

6A ANNOUNCEMENT SYSTEM
MACHINE INTERCEPT
GENERAL DESCRIPTIVE INFORMATION

1. GENERAL

1.01 The No. 6A announcement system is intended primarily to provide centralized announcement facilities for answering dialed calls to vacant or unassigned numbers. However, it is also possible to handle this traffic on a decentralized basis. The system provides cross-connecting arrangements which differentiate between calls to be answered by a machine and operator-handled intercept traffic. Subscribers dialing machine-intercepted numbers receive a recorded announcement explaining why the call cannot be completed.

1.02 This practice describes, in general terms, the scope, basic equipment elements, trunking facilities, method of operation, and maintenance features of the No. 6A announcement system.

2. SCOPE

2.01 It is estimated that in the average central office approximately fifty per cent of the intercept traffic is created by call attempts to vacant or unassigned numbers. Considerable operating economies may be realized by intercepting such calls by a recorded announcement since, in these cases, only a general statement that the number is not a working one need be given. The remaining intercept traffic requires the services of a regular intercept or trouble intercept operator and is handled in the usual manner at switchboard positions.

2.02 The No. 6A announcement system has been designed primarily to operate in conjunction with standard centralized intercepting equipment. Cross-connection arrangements provided with this system permit the various categories of intercept traffic to be routed to either the announcement machine or to operators as determined by the operating companies. However, it is assumed that calls to lines reported "in trouble" will always be routed to a trouble intercept operator.

2.03 Subcentering arrangements are available which will permit "piping" machine announcements to distant buildings where other intercept desks are located. These desks may be additional centralized desks or they may be local intercept desks installed in buildings where the volume of intercept traffic warrants a local desk. Machine intercept announcements may be fed from one subcenter to another.

2.04 The No. 6A announcement system may be arranged to operate with all types of local central office dial equipment. Trunking and cross-connection arrangements are available for the step-by-step, panel, and Nos. 1 and 5 crossbar systems. Machine announcement intercepting facilities for community dial offices are provided by the No. 7A announcement system, a description of which may be found in other sections of the practices.

3. EQUIPMENT ELEMENTS

A. General

3.01 The equipment elements of the system are: (a) intercept trunks, both outgoing and incoming, (b) recorder-reproducers, (c) amplifiers, (d) a control circuit unit, and (e) a distributing and alarm circuit unit.

B. Intercept Trunks

3.02 The outgoing and incoming intercept trunks distinguish between calls to be routed to the announcement machine, to regular intercept operators, and to trouble intercept operators. The incoming intercept trunk circuit begins the sequence of operations which connects the announcement machine to the trunk. The incoming trunk also provides a means for automatically controlling the number of machine announcements given. After from one to nine announcements, the exact number being decided upon by the traffic requirements of the operating company, the call is transferred to a regular intercept operator. Traffic registers may be provided and service observing facilities added, both on calls which are transferred from the machine to the operator and calls which are initially routed to the operator.

C. Machine Announcement Facilities

3.03 Two recorder-reproducers, two amplifiers, a control circuit unit, and the distributing and alarm circuit unit comprise the machine announcement facility. Fig. 1 is a typical layout of this equipment.

3.04 The recorder-reproducer (see Figs. 2 and 3) consists of five interrelated mechanisms: (a) the recording drum (the surface of which is a synthetic rubber band impregnated with iron oxide), and drive, (b) a set of cams and contacts which control the reproducing time, (c) a magnetic head assembly, (d) an erase coil assembly, and (e) associated switching mechanisms.

3.05 Eight announcement time intervals are available by adjustment of the speed of the drum through two positions of the belt on the drive pulley and four gear positions. The eight different announcement intervals, expressed in seconds, are: 4.2, 5.0, 11.3, 13.5, 18.8, 22.5, 30.0, and 36.0.

3.06 The function of the recorder-reproducer is threefold. It can erase a previous announcement, record a new announcement, and reproduce the newly recorded announcement.

3.07 Two recorder-reproducer units are provided so that a new announcement may be recorded on one channel without interrupting the operation of the system. Since only one machine is in operation at a time, the second machine becomes an emergency spare. If voice failure occurs in the channel which is in operation, transfer is automatically made to the other channel at the beginning of the next announcement and a minor alarm is given on the central office alarm system.

D. Amplifiers

3.08 Two amplifiers are provided, one for each recorder-reproducer. Each amplifier arrangement consists of an amplifier proper, a voice alarm circuit, and a power supply. The amplifier is arranged so that its output and input connections to the recorder-reproducer are easily switched to the correct setup required for either the recording or reproducing functions. Amplification for recording and reproducing is controlled by two independent gain controls. The voice alarm circuit is connected only when the amplifier is in the reproducing condition and indicates when the amplifier output falls below a predetermined and adjustable volume level.

E. Control Circuit Unit

3.09 This unit provides a panel with the keys and lamps which select and indicate the machine connected to the load, as well as the keys and lamps used for recording and erasing. See Fig. 4. The following keys and lamps are located on the unit:

- (a) A make-busy key, operated to prevent transfer to a machine while a recording is being made or while maintenance work is being performed. When operated, the key removes the announcement machine from availability to intercept calls. Lamps indicate which machine is made busy.
- (b) An erase key and lamp are provided for each machine. When the key is operated, the previous announcement is erased from the rubber band.
- (c) A record key and lamp are provided for each machine. The key must be held

operated during the entire time a new recording is being made.

(d) A reset key is provided for each machine which serves to return the machine to stand-by condition after a recording is made.

(e) An on-line key is provided, the operation of which effects a manual transfer of the load from one machine to the other. When this key is operated, transfer is made at the beginning of an announcement as soon as the amplifier of the alternate machine is in operating condition. Lamps are provided to indicate which machine is connected to the load.

(f) Alarm lamps indicate voice failure on the machine in service. Major and minor alarm cutoff keys, with guard lamps, are also provided. When operated, these cut off the alarms to the central office alarm system.

3.10 A volume level indicating meter is mounted on the control circuit unit. The meter can be connected to the amplifier output of either machine by means of a transfer key, and is used for checking the volume level during the recording and reproducing functions.

3.11 Jacks for monitoring and recording, input jacks for making a recording, and amplifier test jacks are also located on the unit.

3.12 Talking jacks for communication between the announcement machine location and a remote recording location are available. If desired, such remote facilities must be provided by the operating company.

F. Distributing and Alarm Circuit Unit

3.13 Generally speaking, the functions of the distributing and alarm circuit are of two different natures. The circuit provides means for multiplying the cut-through signals from the machine so that calls on incoming intercept trunks may be connected and disconnected at the proper time. It also provides major and minor alarms in cases of trouble.

3.14 Voice failure alarms occur when the output of the working channel falls below a predetermined level. Major alarms are given if the distributing relays fail to operate or to release once every announcement cycle. The distributing relays normally operate at the time the cut-through pulse from the announcement machine is received. A timing circuit is provided which brings in a minor alarm if the distributing relays do not operate and release during the timing interval.

3.15 Two sets of control and distributing relays are furnished in the distributing and alarm circuit for maintenance reasons. A key is provided on the unit to switch from one set of relays to the other.

G. Peg Count Register

3.16 Peg count registers are provided which tabulate the total number of regular intercepted calls routed initially to the announcement machine and also the total number of calls transferred from the announcement machine to the regular intercepting operators. The No. 1 step-by-step and the Nos. 1 and 5 crossbar offices are already provided with registers which count the total number of intercepted calls of any type, and where provided, these facilities will be retained.

H. Recording Facilities

3.17 Recordings may be made at the machine or from a remote location. If remote recording facilities are provided, the additional equipment needed consists of headsets, a beehive lamp, and jacks to connect the talking circuits to the announcement machine. One headset is used by the recording operator both as a microphone to record the announcement and as an earphone to hear the playback of the recording. A second headset at the remote point may be used by another person who instructs or assists the recording operator, listens to the playback, and communicates with a third person located at the recording machine, who is actually controlling the machine. The beehive lamp is used as a signal for the recording operator to begin and finish the announcement.

4. SUBCENTERING FACILITIES

A. General

4.01 As mentioned in 2.03, arrangements are available for "piping" machine intercept announcements to a building where another intercept desk is located. This desk may be a second centralized one or it may handle local intercept traffic. The general arrangement is shown in Fig. 5.

B. Subcenter Equipment Elements

4.02 When a subcentering arrangement is provided, the equipment required includes a distributing and alarm circuit which includes two amplifiers and two announcement trunks.

C. Trunking Facilities

4.03 Announcements and signals are carried from the office in which the machine is located to the distributing and alarm circuit located at the subcenter over two cable pairs. The circuits are arranged so that failure of one cable pair, or one amplifier, will not interrupt service. If failure occurs, traffic is automatically carried by the second cable pair and amplifier. Alarms are given upon amplifier failure much the same as in the central intercepting office distributing and alarm circuit.

5. METHOD OF OPERATION

A. Cross-connection Arrangements

5.01 Calls which are to be routed to the announcement machine are automatically identified by an arrangement of cross connections which "sorts" the intercept traffic and provides the proper routing for each call. These cross connections may appear either at a distributing frame or in a number group circuit. As a result of these cross-connection arrangements, a signal is transmitted to an idle outgoing intercept trunk which identifies the call either as one to receive a machine announcement, or to be answered by a regular or trouble intercept operator. Fig. 5 illustrates the completion of an intercepted call. If routed to machine announcement, a signal is sent to the announcement equipment that a call is waiting. At the beginning of a new announcement cycle, the call is connected to the announcement machine. The cross-connection arrangements and the type of signal used to identify a machine announcement call are listed in the following table.

<u>Type of Office</u>	<u>Cross-connection Arrangement</u>	<u>Identification Signal</u>
Step by Step	Reversal of tip and ring conductors at distributing frame.	Ringing signal on tip conductor.
Panel	Reversal of tip and ring conductors at distributing frame.	Ringing signal on tip conductor.
No. 1 Crossbar	No cross connection at NC and NF punchings in number group circuit for intercepted line. The NS punching is also omitted.	Machine announcement ANS punching grounded in outgoing trunk.
No. 5 Crossbar	No cross connection at G, F, and L punchings in number group circuit for intercepted line.	Ringing signal on ring conductor of second appearance of trunk circuit.

5.02 When machine announcements are called for in the 2-wire trunks, the signal given above is changed to a simplex type for transmission to the centralized point. The simplex signal is not necessary when the 3-wire trunks are used.

5.03 A call is connected to the announcement machine only at the beginning of an announcement. The call remains connected to the machine until the calling subscriber disconnects or the call is transferred to a regular intercept operator. The number of announcements is counted in each individual trunk and after the predetermined number has been given, relays are operated which disconnect the announcement machine and signal a regular intercept operator, indicating that the call has been transferred from the machine. This signal, in switchboards and desks not arranged for call distributing, appears as a flashing trunk lamp which is extinguished when the operator answers. In call distributing desks, the signal appears as a tone which is removed by the operation of a tone removal key.

5.04 When a call is transferred from the machine to a regular intercept operator, the operator generally receives a distinctive signal and follows prescribed traffic practices.

B. Recording Process

5.05 The best location for the actual recording is a quiet room which may be located anywhere in the building. In making the recorded announcement, the services of two and sometimes three people are required: one at the controls of the machine, one actually making the recording, and the third acting in a supervisory capacity.

5.06 Before a new recording can be placed on either one of the machines, the machine under consideration must be in the idle position. The make-busy key of this machine is then operated to remove it from

service, after which the erase key is operated with the machine running, completely removing the previous announcement in one revolution of the drum.

5.07 Two headsets may be plugged into the jacks provided for recording. With the machine running, the record key on the control unit is operated. Lamps which indicate the start of an announcement cycle are lighted on the control panel and in the recording room. The recording operator may read the announcement to be recorded during the time that the lamp is lighted. If the lamp goes out during this operation, indicating an announcement of too long a duration, measures should be taken either to speed up the rate of speech or to edit the text of the announcement. After the recording is made, the persons in the recording room may immediately monitor the announcement. The person at the control unit checks the volume of the recording with the meter provided. If the recording is satisfactory, the machine is returned to the stand-by condition by operation of the reset key on the control unit. The on-line key is then operated, transferring the load to the machine with the newly recorded announcement. This permits repetition of the recording process on the second machine, so that both machines will be provided with a similar announcement.

6. MAINTENANCE FACILITIES

6.01 Audible and visual alarm signals, together with lamp signals on the control unit, are provided to indicate various types of equipment malfunction. It is expected that no special maintenance facilities will be required for this equipment. Information is available in other sections of the practices for the testing and maintenance of the Western Electric amplifiers included in the equipment, the distributing relays, etc. Normal central office maintenance procedures and operation may be applied to all equipment elements in the system.

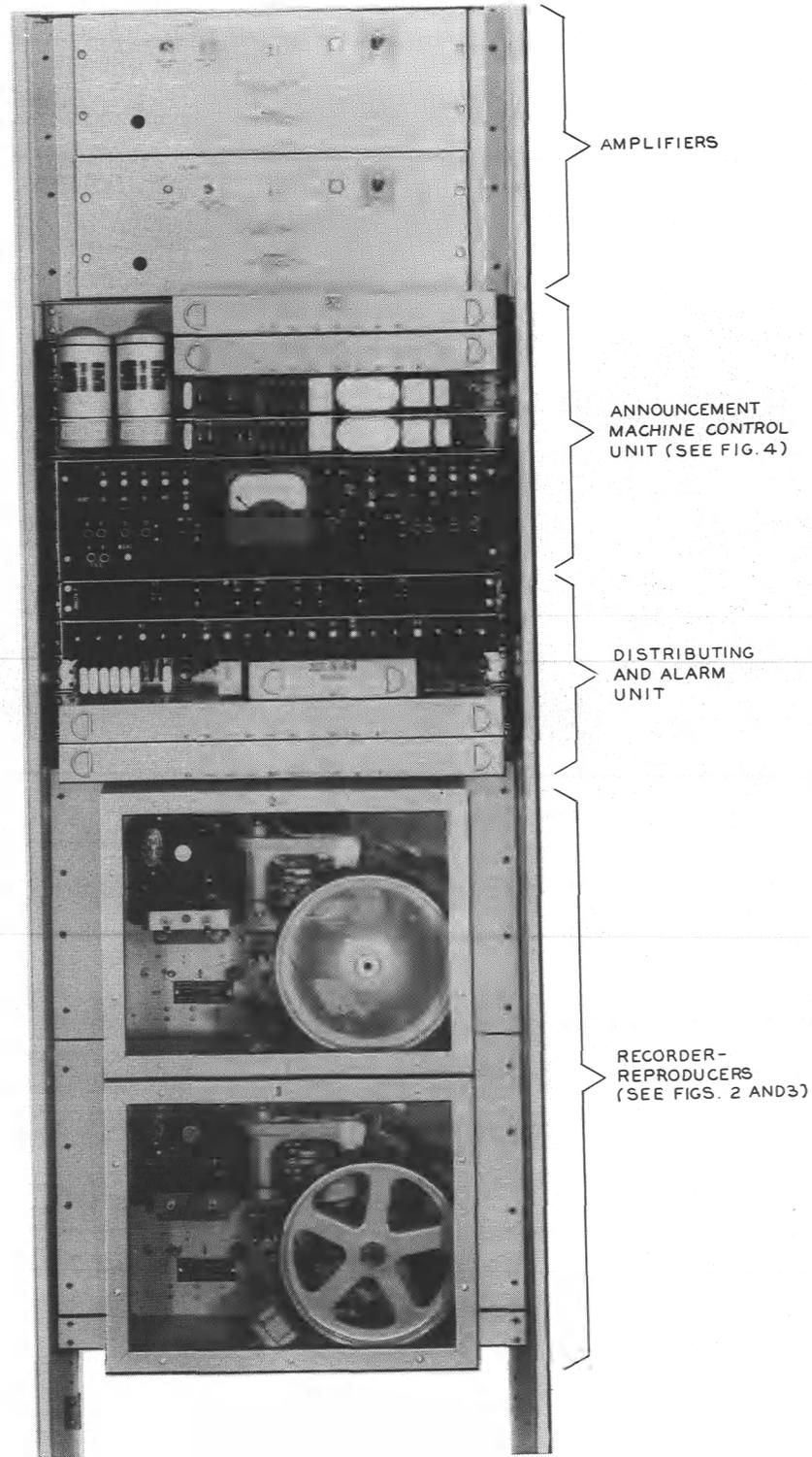


Fig. 1 - Announcement Equipment, Front View

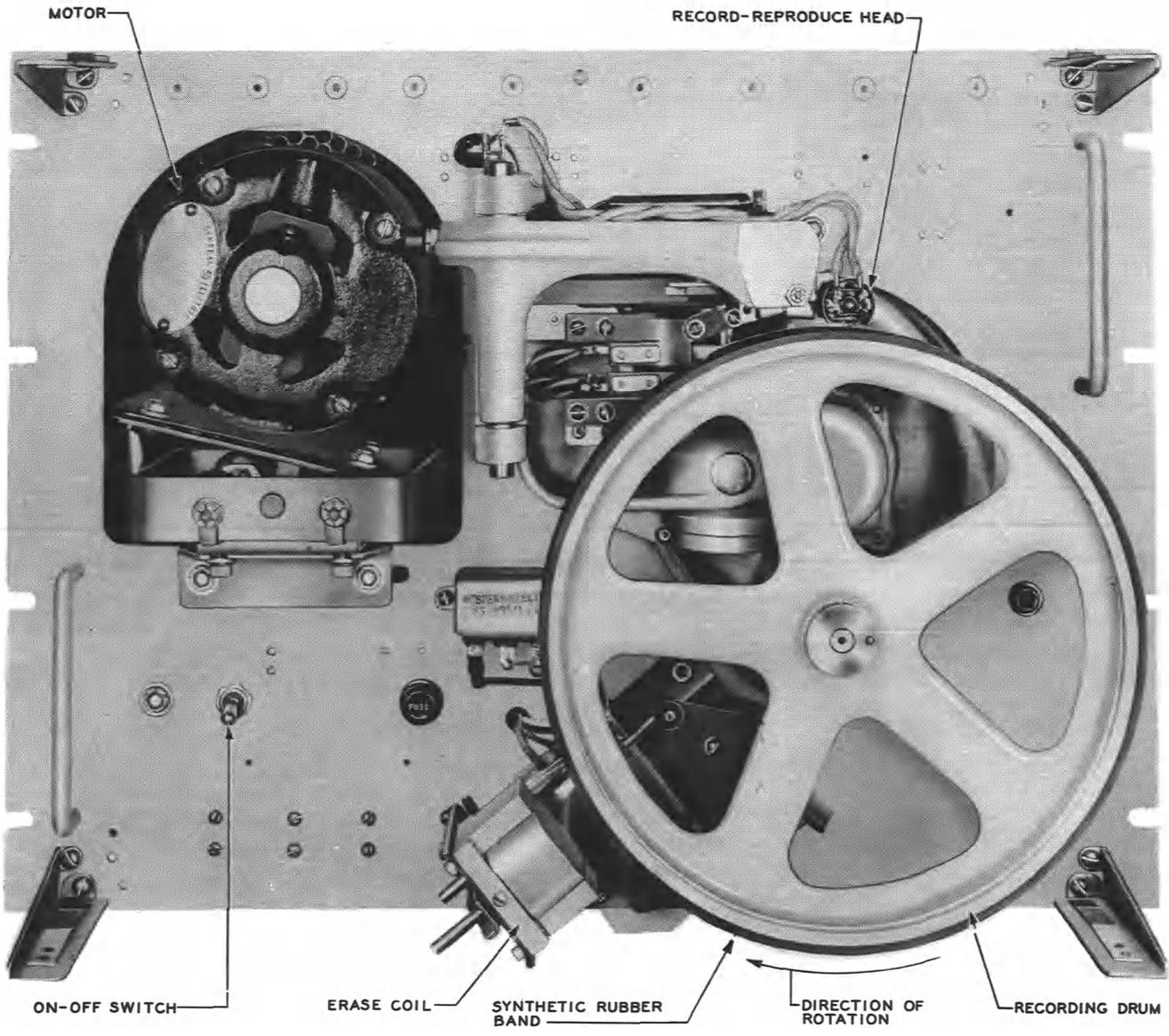


Fig. 2 - Recorder-Reproducer, Front View, Without Cover

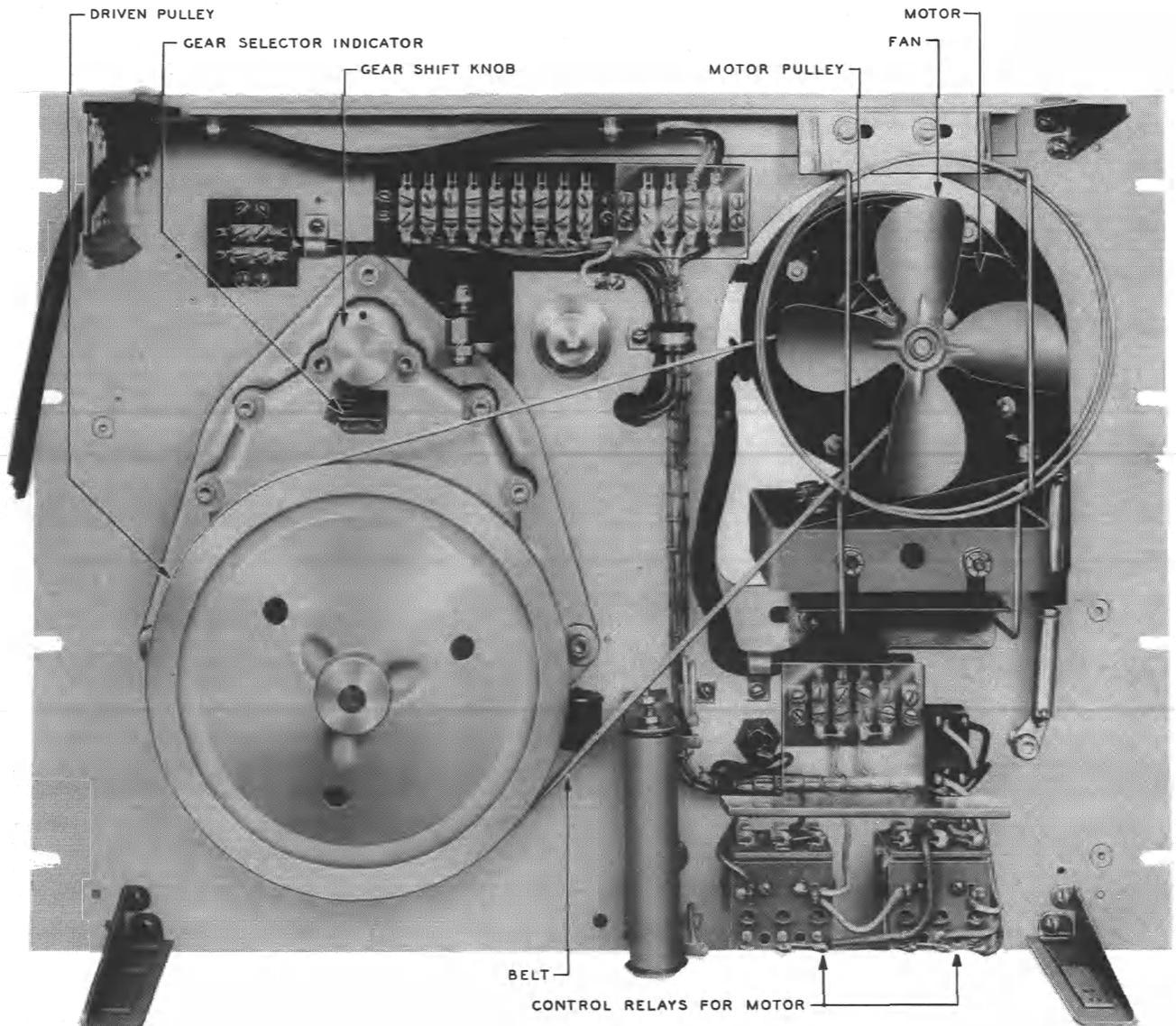


Fig. 3 - Recorder-Reproducer, Rear View, Without Cover

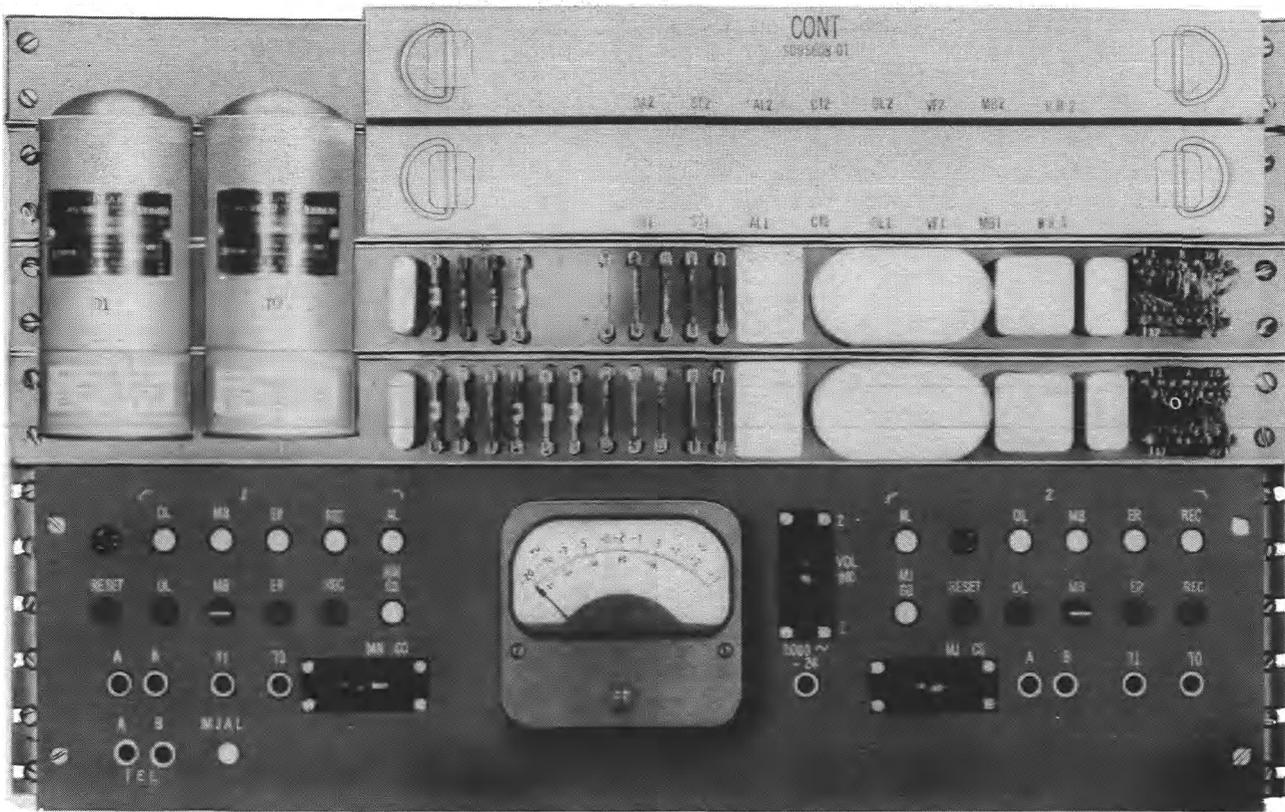


Fig. 4 - Announcement Machine Control Unit, Front View

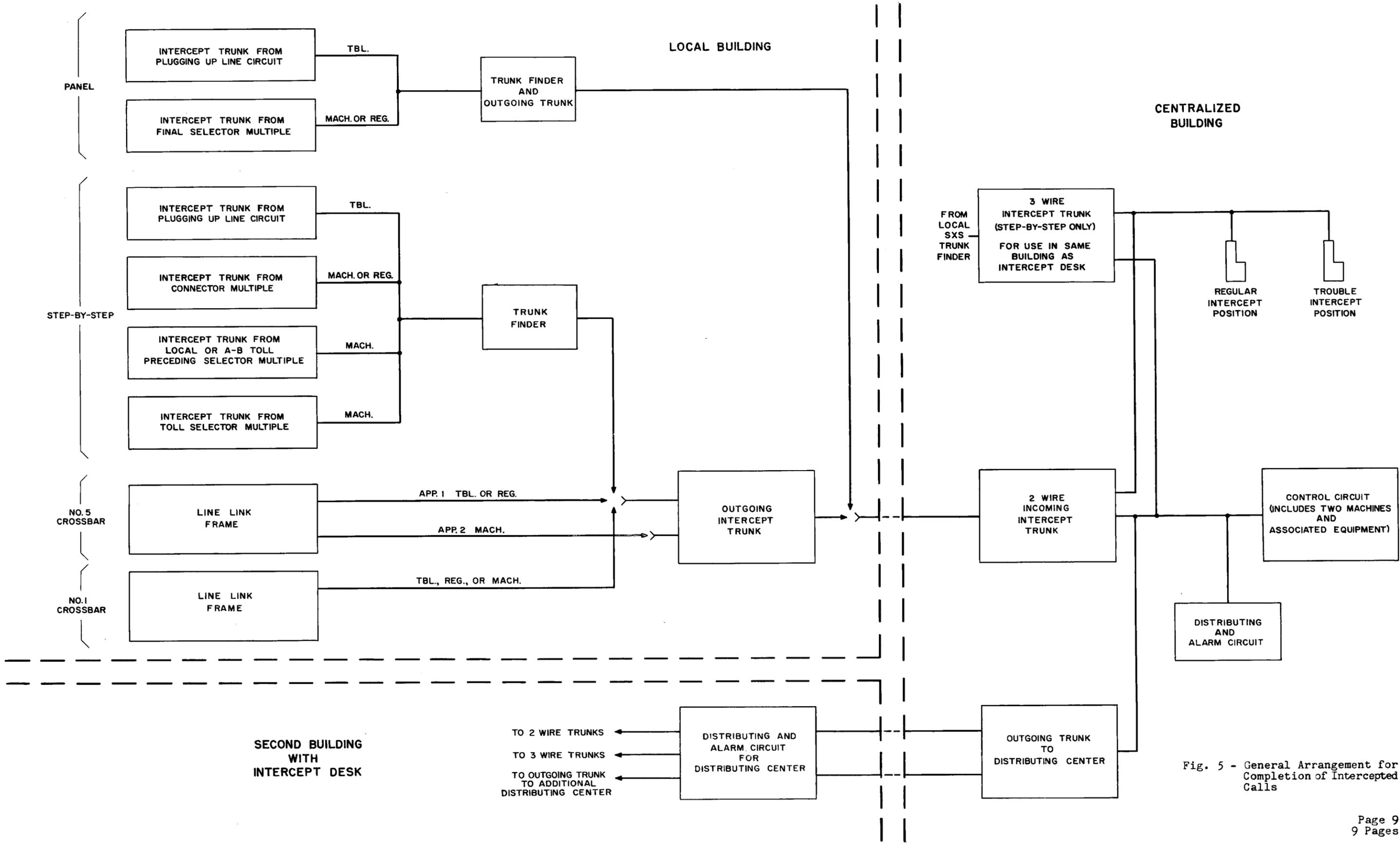


Fig. 5 - General Arrangement for Completion of Intercepted Calls