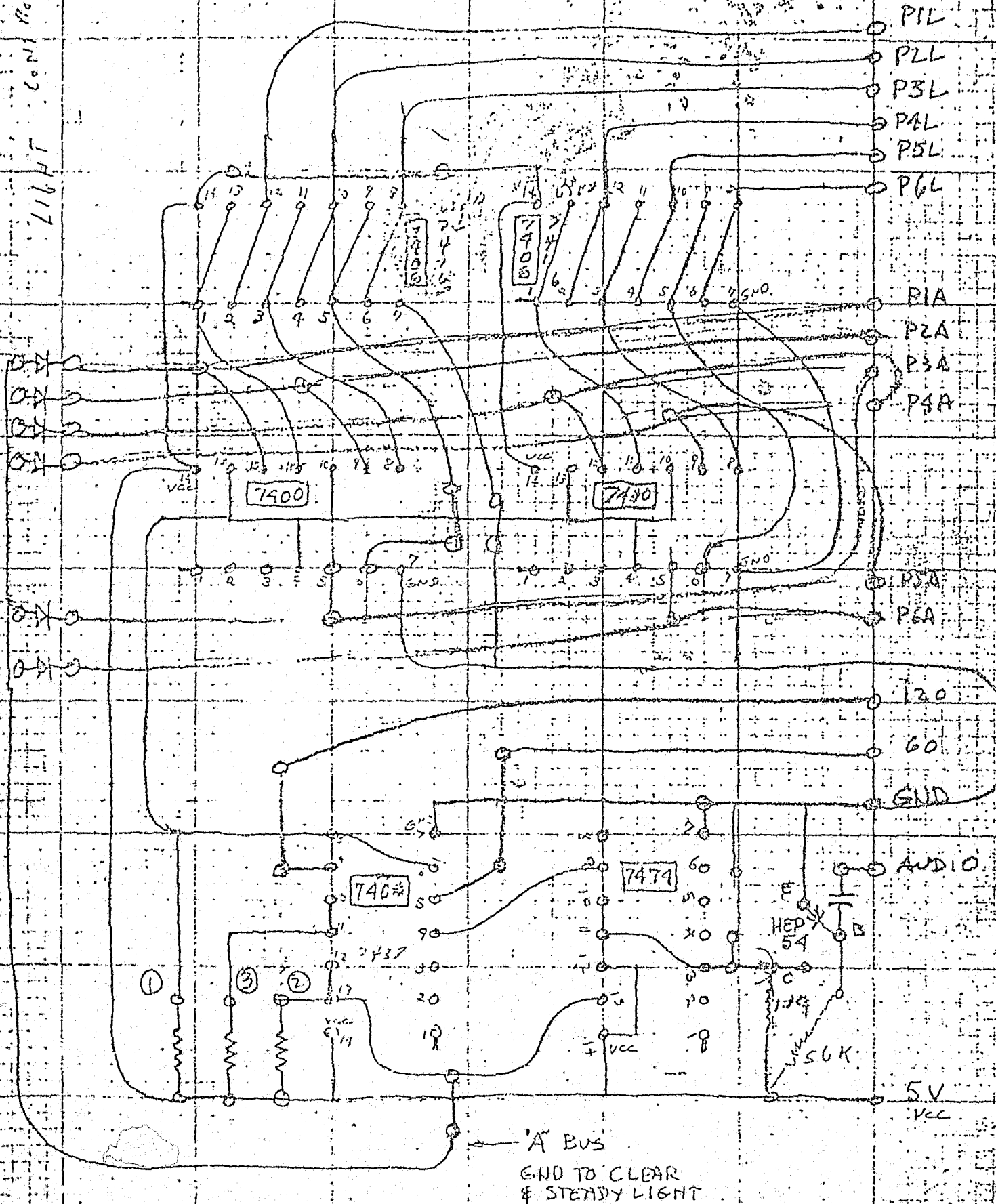
NOTE: 7400  
 SWITCH AS SHOWN



DISPATCHER  
 LINE SELECT &  
 PUSH-TO-TALK  
 LOGIC BOARD  
 TYPE D115

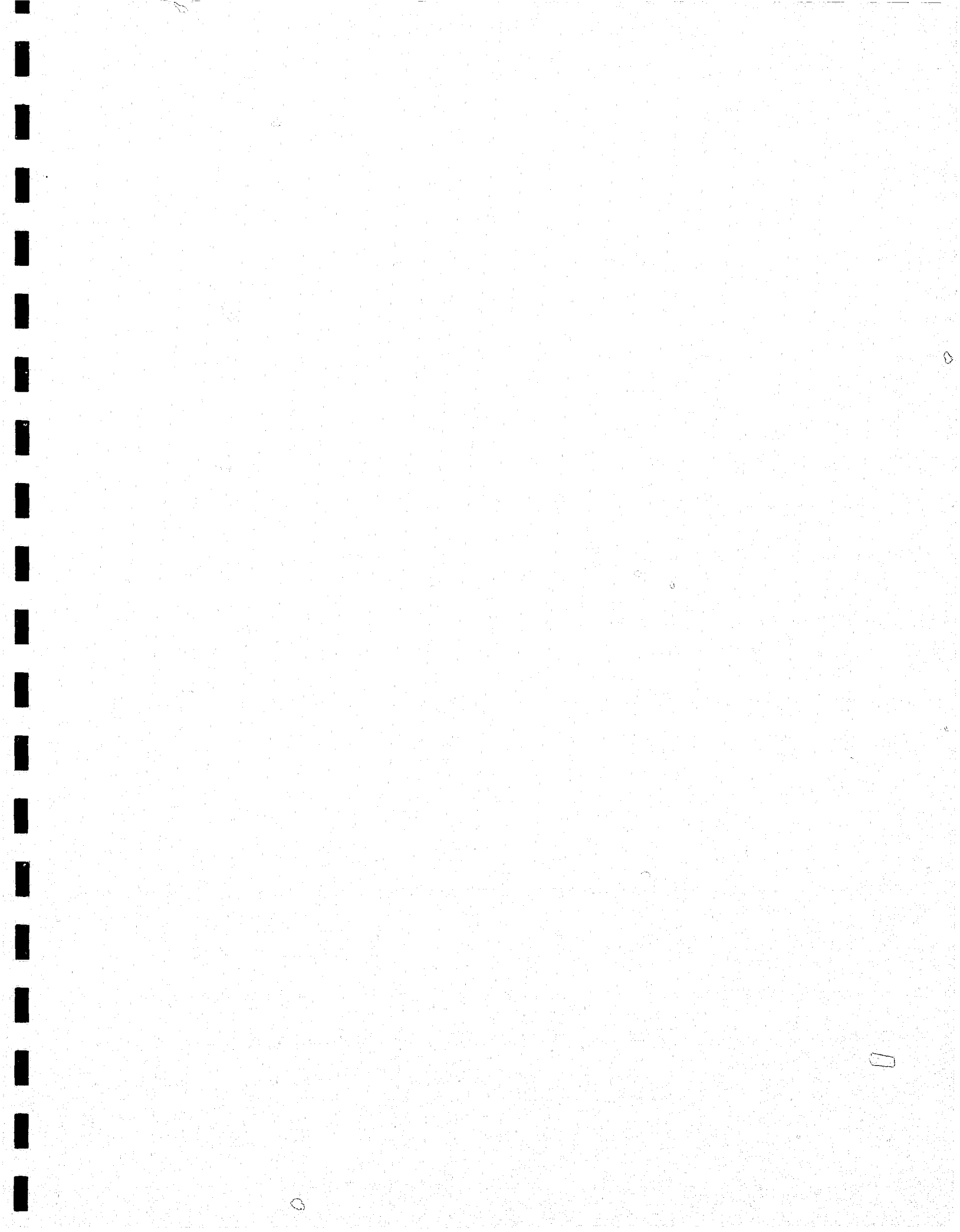
TO ELECTRONIC  
 DISK UNIT

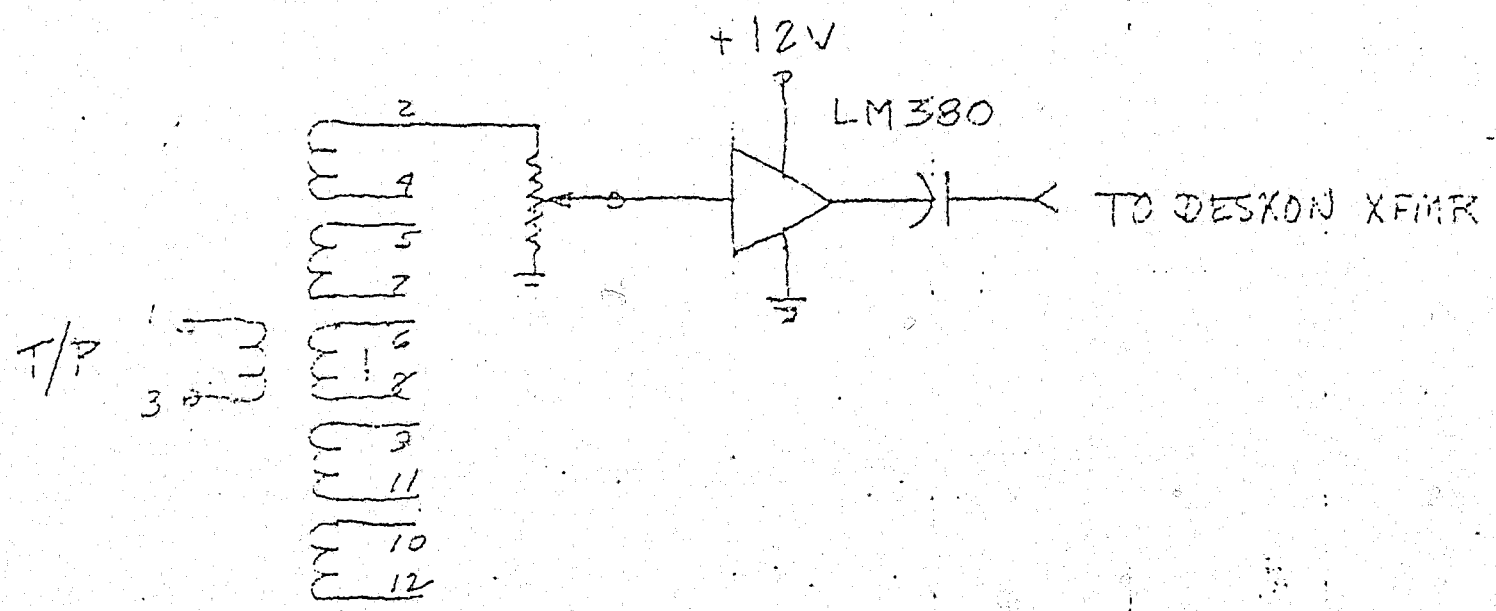
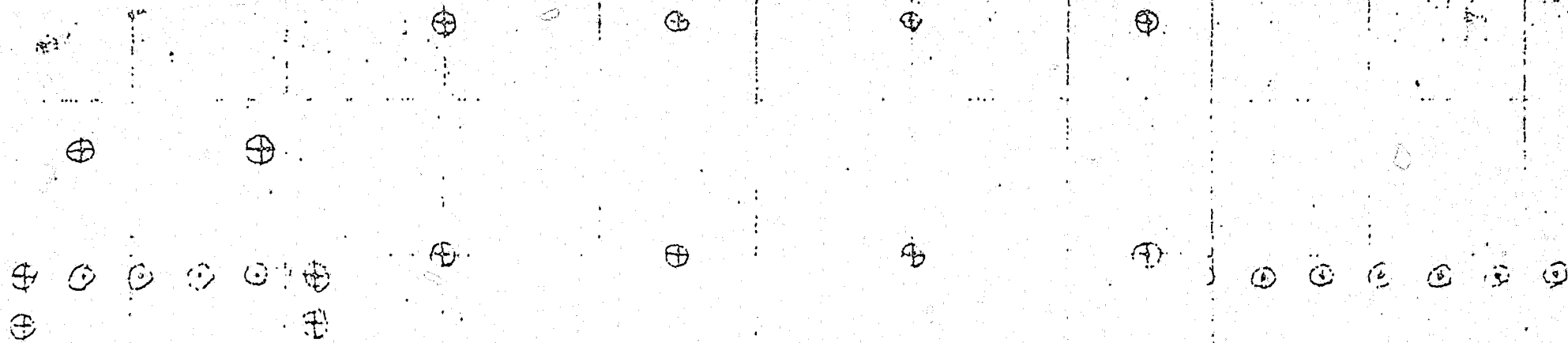
LIGHT CONTROL P.C.



A BUS  
GND TO CLEAR  
& STEADY LIGHT

\* 7403  
 7409  
 7438 - PREFERRED





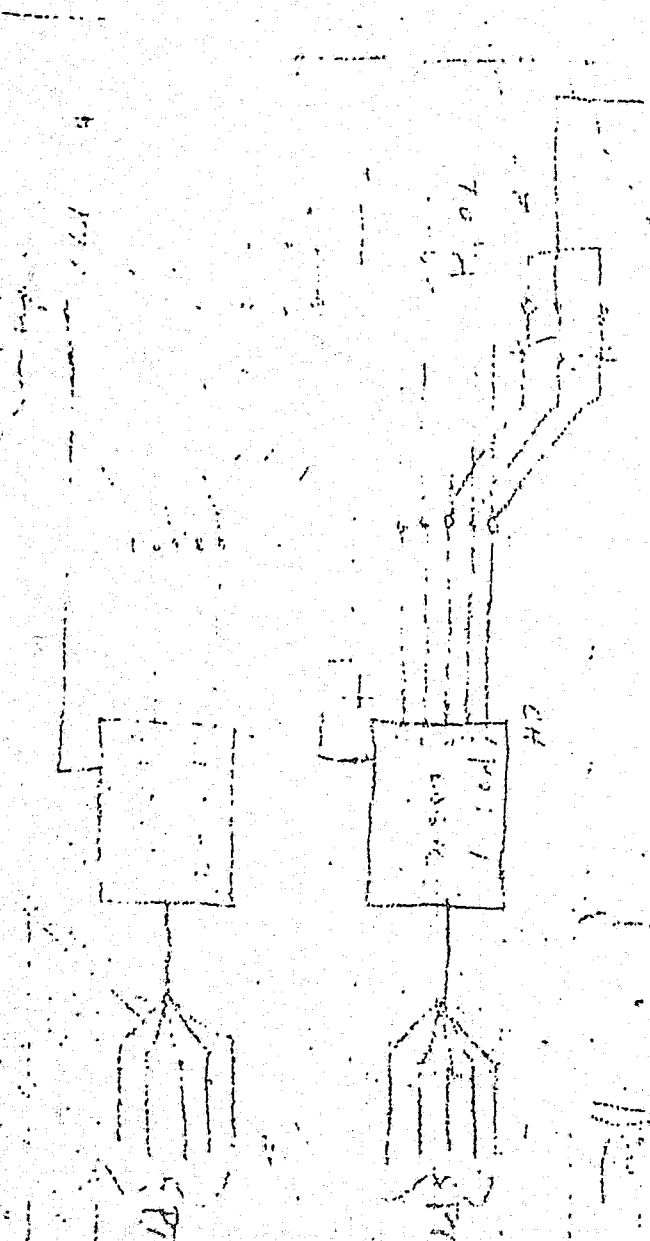
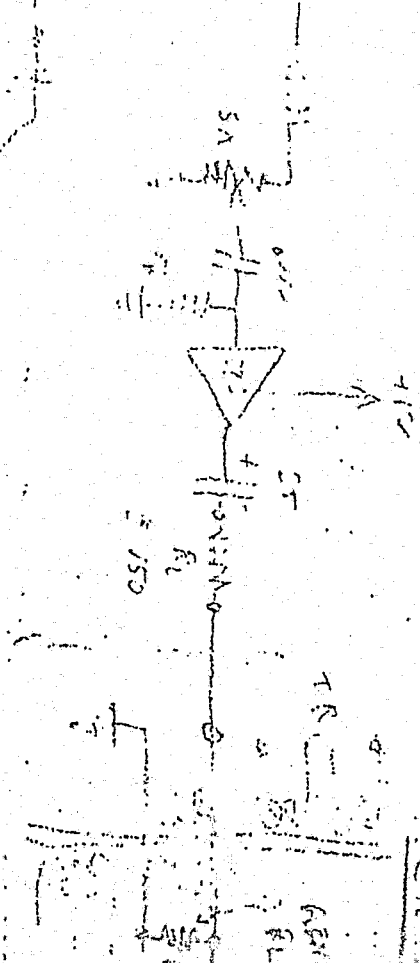
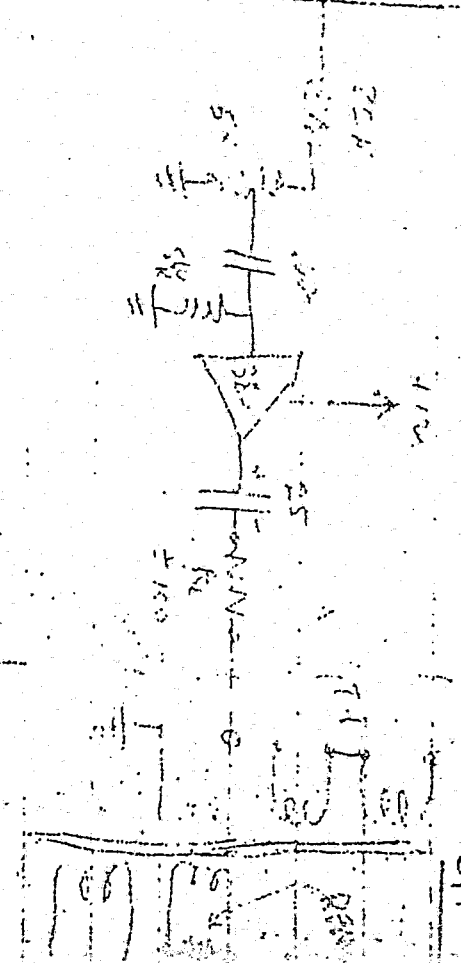
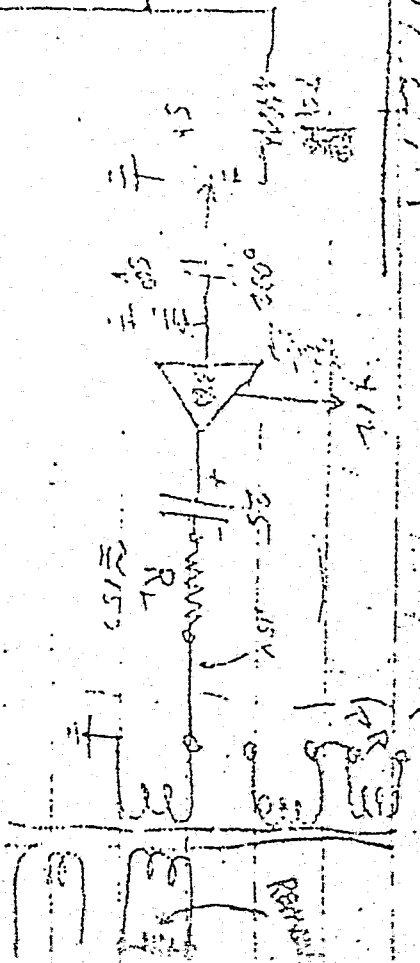
SIMO PANEL LAYOUT:

- ONE INPUT - FIVE OUT
- OUT 1 - DSP
- OUT 2 - NCC
- OUT 3 - WPD
- OUT 4 - NCIC
- OUT 5 - SPARE

21510 25510

5M10

1000



# MONITOR SYSTEM

## OPERATING POINTS

LINE INPUT TO DESKON

SQUELCH NOISE  
0.12V (-16 dB)  
(COMP POINT)

TO BE

DESKON OUTPUT

0.15 (-15 dB)

0.26V -8

T-R LEVEL (1. KEY DOWN)

0.06V (-22 dB)

0.12V -16

SPEAKER LINES

0.25V (-10 dB)

AUDIO - 2 dB below squelch level

## TRANSMIT FUNCTION OPERATING POINTS

T-R LEVEL

T-R LEVEL  
-25 dB COMP  
T-R LEVEL

TONE LEVEL

-10 dB AT LINE TERMINALS  
BELOW ASE AUDIO LINE

TONE TEST POINT

LEVEL (DESKON KEYS)

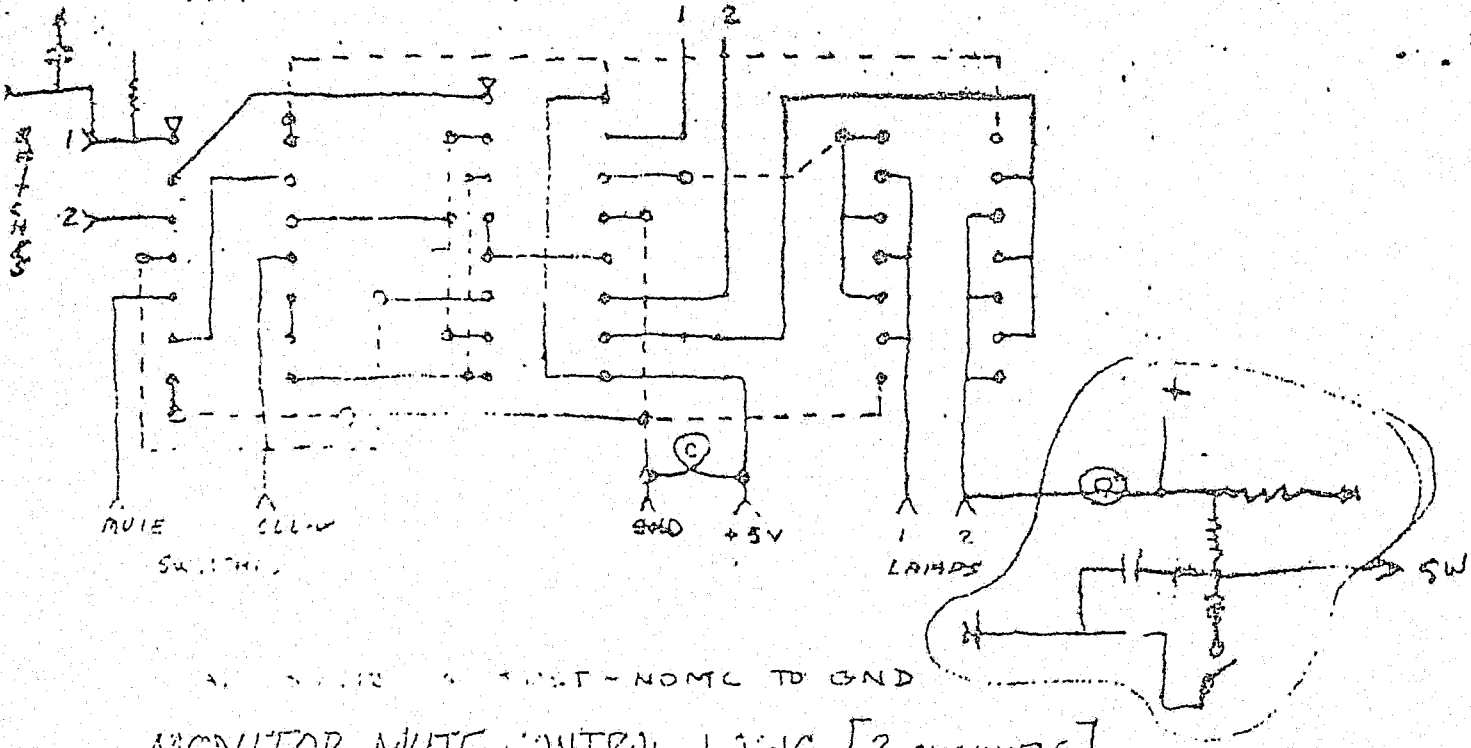
0.3V MAX

7404

7476

GATES 1 2

7907



COMPONENT SIDE

- o CLEAR
- o MUTE
- o SWITCH A B
- o SWITCH B A
- o GATE B
- o GATE A
- o LAMP 1
- o LAMP 2
- o VCC +5V
- o GND

MONITOR MUTE CONTROL LOGIC [2 CHANNELS]

FROM  
MONITOR  
BUS

FROM  
MONITOR  
BUS

C6009

$\frac{1}{2}$  7476

$\frac{1}{6}$  7404

"CHANNEL"  
"MUTE/CLEAR"  
MONITOR CONTROL BOARD

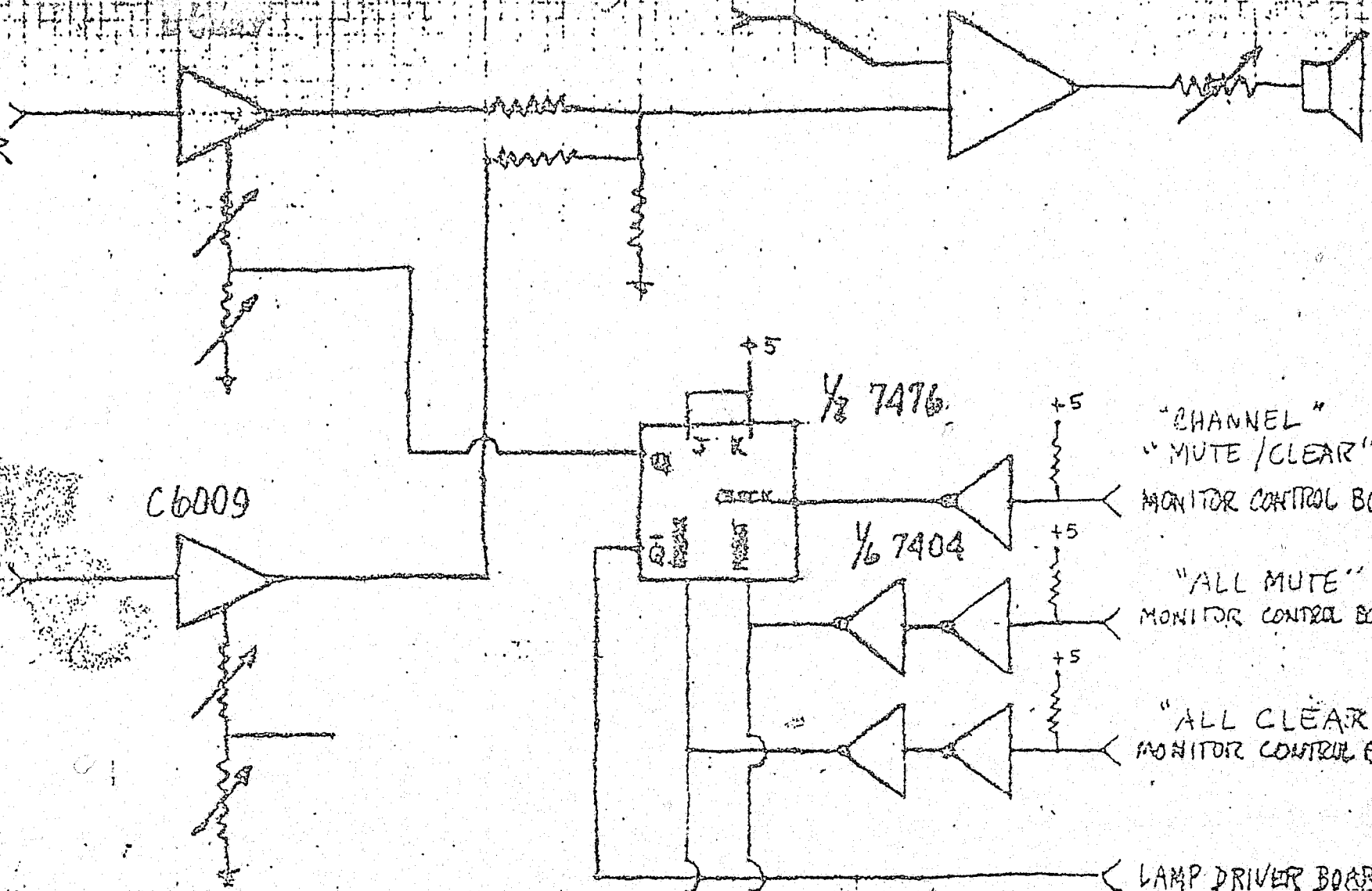
"ALL MUTE"  
MONITOR CONTROL BOARD

"ALL CLEAR"  
MONITOR CONTROL BOARD

LAMP DRIVER BOARD

Monitor Mute  
Clear & Pass

PARTIAL MONITOR  
BOARD LOGIC

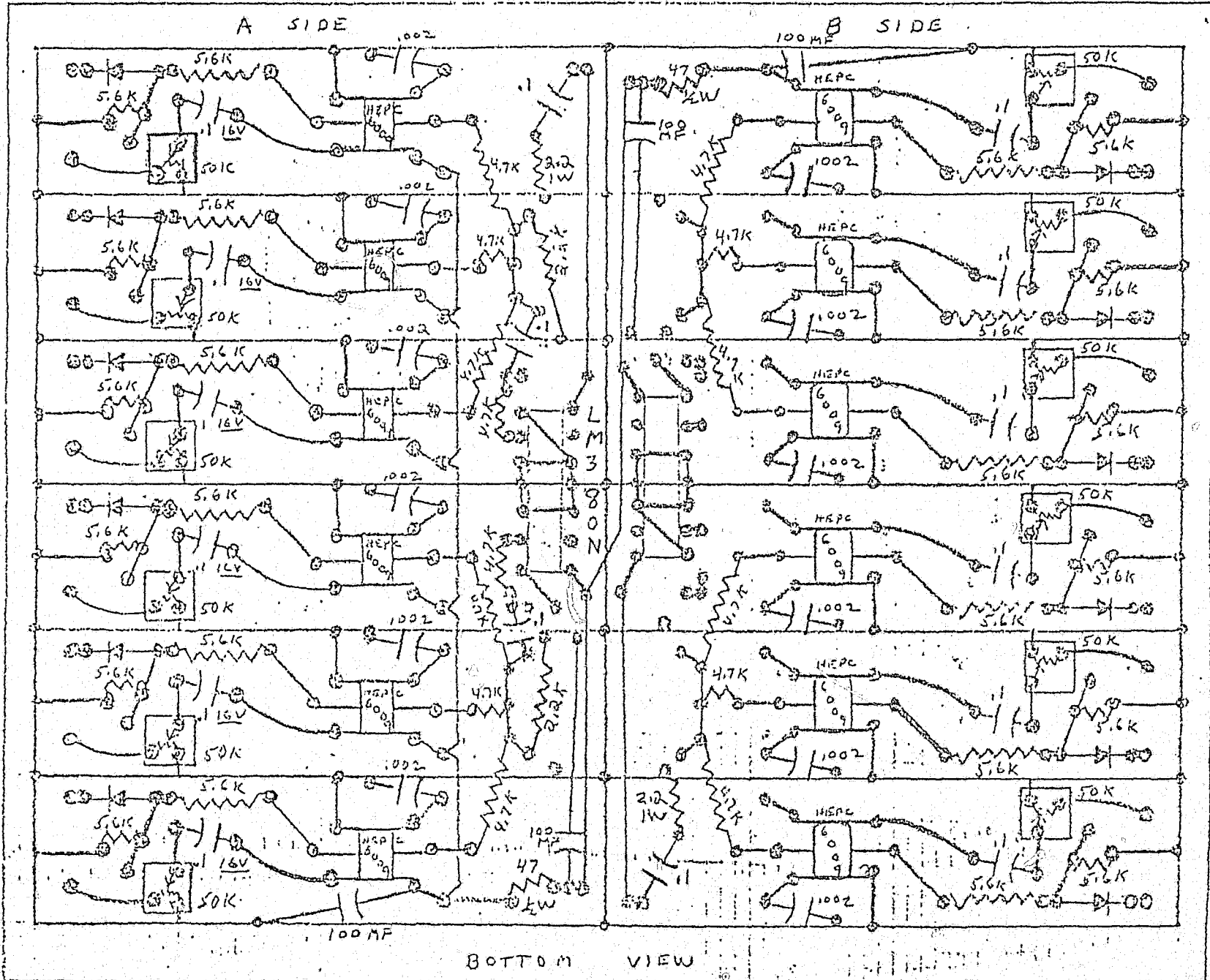




# CHANNEL MONITOR

6 CHANNELS

6 CHANNELS



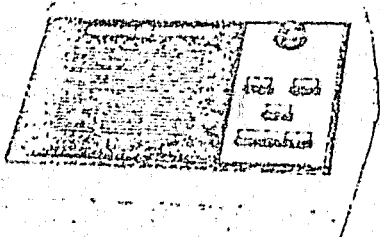
ALL CAP IN MF  
ALL RES. 1/4 WATT

PRINTED CKT. SIDE

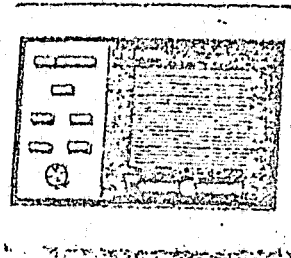
# MAINTENANCE MANUAL

DESKON Remote Control Unit

Models 4EC73A17-19



DESK TOP



WALL MOUNT

## SPECIFICATIONS \*

Audio Output  
Speaker

500 milliwatts with less than 3% distortion, 117 VAC,  $\pm 10\%$  (-20 to +11 dBm).

Line

+18 dBm maximum with less than 3% distortion, with compression, 117 VAC,  $\pm 10\%$ .

Compression Range

With audio input increase of 30 dB beyond start of compression, output level increases less than 3 dB.

Frequency Response

$\pm 3$  dB from 300 to 3000 Hz, reference 1000 Hz.

Power Requirement

10 watts, 117 volts AC, 50/60 Hz

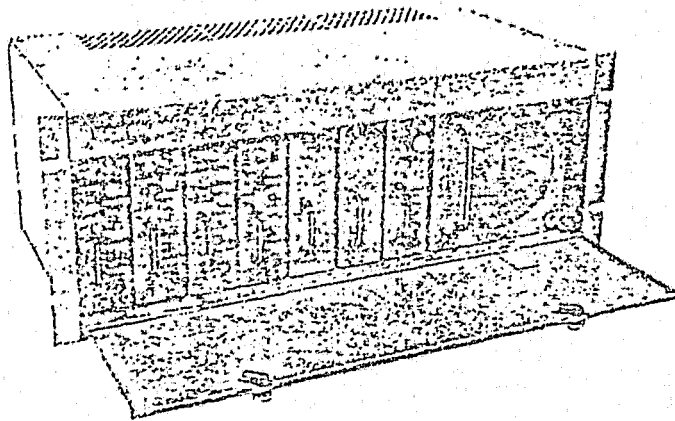
Dimensions (HxWxD)

4-1/8" x 9-1/4" x 7-7/8" (less hook-switch)

\*These specifications are intended primarily for the use of the serviceman. Refer to the appropriate Specification Sheet for the complete specifications.

# MAINTENANCE MANUAL

## VOTING SELECTOR PANEL



### SPECIFICATIONS \*

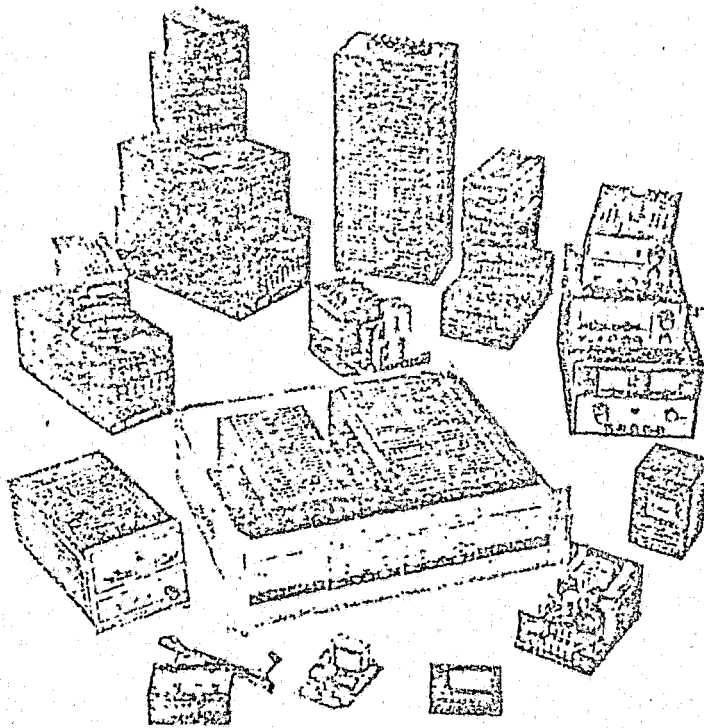
Input Power (Maximum)	80 Watts @117 Volts AC $\pm 10\%$
Input Impedance	600 Ohms
Input Level (Minimum)	-30 dBm
Initial Response Time	Less than 50 milliseconds from unsquelch to select
Audio Output	5 Watts with less than 5% distortion into 3.2 ohms
600-ohm Output Level	Adjustable to +11 dBm
Frequency Response	$\pm 1$ dB from 300 Hz to 3 kHz except for notching frequency
Notch Frequency	1950 Hz $\pm 10$ Hz
Notch Depth	More than 40 dB
Unselected Channel Rejection	40 dB
Reset Time	20 milliseconds after receipt of tone from all receivers
Line Failure Lockout Time (Steady Line Level)	15 seconds nominal
Telephone Line Requirements (AC or DC)	Input at 1950 Hz must not be attenuated below -30 dBm.
Dimensions (HxWxD)	
Desk Mate Cabinet	30-3/8" x 14" x 25-1/2"
Voting Selector Panel	7" x 19" x 9-1/2"
Temperature Range	0°C to +60°C (+32°F to +140°F): operable from -30°C with some degradation in performance

\*These specifications are intended primarily for the use of the serviceman. Refer to the appropriate Specification Sheet for the complete specifications.



POWER/MATE CORP.

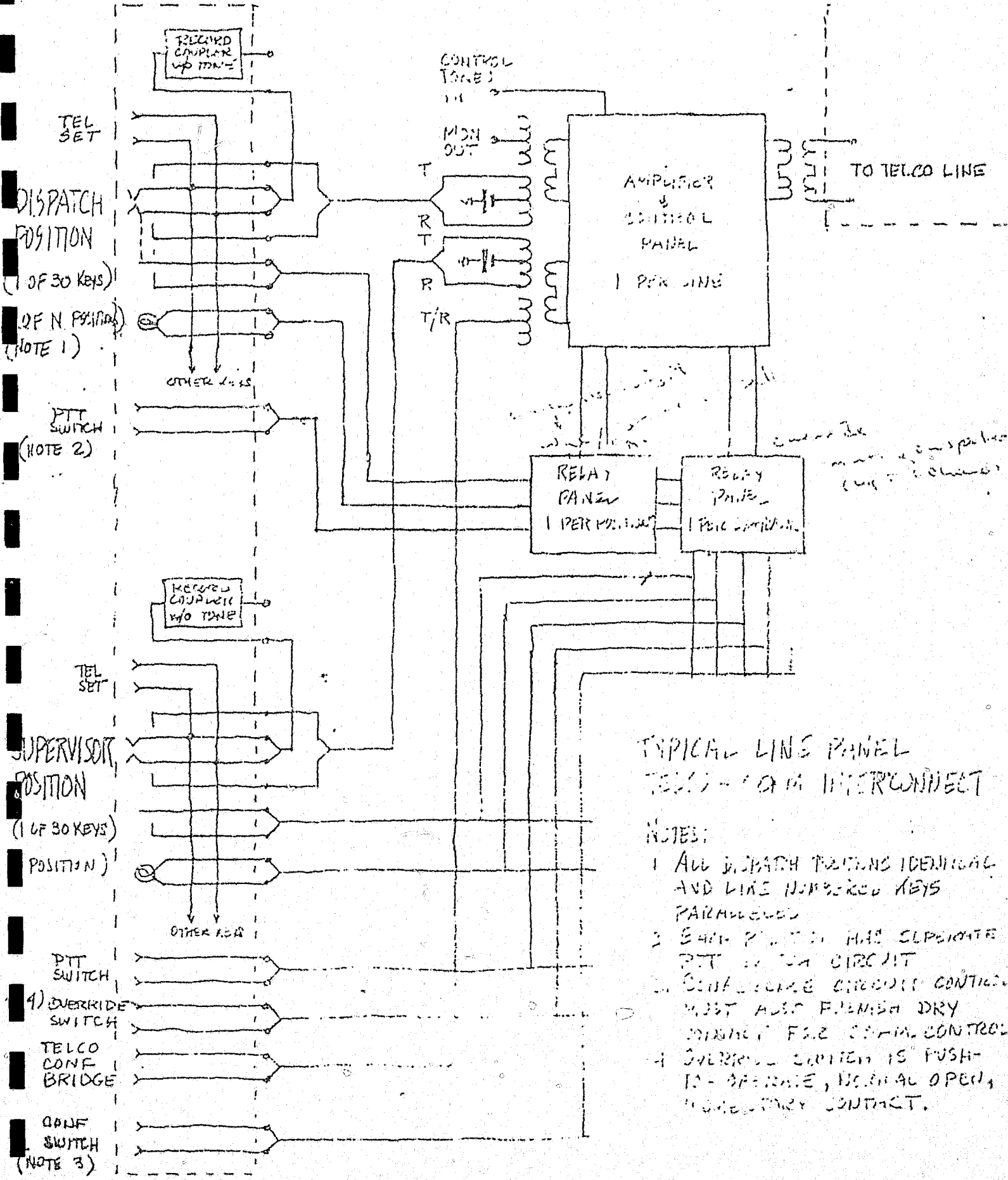
OPERATING INSTRUCTIONS  
for  
REGULATED POWER SUPPLY



POWER/MATE CORP.

514 S. River Street Hackensack, New Jersey 07601  
(201) 343-6294

TELCO — COAM — TELCO



TYPICAL LINE PANEL  
TELCO - COAM INTERCONNECT

- NOTES:
- 1 ALL DISPATCH POSITIONS IDENTICAL AND LINE NUMBERED KEYS PARALLELED
  - 2 EACH POSITION HAS SEPARATE PTT IN CIRCUIT
  - 3 CONTROL CIRCUIT CONTAINS MUST ALSO FURNISH DRY CONTACT FOR COAM CONTROL
  - 4 OVERRIDE SWITCH IS PUSH-TO-OPERATE, NORMAL OPEN, NECESSARY CONTACT.

APPENDIX C

PURPOSES AND FUNCTIONS OF RECOM

RECOM  
3301 Kirkwood Highway  
Wilmington, Delaware 19808

MEMORANDUM:

DATE: December 22, 1975

TO: All Recom Users

FROM: Sergeant George W. Lightcap, III  
Officer In Charge - Recom

SUBJECT: Purposes and Functions of Recom

RE: "A" - Purposes; Functions; Suggestions  
"B" - Physical Description of Recom

REFERENCE "A"

PURPOSE:

The purposes of Recom are to:

1. Provide a central police communications unit for New Castle County outside the city limits of Wilmington, Newark and ~~Delaware~~. Recom maintains direct radio and telephone communications with the following agencies -- Delaware State Police and the police departments of New Castle County, New Castle City, Newport, Delaware City *ELSMERE* and Brookside. Recom also has fast communications with surrounding areas via indirect radio communications and telephone communications.
2. Provide a central complaints receiving unit for those citizens served by the above Police Departments who are in need of emergency police service.

FUNCTIONS:

1. Receive requests for police emergency service.
2. Assign the request to the appropriate municipal police agency or assign the nearest available patrol unit in the areas served by New Castle County Police Department and the Delaware State Police.
3. Record the activities of the police field units on the proper form - (IBM - RECOM CARD) - and forward to the unit's headquarters.
4. Secure assistance for field units when requested:
  - a. Additional Police Units.
  - b. Fire Apparatus.
  - c. Ambulances.
  - d. Tow Trucks.
  - e. Electric, telephone, gas & water companies.
  - f. Emergency maintenance crews from Highway Department.



- \* g. Check for wanted on persons, vehicles, and other articles upon request from field units.
- \* h. Obtain drivers license, and vehicle registration information for field units on active investigations.
- i. Obtain and forward to field units emergency weather conditions.
- j. Disseminate any other police information via radio that is not classified as confidential.
- k. Maintain radio log in accordance with F.C.C. regulations.
- \* l. Any other service that may help a unit complete his assignment.

\*NOTE: On above three (3) "Functions" (asterisk) Recom Policy is as follows:

1. Immediate need to know bases - only and only - by Radio Transmission.

2. All other routine requests will be made by Field Units via public service to Delaware State Police Headquarters; New Castle County Police Headquarters; or parent troops. Municipal Departments without use of State Communication Systems will continue to utilize Recom for the above.

SUGGESTIONS:

1. When called by Recom respond with unit number and exact location.
2. Attempt to eliminate un-necessary car-to-car messages. (Utilize Public Service Telephone, Red phones in the field - locations shown in earlier memo.)

As of 22 December 75 (Monday), there are thirty-nine <sup>40</sup>~~(39)~~ personnel assigned to Recom, along with ~~one (1) State Police Centre telephone~~ ~~operator~~. Each shift has five (5) State Police Personnel and four (4) New Castle County Police Personnel assigned.

Recom is manned twenty-four (24) hours a day, seven (7) days a week. The shifts are eight (8) hours each and rotate on the four (4) platoon schedule.

The following is a list of equipment used in the normal daily operation of Recom:

1. Eight (8) Telephone Consoles.
2. Five (5) Combination Radio and Telephone Consoles.

All radio equipment is operated via remote control, that is the transmitter and receivers are located elsewhere and connected to Recom by telephone company cables.

3. Three (3), Twenty-four (24), Twenty (20) Channel Tape Recorders to record telephone and radio communications.
4. One (1) Micro-film camera.
5. One (1) Micro-film reader.
6. One (1) Teletype Machine.
7. CLUES Terminals to retrieve information from computer system.
8. Fifteen (15) Simplex Date-Time Stamping Clocks.
9. One (1), Four (4) track conveyor belts between telephone consoles and radio consoles.
10. Two (2) Electronic status boards to indicate current status of field units either available for assignment or on an assignment.
11. One (1) Special telephone-teletype system for communications with the deaf who have access to the equipment.

REFERENCE "B"

Attached you will find a description of the physical layout of

Reacom.

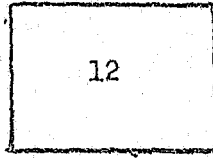
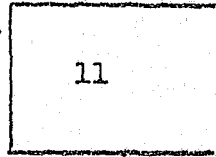
*Sd. George W. Lightcap*  
Sergeant George W. Lightcap, III  
Officer In Charge - Reacom

in:ll.

Attachment

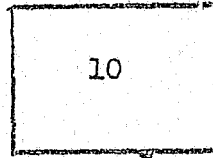
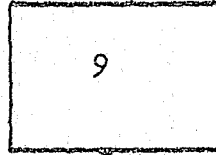
3301 Kirkwood Hwy.  
Wilm, Dela. 19808

D.S.P. Low Band →

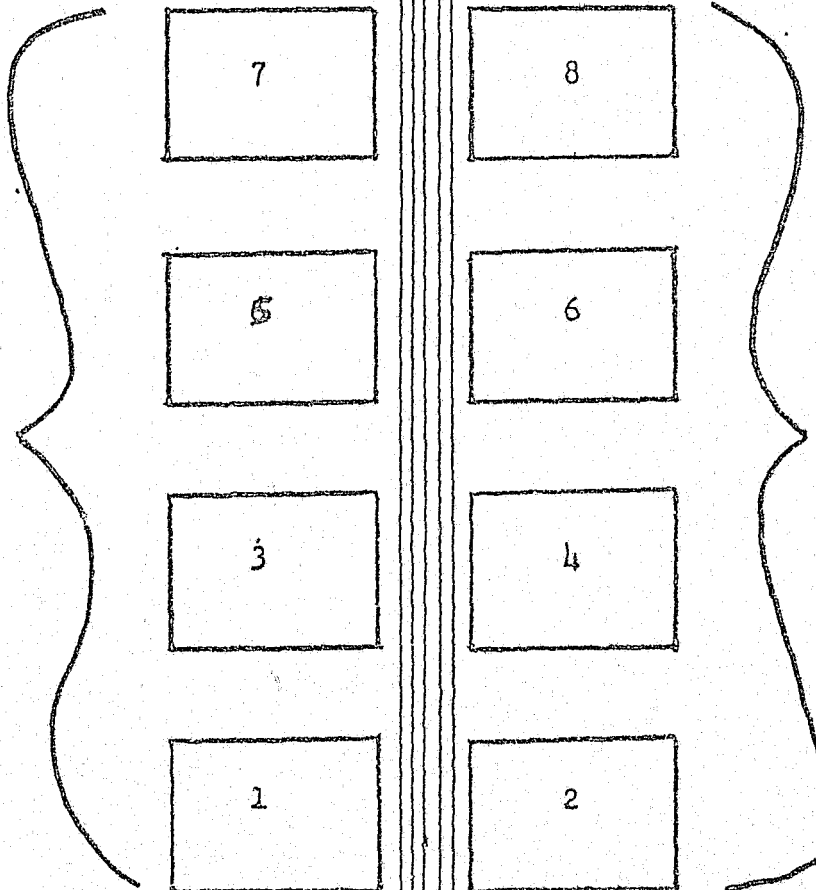
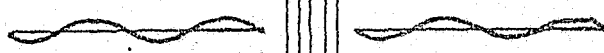


← D.S.P. Hi-Band

Service Operator Radio/Telephone →



← NCCPD

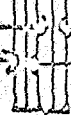


Telephone Positions

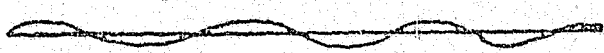
Telephone Positions

Centrex Operator works at any telephone position

D.S.P. Low Band Service Operator →



← D.S.P. Hi-Band NCCPD



## RECOM COMPLAINT CARD PROCEDURE

When a citizen calls in a complaint to RECOM the following procedure is followed. Reference what happens to that complaint card: The telephone dispatcher obtains the necessary information reference the complaint i.e., where offense occurred, complainant & or Victim information - name, address etc. The card is then punched for time complaint received, also sector where offense occurred is placed on card as well as initials of dispatcher receiving complaint. Complaint card is then placed in appropriate track, for agency who has responsibility for complaint area, and sent back to either DSP or NCCPD radio dispatcher. Officer is then assigned to complaint, IBM number & sector designator placed on card, and times dispatched, arrived and cleared is punched on card. When card is cleared it is placed in completed tray at radio position. Periodically throughout shift the shift supervisor makes pick-ups of completed cards. Shift supervisor checks cards for completeness of information and sorts them into time sequence by department and troops. When following shift comes on duty that shift's supervisor takes complaint cards from previous shift and assigns them RECOM E.R.C. numbers. After this, the cards are then micro-filmed and placed in envelopes for various troops, and depts. The radio dispatchers are advised cards are to be picked up by troops, and depts. D.S.P. complaint cards are then taken to troops, where they are assigned complaint numbers are the appropriate troops.

SUBJECT:

DESCRIPTION OF PRESENT POSITIONS IN RECOM - WITH BRIEF JOB DESCRIPTION  
-----

POSITIONS:

Positions one thru eight (1-8), nine (9), and thirteen (13) are "Full Telephone Consoles". (Positions nine (9) and thirteen (13) are also Radio Equipped).

Positions ten (10), eleven (11), and twelve (12) are "Radio Consoles".

TELEPHONE COMMUNICATIONS:

Positions one (1) thru eight (8) are manned by personnel for receiving telephone calls. Their specific duties are described in the "Recom Standard Operating Procedure Manual, Section "C", Titles and Duties of Personnel Assigned To Recom, Paragraph #5 - Telephone Dispatcher".

Located at each position are twenty-nine (29) public service telephone lines; four (4) State Centrex Lines; two (2) New Castle County Police Department Centrex Lines; two (2) Wilmington Police Department Emergency Lines. Also "Direct Ring" lines to below listed locations:

1. Security Instruments.
2. A. D. T.
3. Troops: ~~#1-2-8-9~~ -- (COM line to Troop #6).
- ~~4. Newark Police Department.~~
- ~~5. New Castle City Police Department.~~
6. New Castle County Police Department.
7. New Castle County Fire Board.
- ~~8. Delaware Memorial Bridge Police Department.~~
9. St. George's Bridge.

10. G.W.A.
11. Del Castle Farm.
12. Banning Park.
13. Crossroads Shopping Center.
14. Becks Pond.
15. Wilmington Merchandise Mart.
16. Mt. Pleasant High School.
17. Brandywine Springs Park.
18. Wilmington Police Department Data.
19. Pre-trial Building.
20. Delaware National Guard.
- ~~21. Wilmington Medical Center - Delaware Division.~~
- ~~22. Newark Emergency Center.~~
- ~~23. Delmarva Power and Light (D&L) Control Center.~~
- ~~24. S.P.C.A.~~

Positions one (1) thru eight (8) are sixty (60) button consoles. The State Police Centrex Operator may work at any of the eight (8) telephone positions.

Information is received at telephone positions and relayed to the Radio Area on Recom IBM Cards - by use of a conveyor belt system.

Cards for different agencies are placed in appropriate channel of the conveyor by Telephone Dispatcher.

#### RADIO COMMUNICATIONS:

Radio Positions - ten (10), eleven (11) and twelve (12).



PROJECT: Description Of Present Positions In Recom -  
With Brief Job Description

Page #3

Positions ten (10), eleven (11) and twelve (12) are manned by Radio Dispatchers. These positions have a thirty (30) button console, with eighteen (18) keys for Radios - the remaining keys are not connected.

Specific duties for Radio Dispatchers are outlined in "Recom Standard Operating Procedure":

SECTION "C"

TITLES AND DUTIES OF PERSONNEL ASSIGNED TO RECOM

PARAGRAPH #4 - RADIO DISPATCHER

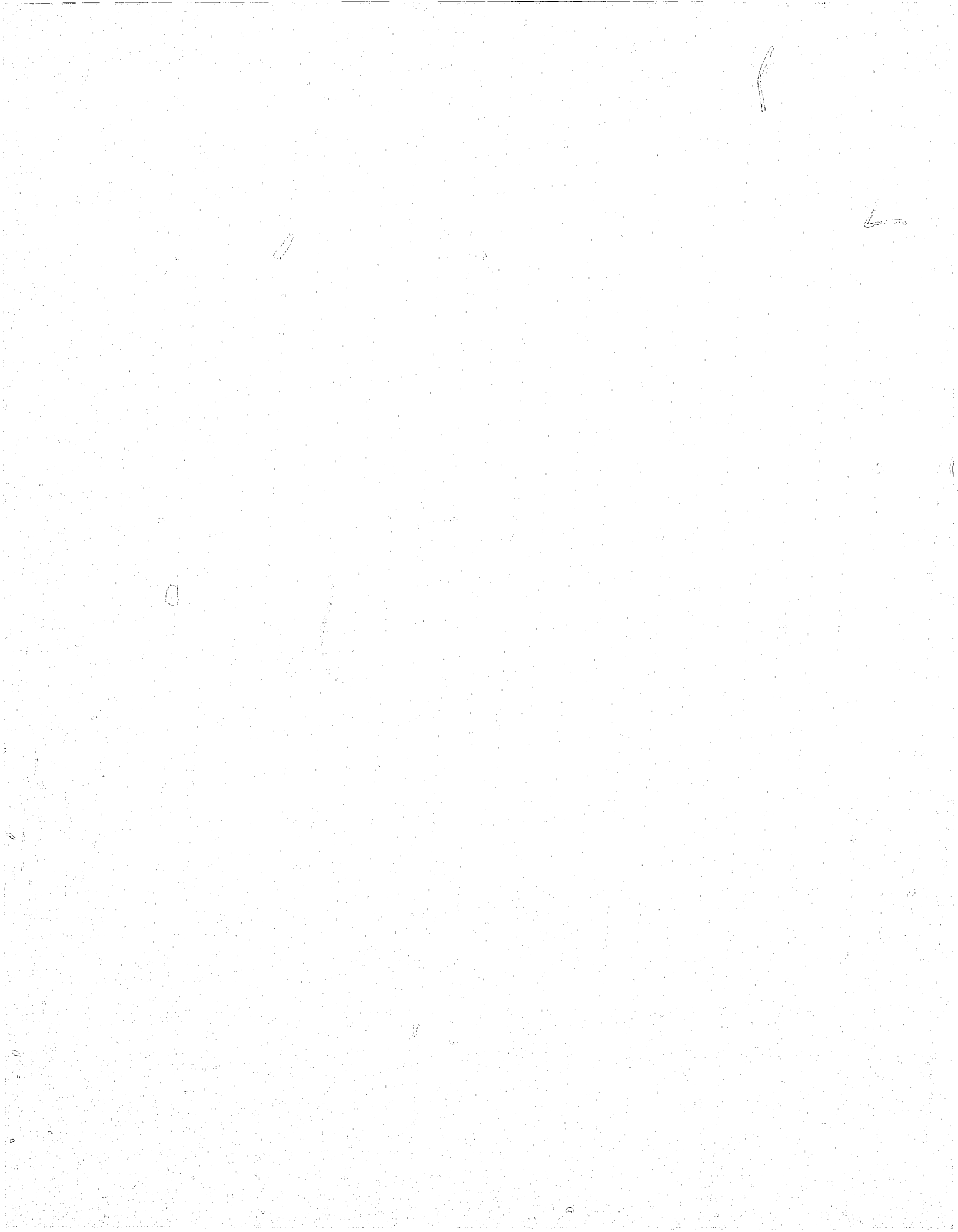
Of the eighteen (18) keys at these positions, only seven (7) are presently in use. They are:

State Police Low Band. . . . .	A-45.02	--	B-44.86
State Police Hi-Band . . . . .	.154.665		
New Castle County Police Department. . . . .	.39.86		
State Highway Department . . . . .			
N.C.I.C. . . . .			
Wilmington Police Department - (Monitoring Only) F.1		--	F.2
	155.130		155.610

Simo Key - (All Departments may be transmitted to at one time except State Highway Department and Wilmington Police Department).

Radio Dispatchers receive IBM Cards - (Complaint Cards) - and dispatch Sector Patrol Units. Also receive requests for Motor Vehicle Information, CLUES information and all other requests from road personnel. This information is recorded by the Dispatcher on Recom Service and Patrol Cards maintained for each Unit.

Dispatcher, working at Position eleven (11) - (State Police Low-Band) - is responsible for monitoring all out-of-state radios. They are:



**CONTINUED**

**2 OF 3**

Presently manned by Delaware State Police Supervisor and has over-all responsibility for daily (eight (8) hour) operation of Recom.

Specific duties outlined in "Recom Standard Operating Procedure:

SECTION "C"

TITLE AND DUTIES OF PERSONNEL ASSIGNED TO RECOM

PARAGRAPH #2 - SHIFT SUPERVISOR

Position thirteen (13) has a one hundred and twenty (120) button console, with eighteen (18) keys for radios - (including all in-state and out-of-state radios) - plus, two (2) added telephone lines:

1. Tow Com.
2. Telephone Security.

SUBJECT: Description Of Present Positions In Recom -  
With Brief Job Description

Page #4

Pennsylvania State Police - Avondale . . . . . 42.62  
New Jersey State Police - Woodstown . . . . .  
\* Cecil County Sheriff's Office - Elkton, Maryland. . . . . 39.90 *NOT IN SERVICE*  
Delaware County Radio - Media, Pennsylvania . . . . . 31.82  
Chester County Radio - Pennsylvania . . . . . 154.785  
Maryland State Police - Northeast, Maryland . . . . . 44.74

Also responsible for all Municipal Agencies served by Delaware State Police Communications.

Position nine (9) is manned by New Castle County Police Department personnel and is responsible for making telephone communications requested by Radio Dispatchers. Also for recording and maintaining General Broadcast information. Makes NCIC and CLUES checks for Radio Dispatchers and assists New Castle County Police Department Radio Dispatcher when work necessitates.

Position nine (9) is a ninety (90) button console with eighteen (18) keys for radios. Also two (2) added phone lines:

1. Tow Com.
2. Telephone Security.

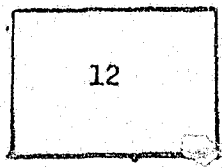
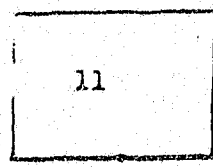
Position ten (10) is New Castle County Police Department - Radio Dispatcher.

Position twelve (12) is Delaware State Police Department - Hi-Band Dispatcher.

POSITION THIRTEEN (13):

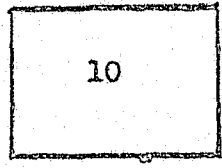
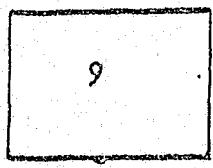
Recom Shift Supervisor.

Service Operator →



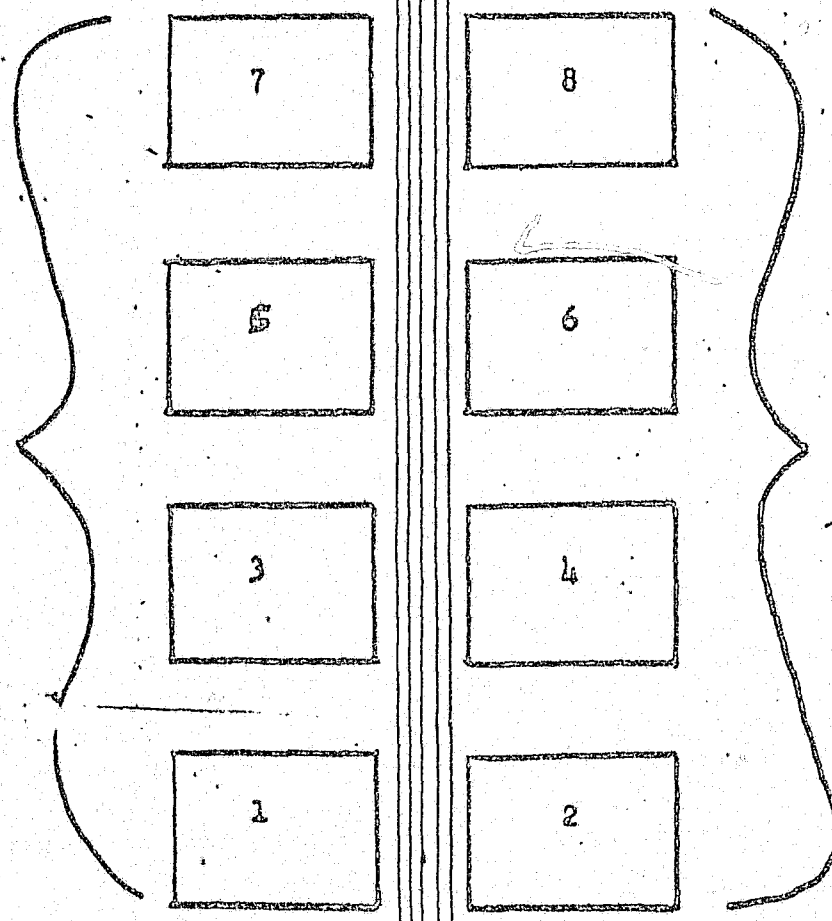
← D.S.P. Hi-Band

Service Operator →



← NCCPD

Telephone Positions



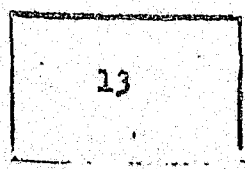
Telephone Positions

Intrax Operator works at telephone position

S.P. Low Band Service Operator →

← D.S.P. Hi-Band  
← NCCPD

Conveyor



← Shift Supervisor

FREQUENCY

154.665  
45.02  
44.86  
39.86  
155.130  
155.610  
155.010  
155.250  
42.62  
154.785  
31.82  
44.74  
39.90

AGENCY

Del. State Police Hi-Band  
Del. State Police Lo-Band Channel A  
Del. State Police Lo-Band Channel B  
New Castle County Police Dept.  
Wilmington Police Dept. F-1  
Wilmington Police Dept. F-2  
Elsmere Police Dept.  
Newark Police Dept.  
Pa. State Police  
Chester County Pa. Radio Station  
Del. County Pa. Radio Station  
Northeast Barracks Md. State Police  
Ceceil County, Md. Police Dept.

Note: New Castle City, Del. City, and Newport Police Dept. operate off of Del. State Police Lo-Bands. Brookside Police Dept. operate off of New Castle County and Del. State Police Lo-Bands.

32.78  
33.94

New Castle County Fire Board F-1 Primary Freq.  
New Castle County Fire Board F-2 Used by units at scene.

154.965  
155.055

Wilmington Fire Dept. F-1  
Wilmington Fire Dept. F-2

~~458.85~~  
~~453.45~~

~~AIR TOWER~~

AIR TOWER 118.5  
RADIO APPR. 126.6  
128.4

PHILL  
AIRPORT

156.650 MARINE WORKING RADIO

157.05 - U.S.C.G. CAPTAIN INDIAN RM.  
157.15 U.S.C.G. GEORGETOWN, N.Y.

APPENDIX D

JURISDICTIONAL RESPONSIBILITIES OF RECOM



NEW CASTLE COUNTY  
DEPARTMENT OF PUBLIC SAFETY

Special Order No. 78-1

TO: All Police Personnel  
FROM: Col. Robert R. Whayland  
SUBJ: Jurisdictional Responsibilities  
DATE: January 9, 1978

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Effective 0001 hours January 9, 1978, the following adjusted Jurisdictional Agreement will be followed for the delivery of police services in New Castle County.

- \*1. The State Police will have primary responsibility for patrolling and investigating requests for police services on those roadways in New Castle County which are delineated on the attached listings and the commercial, industrial and residential areas abutting said roadways.
- \*2. New Castle County Police will have primary responsibility for patrolling and investigating requests for police service on those roadways in New Castle County which are not delineated on the attached listings and the commercial, industrial and residential areas abutting said roadways.
3. When the appropriate patrol unit is not available or in the immediate vicinity of a serious crime reported to be in progress; or an incident which has, or is likely to result in serious physical injury, the nearest police unit will be dispatched regardless of the police agency. The subsequent investigation of such complaints will be conducted by the appropriate agency, as set forth in Paragraphs 1 and 2, unless deadly force is directed at, or used by the initial Officer on the scene. In such cases, the Officer's department will have paramount jurisdiction for the entire investigation.
4. The Delaware State Police will have primary responsibility for investigating incidents which occur at any intersection where a road under the jurisdiction of the County Police meets a road under

All Department Personnel

January 9, 1978

Page 2

the jurisdiction of the State Police. Roadways under State jurisdiction will be considered primary and will be predominant in determining the investigation of and occurrence.

5. The Delaware State Police will have primary responsibility for patrolling and investigating calls for service at commercial locations which abut on at least one side to any road under their primary responsibility, as described in Paragraph 1.
6. The Delaware State Police will have primary responsibility for incidents occurring on the Delaware River and Bay which require police service.
- \*7. The Delaware State Police will have primary responsibility for all incidents requiring police action on Railroad property in all of New Castle County.
- \*8. The Delaware State Police will have primary responsibility for all incidents requiring police action on the Canal Wildlife Area - U.S. Reservation (both north and south of the C&D Canal).
9. The Delaware State Police will have primary responsibility for investigating all frauds committed against the State of Delaware lottery.
10. The New Castle County Police Department will have primary responsibility for patrolling and investigating requests for police service in residential apartment complexes.
11. When a call for police service occurs in an area which does not fall clearly within the description of Paragraphs 1 or 2, it shall be investigated by the nearest, available patrol unit, regardless of the police agency.
12. Police service to the lower area of New Castle County, South of the Delaware and Chesapeake Canal, will continue to be provided on the nearest, available patrol concept.
13. The Delaware State Police will have the major responsibility for the control and investigation of vice and organized crime operating in New Castle County.
14. The New Castle County Police will conduct investigations of vice and organized crime only as it relates to their primary responsibility of providing

All Police Personnel

January 9, 1978

Page 3

residential police service to the communities of New Castle County.

15. The enforcement of Drug Law Violations is both a State-wide and community level law enforcement problem. Therefore, both Departments will maintain an active program for the detection and apprehension of drug law violators at their respective levels.
16. Police service or investigation of crimes occurring in State maintained institutions, parks and governmental functions will be the primary responsibility of the Delaware State Police.
17. Police service or investigation of crimes occurring in County maintained institutions, parks and governmental functions will be the primary responsibility of the New Castle County Police.
18. All units affected will make the adjustments necessary to comply with this Order.
19. The above points designated by an asterisk (\*) are the only modifications to the existing Police Jurisdictional Agreement as summarized: The Delaware State Police will have the primary responsibility for the delivery of police service on all railroad property and the Canal Wildlife Area - U.S. Reservation located in New Castle County. The transfer of primary police responsibility on certain selected roadways is as follows:

Selected Roadways From N.C.C.P.D. to D.S.P.

Augustine Cut-Off	Kirkwood to St. Georges Rd.	School Lane
Brookside Drive	Lambson Lane	Somervell Road
Cherry Lane	Lea Blvd.	St. Georges-Clarks
Chesapeake City Rd.	Miller Road	Corner Road
Cox Neck Road	Old Airport Road	Terminal Avenue
Dawson Drive	Old Churchmans Road	Water Street
Germay Drive	Peoples Drive	
Grantham Lane	Pigeon Point Road	
Hay Road	Ridge Road	
Howell School Road	Rogers Road	

Selected Roadways From D.S.P. to N.C.C.P.D.

Adams Dam Road	Campbell Road	Chambers Rock Rd.
Barley Mill Road	Center Meeting Rd.	Henderson Road
Brackenville Road	Centerville Road	Hercules Road

All Police Personnel

January 9, 1978

Page 4

Selected Roadways From D.S.P. to N.C.C.P.D.

Hopkins Road	Pike Creek Road	Thompsons Station
Kirk Road	Pleasant Hill Road	to Thompsons Road
Landenburg Wilmington Rd.	Ramsey Road	Tweeds Mill Road
Mendenhall Mill Road	Rockland Road	Union Road
Milford Cross Roads	Smiths Bridge Road	Valley Road
Mill Creek Road	Smiths Mill or Fairhill	Woodland Road
New London Road	School Road	Yorklyn Road
North Star Road	Snuff Mill Road	Zebley Road
Old Kennett Road	Stoneybatter Road	

All other sections of the current Police Jurisdictional Agreement remain unchanged and in full force and effect.

Ordered by:

*Robert R. Whayland*

Col. Robert R. Whayland  
Chief of Police

Approved by:

*John T. McCool*

John T. McCool  
Director of Public Safety

PRIMARY JURISDICTION

DELAWARE STATE POLICE

ALPHABETICAL BREAKDOWN BY ROAD NAME

<u>ROAD</u>	<u>RT. #</u>	<u>CTY. RT. #</u>	<u>SECTOR #</u>
AIRPORT ROAD		340	31
AUGUSTINE CUT-OFF		49	24
BARLEY MILL ROAD	141	267	24/25
BASIN ROAD	141	6	31
BEAR-CHRISTIANA ROAD	7		32/34
BEAR-RED LION ROAD	7		32/34
BEAVER VALLEY ROAD		221	24
BROOKSIDE DRIVE		Off Maryland Ave.	28
CAPITOL TRAIL	2	11	26/27
CENTERVILLE ROAD	141	333	28
CENTRE ROAD	141	271	25/28
CHAPMAN ROAD		347	27/34
CHERRY LANE		372	31
CHESAPEAKE CITY ROAD		399	34
CHESTNUT HILL ROAD	4	366	27
CONCORD PIKE	202	4	23/24
COX NECK ROAD		411	34
CHRISTIANA ROAD	273	3/18	31/32
CREEK ROAD	82	230	25
CURTIS MILL ROAD	72		26
DAWSON DRIVE		Del. Ind. Pk.	27
DUPONT HIGHWAY	13		30/31/32
DUPONT ROAD	100	27/52	29
EDGEMOOR ROAD		220	22
ELKTON ROAD	2	5A	27

<u>ROAD</u>	<u>RT. #</u>	<u>CTY. RT. #</u>	<u>SECTOR #</u>
FAIRHILL SCHOOL OR SMITHS MILL ROAD		326	26
FOULK ROAD	261	203	23
GERMAY DRIVE		Off Maryland Ave.	28
GLASGOW-SUMMIT BRIDGE ROAD	896		34
GOVERNOR PRINCE BLVD.	13	50	22
GRANTHAM LANE		376	32
GRUBB ROAD		209	23
HAMBURG OR RIVER ROAD	9	378	32
HARMONY ROAD (From Rt. 2 to Rt. 4)		355	27
HARVEY ROAD		209	22
HAY ROAD		501	22
HOWELL SCHOOL ROAD		54	34
KENNETT PIKE	52	9	24/25
KIRKWOOD TO ST. GEORGES RD.		409	32
KIRKWOOD HIGHWAY	2		26/27/28
LAMBSON LANE		370	30
LANCASTER PIKE	48	237	24/25/26
LEA BLVD.		502	22
LIMESTONE ROAD	7	31	26/27/28
LINDEN HILL ROAD		322	26
MAIN ST. (CHRISTIANA)	273	3	31/34
MARSH ROAD	3	23	22/23
MARYLAND AVENUE	4		28
MILLER ROAD		217	23
MONTCHANIN ROAD	100	225/232	24
MURPHY ROAD		210	23
NAAMANS ROAD	92	17	22/23

<u>ROAD</u>	<u>RT. #</u>	<u>CTY. RT. #</u>	<u>SECTOR #</u>
NEWARK-CHRISTIANA ROAD	273		27
NEWARK-GLASGOW ROAD	896		34
NEW BRIDGE ROAD	141	267	24
NEW CASTLE AVENUE	9	19	30
NEW CASTLE - FRENCH-TOWN ROAD	273		31/34
NEW CHURCHMANS ROAD		339	31
NEW LONDON - CHRISTIANA ROAD			26
NEW LONDON ROAD	896	313	26
NEW MURPHY ROAD		267	24
NEWPORT-CHRISTIANA PIKE	4		27/28
NEWPORT GAP PIKE	41		26/28
NEWPORT PIKE	4	366	28
NOTTINGHAM ROAD	273		26
OGLETOWN-STANTON ROAD	4		27
OLD AIRPORT ROAD		327	31
OLD BALTIMORE PIKE		26/336	34
OLD CHURCHMANS ROAD		339A/342	31
PAPER MILL ROAD	72	13	26
PEOPLES DRIVE		Off Del. 72	34
PHILADELPHIA PIKE	13	24	22
PIGEON POINT ROAD		377	30
POLLY DRUMMOND ROAD		328	26
POLLY DRUMMOND HILL ROAD		328	26
PORTER STATION ROAD		48	34
POSSUM PARK ROAD		314	26

<u>ROAD</u>	<u>RT. #</u>	<u>CTY. RT. #</u>	<u>SECTOR #</u>
PULASKI HWY.	40	32	32/34
PURGATORY SWAMP ROAD	72		34
RED MILL ROAD		352	27
RIDGE ROAD		17A	22
RIVER OR HAMBURG ROAD	9	378	32
ROBERT KIRKWOOD HIGHWAY	2		26/27/28
ROGERS ROAD		369	30
SALEM CHURCH ROAD		348	27/34
SANDY BRAE ROAD		397	27
SCHOOL BELL ROAD		344	32
SCHOOL LANE		375	31
SCHOOL ROAD			26
SHIPLEY ROAD		214	23
SILVERSIDE ROAD		212	22/23
SOMERVELL ROAD			31
SOUTH HEALD STREET	13		30
SOUTH CHAPEL ROAD	72		27
ST. GEORGES-CLARKS CRNR. RD.		378	32
STEWART ROAD OR WRANGLE HILL ROAD	72		34
SUNSET LAKE ROAD	72	356	34
TERMINAL AVENUE		359	30
THOMPSONS BRIDGE RD.	92	225	24
VEALE ROAD		210	22
WASHINGTON STREET EXT.	4	43	22/23
WATER STREET		320	28
WILMINGTON-CHRISTIANA PIKE	7		31



<u>ROAD</u>	<u>RT. #</u>	<u>CTY. RT. #</u>	<u>SECTOR #</u>
WILSON ROAD		210	23
WOODALE DRIVE		263	25
WRANGLE HILL OR STEWARTS RD.	72		34
WRANGLE HILL OR CLARKS CRNR.	72	410	32/34

NOTE: Interstate 95, 295 and 495 all fall under Delaware State Police Jurisdiction.



**END**