

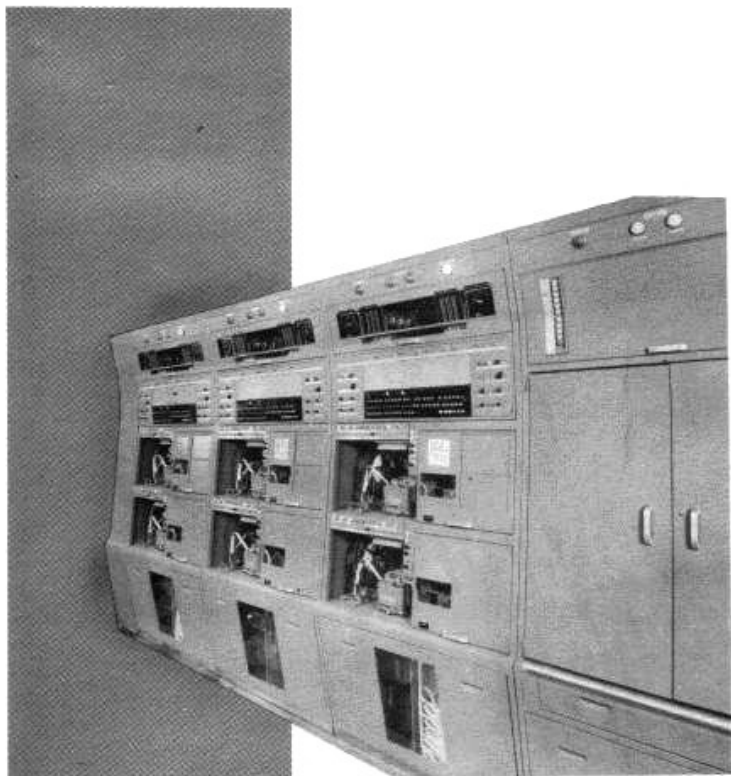


US AIR FORCE  
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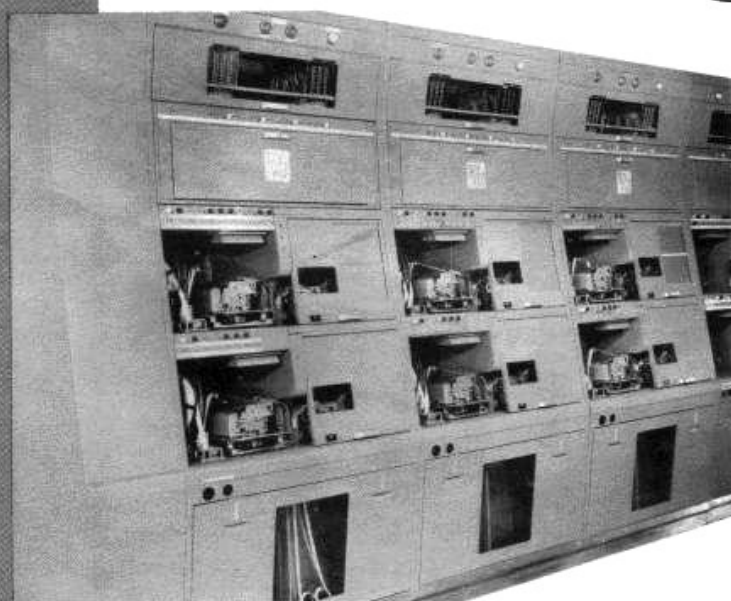
**PRIVATE WIRE SERVICES**

# **PLAN 55 SWITCHING SYSTEM**

**EQUIPMENT DESCRIPTION PWS-10**



RECEIVING CONSOLES  
WITH  
DIRECTOR CONSOLE



SENDING CONSOLES

## PLAN 55 SWITCHING SYSTEM

### GENERAL

THE PLAN 55 incorporates methods of communication existing in our high speed Plan-21 reperforator offices and semi-automatic Private Wire Systems and, in addition, new technological developments being used for the first time.

The equipment is designed to accommodate 200 cross-office circuits and 100 destinations and may be expanded to meet the requirements of 400 circuits and 200 "main line" destinations including way stations. Each circuit in the switching center may be considered as two circuits with one being used for High Precedence (Priority) and the other for Low Precedence (Routine) messages.

Connecting lines may operate at either 60, 75 or 100 words per minute while the cross-office speed is at 200 words per minute.

The Plan 55 may be used fully automatic or semi-automatic by manually operated push buttons as conditions may require.

While the receiving cabinets are wired in multiple, each is an independent unit. Thus it is possible to have one or more receiving cabinets working fully automatic and one or more working manually using the push-buttons.

Receiving consoles are equipped for two positions, or circuits. However, space is provided for two additional numbering machines and the equipment so arranged that the upper position may be used for 3 station duplex way circuit operation. The lower position would, of course, be equipped for trunk circuit operation.

The foregoing paragraph also applies to the sending consoles. In addition, line jacks are provided for each circuit or station. A portable table, equipped with a printer-perforator with keyboard, automatic transmitter and associated control equipment, is used in conjunction with the line jacks. This will enable the attendant to expedite rush messages, if necessary, re-run messages and transmit wire notices to out-stations without removing the tape from the transmitter at the sending position. Each message so transmitted will pick up a number from the

sending position numbering machine.

Multiple call or "MX" messages may also be transmitted through the system automatically using certain selection characters or by push-button.

Two distributor-transmitters are provided which operate on a "flip-flop" basis to permit the switching of "book" messages. They will be switched by using prearranged address tapes retained at the Plan 55 Switching Center. Present equipment provides for four routing indicators in each address tape.

Four comparison check characters precede the sequence number of each incoming message enabling the attendant to determine, or automatic equipment to recognize, that both numbering machine and reperforator are functioning properly. Two of these characters are also perforated in the tape going cross-office, preceding the office call of the originating station. Their presence in the tape indicates that the cross-office circuit is functioning properly.

The following is a general description of the equipment and its operation.

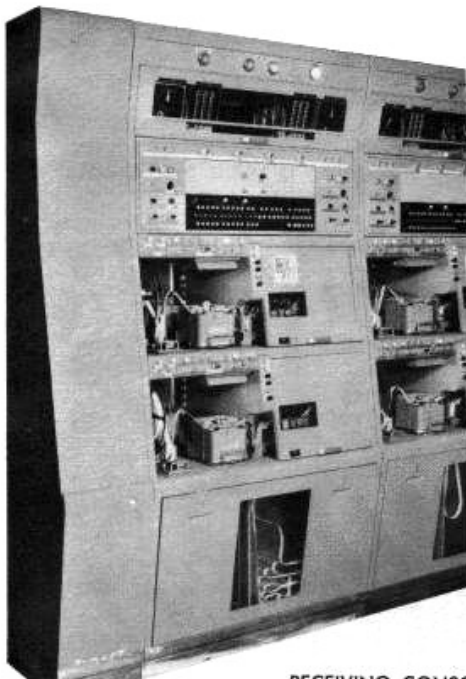
### RECEIVING CONSOLES

The upper and lower positions employ a Model 28 Printer-Perforator which may be operated at 60, 75 or 100 W.P.M. The model 7595-A cross-office loop-gate transmitter operates at 200 W.P.M. and has associated equipment for detecting the Start of Message indicator, way station selector letters X Y & Z, Space, Carriage Return, Line Feed and the End of Message indicator.

The push button panel normally equipped with 100 buttons is common to both the upper and lower positions in the receiving console. Either position may be associated with the panel by operating the High or Low Precedence button at that position.

Associated with the Receiving Consoles are various controls and signals, some of which are explained briefly as follows:

**Office Alarm Rls** - (Office Alarm Release) - provided on each console, this switch extinguishes the Attendant lamp and silences the two-stroke chime office alarm.



RECEIVING CONSOLE

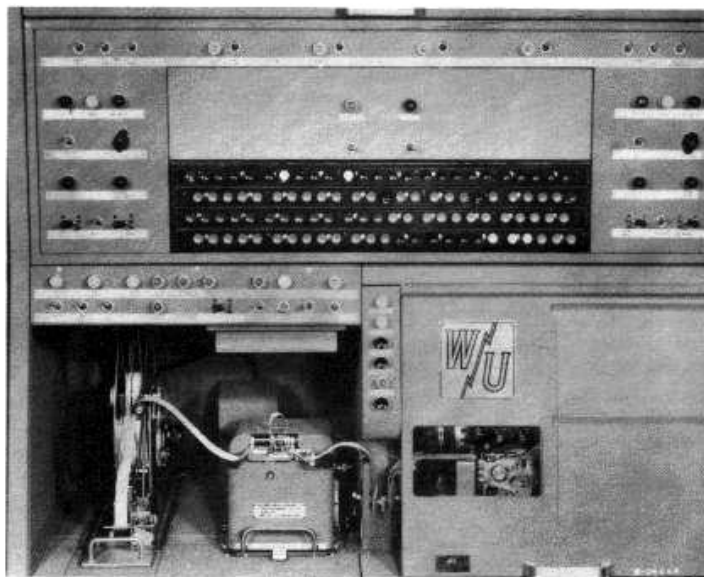
Duplicate signals and controls for each position are the:

**Busy Lamp** (White) below each SNI position glows as long as associated SNI is connected to the transmitter.

**Omit Comp** (Omit Comparison) four non-locking switches opposite the Busy lamps — when operated causes SNI to step through the number checking phase and permits normal operation as though a correct number comparison has been made.

**Sw Delay** (Switching Delay) Red lamp — glows when any sequence of the switching operation does not complete its cycle within 5 minutes. The amber Attendant lamp (accompanied by a two stroke chime) glows simultaneously.

**Oral** (Cross-office Route Alarm) White lamp — glows when there is trouble completing a cross-office connection. This is also accompanied by the amber Attendant lamp and two stroke chime.



UPPER POSITION—  
RECEIVING CONSOLE

**Timer Switch** (a four position rotary switch) pre-sets a timing device which operates in conjunction with the SNI. Three positions offer a choice of 5, 10 or 20 minutes which may elapse before the alarm is activated. When set to "O" the timer is deactivated. When the SNI has not operated within the selected time the green Tfc Ck (Traffic Check) and red Attendant lamps glow accompanied by the two-stroke chime.

**Timer Rls** (Timer Release) a non-locking switch extinguishes the TFC CK and SW Delay lamps. The operation of this switch also restarts the timing cycle.

**Conn Thru** (Connect Through) Green lamp – glows when Director detects letters "CC" in lieu of precedence prosign in a message routing line. Here too there is simultaneous operation of the amber Attendant lamp and two stroke chime. This feature is used in conjunction with "Connect Through" service which is described below.

**Conn Thru-Norm** (Connect Through Normal) locking switch which, when operated to the left, conditions the position for "Connect Through" operation.

**Restart** switch used in conjunction with "Connect Through" service.

**C.O. Norm** (Cut Off-Normal) used by maintainer when isolating trouble within the equipment.

**Conn C.O.** (Connection Cut Off) Red lamp – glows when the C.O. Norm switch is thrown.

**Bell Sig** (Bell Signal) Yellow lamp – glows whenever the bell signal is detected by the reperforator. As long as it glows this position has priority in establishing cross-office connections.

**Prior Rls** (Priority Release) non-locking switch, extinguishes Bell Sig lamp and restores position to normal in establishing cross-office connections.

**Xmit Can Ntc** (Transmit Cancellation Notice) non-locking switch, causes the automatic cross-office transmission of the cancellation notice and end-of-message indicator to the outgoing line reperforator(s).

**Xmit EOM** (Transmit End-Of-Message Indicator) a non-locking switch, causes the EOM functions to be transmitted cross-office automatically.

**Xmit CN – EOM** (Transmit Cancellation Notice while or EOM) A White lamp – glows the cancellation notice or EOM is being transmitted.

**Dir Conn** (Director Connected) White lamp – glows during the period of message processing when the Director is connected to the position.

**Sw to Supvr** (Switch to Supervisor) Amber lamp – glows when position fails to receive the signal from the connected outgoing line position that its reperforator has received a line-feed and end-of-message indicator. The Attendant lamp and two-stroke chime are activated simultaneously.

**No Sw** (No Switch) Amber lamp – glows when the Director detects an invalid routing indicator or when it is unable to complete its processing because of improper message format.

**Re-Sw** (Re-switch) Amber lamp – glows on failure of two character comparison check from the outgoing line position. The incoming or receiving line position circuit functions to transmit the number cancellation notice to the cross-office reperforator.

**Wrong Comp** (Wrong Comparison) Amber lamp – glows when the characters of the incoming message number or office call letters fail to check with the SNI.

**Comp Clr Out** (Comparison Clearout) A non-locking switch which disables the comparison feature and restarts the transmitter when operated after a wrong comparison.

**Posn Clr Out** (Position Clear Out) resets the SNI to normal without advancing to the next higher number, releases all cross-office connections and conditions the position to restart the cycling process.

**No EOM** (No End-Of-Message) Amber lamp – glows when the receiving reperforator detects two SOM (Start of Message) functions without an intervening EOM Indicator.

**Xtr Stop** (Transmitter Stop) locking switch, stops the transmitter when operated in the "down" position. This will also cause the yellow Xtr Stop lamp to glow.

**Auto-Man** (Automatic-Manual) locking switch which controls the method of operation, i.e., fully automatic or manual.

**Man Step** (Manual Step) non-locking switch which advances the tape in the transmitter one character each time it is operated. The switch will function only when the Xtr Stop switch is in the "down" position.

**Tape Feed Switch** causes reperforator to meter a pre-determined length of blank tape.

**Line Sig** (Line Signal) Clear lamp – glows when signals are being received at the incoming line reperforator position.

The following lamps and signals are operative only when the AUTO-MAN switch is set for manual operation:

**Msg Wtg** (Message Waiting) White lamp – glows when a message has been received and is ready for switching. At this point the SNI has already checked the message number.

**Hi Pr** (High Precedence) push-button which, when depressed, selects a high precedence (Priority) cross-office path and connects the push-button panel to the position.

**Lo Pr** (Low Precedence) same as above, but selects a low-precedence (Routine) cross-office path.

**Sw Cont** (Switching Control) White lamp – glows after depressing either the Hi Pr or Lo Pr buttons and glows intermittently until the end-of-routing-line indicators have been reached. The push-button panel is connected to the position only during this period.

**Start Lamp**, White – glows when the routing line processing has been completed.

**Start Button** – depressed after the first routing indicator has been reached or after the Start lamp glows, this button initiates the cross-office switching operation.

## SENDING CONSOLES

Each sending console consists of two positions and, as in the Receiving Consoles, the upper position only may be used as a trunk or three station duplex way circuit.

Each position is equipped with Model 28 Non-Typing Chadless Reperforators which operate at 200 W.P.M. to receive traffic cross-office. The reperforators are equipped with "read-back" mechanisms used to check the accuracy of certain characters transmitted from the cross-office transmitter and numbering machine. Also associated with each

position is a transmitter-distributor which may be operated at 60, 75 or 100 W.P.M. This transmitter has facilities for reading the EOM and way station selector letters.

Numbering machines associated with the sending positions will send the SOM (Start of Message) characters, way station selector code, if necessary, and transmit two blank functions at the end of each message in addition to their routine functions of sending the station and channel letters and consecutive channel number. The Reset-Step switch and the Hundreds, Tens and Units switches are, of course, a part of the number machine.

The load distributor gives preference to the lowest numbered channel ready to accept a call. In the case of a multi-channel group, when all positions are busy, the messages are distributed equally. The load distributor performs an additional function when an outgoing channel is shared by two sending positions where one is a High Precedence position and the other a Low Precedence position. The High Precedence position is



SENDING CONSOLE

always given preference in sending to the line and, should the shared channel be part of a multi-channel group, the Low Precedence position will accept only one message while the High Precedence position is sending to the line.

An **EOM** (End of Message) characters switch is located inside the cabinet for each position. This 5 position switch has been provided to add certain EOM indicators, following the EOM characters used in the Plan 55 Switching Center, to conform with the type of equipment used by the outstation.

A **SOM Char** (Start of Message Character) switch associated with each position is also located inside the cabinet. This switch, when operated, causes the line transmitter to step over the first character of the SOM so that only the remaining three characters are transmitted. This switch is normally used when switching to a non-automatic station or to a local position within the switching center. This will prevent the reception of a message with two SOM's by a fully automatic switching center should a message be reinjected into the system or when routing through a non-automatic to a fully automatic relay station.

### Controls and Signals

There are two green Low Tape signal lamps in the center of the sending console, one for each position. The red Maintainer and amber Attendant lamps are common to both positions. There are "Station Close Out" switches and associated amber lamps for each position.

**Conn** (Connection) A White lamp which glows when its associated numbering machine is connected to a cross-office circuit.

**Station Call**, non-locking switch provided for each of the three numbering machines associated with the upper position. This switch selects its respective tributary, thus permitting transmission to the tributary desired from tape that does not contain the station code selector.

**Office Alarm Rls** (Office Alarm Release) A non-locking switch provided on each cabinet which, when operated, silences the two-stroke chime and extinguishes the Attendant lamp.

The following signals are duplicated at the upper and lower positions:

**Dxtr Stop** (Distributor-Transmitter Stop) A Yellow lamp which glows when the trans-



UPPER POSITION—SENDING CONSOLE

mitter-distributor is manually stopped by the Dxtr Stop switch at the position, or by a similar switch in the Traffic Control Center. Both switches must be restored to normal before the distributor-transmitter can be restarted.

**Line Closed switch** – extinguishes the Dxtr Stop lamp and operates the green Line Closed lamp. To close out a line the Dxtr Stop switch should be operated when the Line Closed switch is thrown.

**Nb Can** (Number Cancellation) A non-locking switch which causes the number cancellation to be transmitted into the sending position reperforator. The number cancellation notice is preceded by functions which will permit automatic switching to a local position at the next automatic station.

**Xmit Can Ntc** (Transmission Cancellation Notice) A non-locking switch which causes the cancellation notice to be transmitted into the sending position reperforator.

**NMAL** (Numbering Machine Alarm) An Amber lamp which glows after 60 seconds if a numbering machine has been selected but no number has been transmitted.

**NMAL Rls** (Numbering Machine Alarm Release) A switch which when operated extinguishes the NMAL lamp. If the malfunction still exists the NMAL lamp will glow again.

**DXAL** (Load Distributor Alarm) A Red lamp which glows when an attempt has been made to seize a position but no connection was established. This lamp is used only on the "A" channel of a load distributor group. A load distributor release switch, RLS, is used by the maintainer in restoring the position to normal operation.

**OAL** (Cross-Office Failure Alarm) A Red lamp which glows when trouble is encountered in cross-office transmission.

**Clear Out** non-locking switch, operated simultaneously with the X-Ofc Busy switch by the maintainer in restoring the position to normal operation after the OAL lamp is operated.

**X-Ofc Busy** (Cross-Office Busy) A switch which, when operated, prevents selection of the position involved.

**X-Ofc Busy Lamp** – A Green lamp that glows when the X-Ofc Busy switch is operated or when the portable local set is plugged into the rerun jack of the sending position.

**TF Contr** (Tape Feed Control) A locking switch which determines the conditions under which an automatic tape feed will occur at the end of a message. The switch may be in the TT (tight tape) position in which case both tight tape and the EOM are necessary before the tape is metered or, in the EOM position whereby tape is metered between messages automatically. A new connection will "over-ride" the metering feature thus preventing garbled tape and/or delay to cross-office transmission.

**Tape Feed switch** – A non-locking switch which causes the reperforator to meter blank tape when the position is not connected to a cross-office circuit.

The following switches and lamps are associated only with the upper position and operate in conjunction with way-station operation.

**No Switch** – An Amber lamp which glows when the position fails to operate the equipment for selecting one of the way stations. The transmitter stops simultaneously and the amber Attendant lamp glows accompanied by the two stroke chime.

**Resend** – A non-locking switch which extinguishes the No Switch and Attendant lamps and restores the position to normal operation.

**Tie Up** – (Equipment Tie Up) a Red lamp which glows upon failure of equipment to invite a station to send or to disconnect a station after it has transmitted a message.

**Sta Disc** (Station Disconnect) A non-locking switch used to disconnect a station which fails to complete a transmission and ties up the circuit.

**Pick Up Fail** – A Red lamp which glows when none of the stations respond to the invitation to send. After 5 seconds a disconnect sequence starts which extinguishes the lamp.

**Recycle Switch** – starts cycling process to invite tributary station to transmit. This function is automatic, normally, under the control of the Tf Ckt Timer.

## SWITCHING DIRECTOR CONSOLES

Directors are provided on a ratio of one per twenty-five receiving circuits to permit fully automatic operation. A common "pool" or 4 directors, are available to all receiving positions not to exceed 100 positions. Additional directors are provided as needed. Each director cabinet contains two directors and one translator.

The directors and associated translators recognize and react to precedence prosigns, routing indicators and end of routing combinations. Incorrect routing indicators cause the director to release and operate the No Switch lamp at the receiving position.

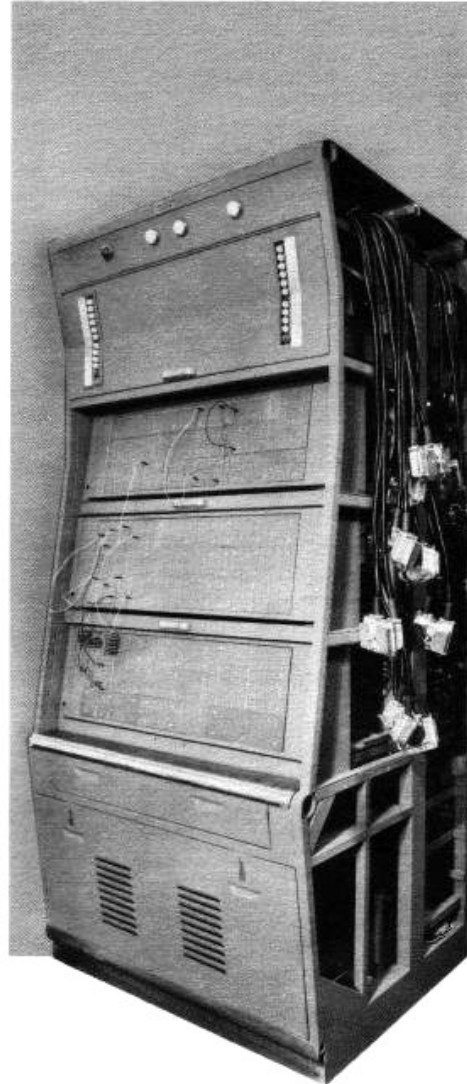
The translators are common to a maximum of six directors. Their purpose is to interpret the information recognized by the directors.

A pin jack board is provided in each director cabinet. In the present prototype any desired combinations of the first four characters of a routing indicator are terminated in one section of the pin jack board while the fifth and sixth position characters are terminated in another section of the board.

In general, the pin jack board may be used to permit routing indicators associated with other relay centers to be handled over any desired circuit outlet and also, any combination of tributary routing indicators to be assigned within the limits of 10 times 20, i.e., the capacity of the equipment.

Two groups of ten white lamps and one amber lamp are provided on the front of the director cabinet. The ten white lamps represent the 10 groups of receiving positions served by each director pool. Any light glowing in one group indicates the connection of a line receiving position to one of the directors in the console. Specifically, each director is capable of handling 100 circuits. Each white lamp represents one group or ten receiving positions. Thus a glowing white light indicates that a position in that particular group is connected to the director. The amber lamp indicates that the director is connected to a translator. While it is possible for one director to handle 100 incoming lines, additional directors are used to expedite incoming traffic.

Three lamps are located at the top of each director cabinet — A red lamp indicating the need for a maintainer, one white lamp for



DIRECTOR CONSOLE



each director which glows when the director is busied out and not in operation and a third white lamp which indicates that the translator in the console is busy.

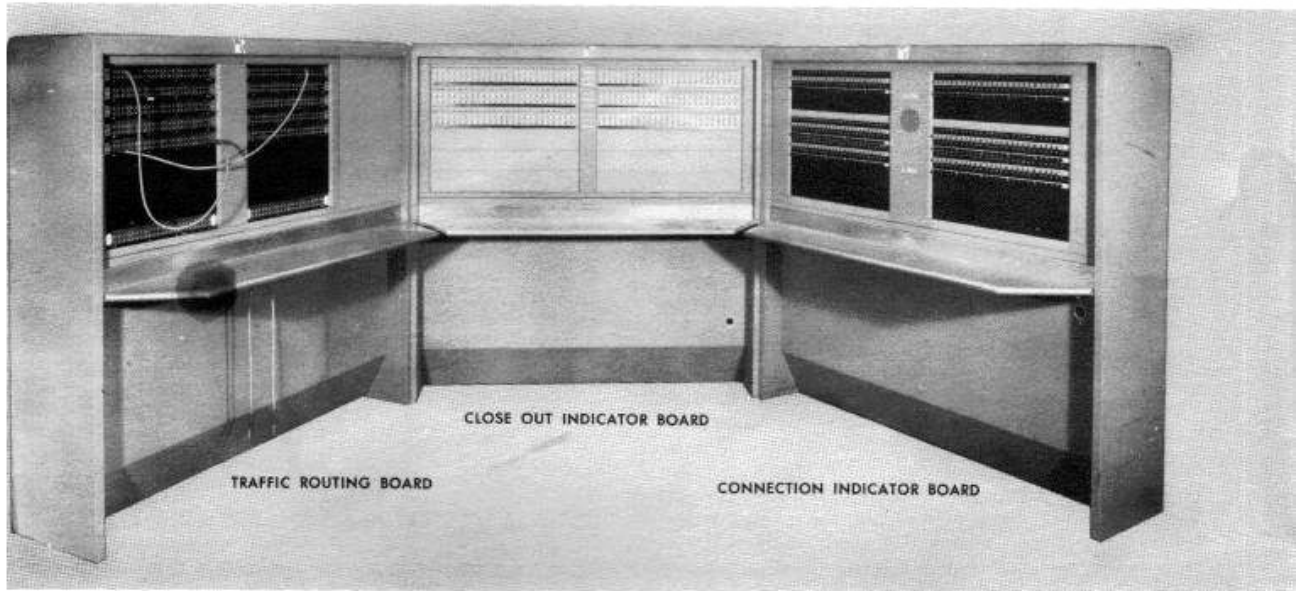
### ***Traffic Control Center***

The Traffic Control Center provides facilities to observe the condition of the circuits and control cross-office transmission of traf-

fic. The center is composed of a Traffic Routing Board, Connection Indicator Board, Close-out Indicator Board and local supervisory transmitting and receiving facilities.

### ***Traffic Routing Board***

Unlike present systems and equipment the Plan 55 routing board consists of two pairs of jacks for each station connected to the



**TRAFFIC CONTROL CENTER**

switching center. This permits changing the destination to which various selection characters will route and, in addition, allows High and Low Precedence for any destination to be handled over separate or common cross-office routes, routed to an alternate destination or spare position and diverting High Precedence traffic to a separate position for other handling.

### **Connection Indicator Board**

This board contains lamps and associated push buttons for all incoming and outgoing circuits. Depressing the push button for either an incoming or outgoing position will indicate the station or circuit to which there is a connection.

### **Close Out Indicator Board**

The indicator board contains a group of lamps associated with each outgoing line position, which indicate to the supervisor the current operating status of each position.

### **Automatic Switching**

The following is a brief description of the automatic switching process, assuming that there are no errors in the message format.

The cross-office transmitter will idle through all characters until the SOM (Start of Message) indicator is reached. When this is reached a SNI (Sequence Number Indicator) is connected to the transmitter. The SNI compares the characters of the channel number and steps tape until a line feed character is reached. At this point the transmitter stops and the SNI initiates a request for a director. When this connection is obtained the transmitter restarts, reads the precedence prosign followed by a space and stops. The director reads the precedence indicator (High or Low Priority) and "stores" it at the incoming line position. (This precedence indicator controls the cross-office routing). The transmitter restarts and when the routing indicator and first CR (Carriage Return) are transmitted to the director, it stops. The director reads the first four routing characters (or more if the first four indicate that the center is the relay station) and obtains from the translator an interpretation of the routing indicator, i.e., a cross-

office connection. The director then causes the transmitter to restart and checks the next three characters to be sure that the end of routing line has been reached. The director then causes the transmitter to reset the tape to the first character of the routing line and disconnects from the receiving position. When the cross-office connection is established the message is transmitted to the outgoing or sending position.

At the sending position the automatic numbering machine inserts a SOM and the next consecutive number. These are checked by the "read-back" pins to insure that numbering machine and reperforator are functioning properly. If checked properly, the SNI sends the characters ZC followed by the incoming channel number. The "read-back" pins check to see that the characters ZC are present in the tape. Their presence indicates that the cross-office circuit is functioning properly. Transmission of the message continues until the EOM indicator is reached.

A message destined to a station which is busy will wait until the line becomes idle or will activate the Switching Delay Alarm, to attract the attention of the attendant.

Messages switched to a closed out destination will be directed to a Busy Connection Spillover provided for this purpose.

### **Manual Switching**

Preliminary operation is the same as that in automatic switching up to the precedence prosign characters. When the tape steps through the transmitter to the line feed character preceding the priority indicator the "Msg Wtg" lamp is operated. The attendant depresses either the "Hi Pr" or "Lo Pr" push-button. This operation associates the push button panel with the transmitter and causes the transmitter to step the tape up to the space character following the precedence indicator. At this point the Switching lamp will glow. The attendant will then read the routing indicator and depress the correct destination push-button. The transmitter will then restart, step to the CR function and stop, causing the "Start" lamp to glow. The attendant depresses the "Start" push-button which causes the tape to be reset, disconnects the push-button panel and transmission resumes as in automatic switching.

### ***Multiple Call Messages***

Messages containing more than one routing indicator are considered as multiple call messages. The number of routing indicators in each such message is limited to nine, for practical purposes.

The message format is the same as that used for single messages except that more than one routing indicator is used. The Director will read each routing indicator and connect up to a maximum of four stations since it was not considered practicable to require the switching equipment to connect to more than four outlets at a time. One of these four outlets will be a Multiple Call Spillover explained below.

When a message contains more than three

routing indicators three out-stations will receive the message and one copy with all of the remaining indicators will be transmitted to the Multiple Call Spillover. It is conceivable that all routing indicators may be destined to one relay station. In this case, all of the routing indicators and the message would be transmitted to that station.

Messages destined for a station which is busy at the time selection is attempted will be switched automatically to a Multiple Call Spillover if the connection is not obtained within 45 seconds. This spillover is considered an outgoing line position whose transmitter is connected to an incoming line position. Thus, messages introduced into the spillover position will again be processed through the system automatically.



## **MISCELLANEOUS**

### ***Switching Messages Containing Bell Signals***

Incoming messages containing bell signals will cause the yellow Bell Signal lamp to glow, the Attendant lamp to light and the office alarm to sound. This places the position on a priority basis over other positions which may be waiting for cross-office connections except those positions which also have High Precedence messages to the same destination. This priority also applies to any unswitched messages preceding the message containing bell signals.

Messages containing bell signals follow the same switching sequence as any other message except that cross-office transmission is started as soon as the connections are established even though an EOM indicator has not been received.

Upon completion of transmission, operation of the Prior Rls switch will restore the position to normal in establishing cross-office connections.

### ***Multi-Station Operation***

Multi-station circuits may serve two or three stations. Each station is equipped with a selector so that each message transmitted by the relay station is recorded only at the station to which the message is directed.

As previously mentioned, these circuits are arranged for duplex operation and the sending and receiving consoles are equipped with individual numbering machines for the stations connected. Each station is assigned a code letter which is inserted in the tape by the automatic numbering machine in the sending console. While this code letter selects the proper station, it is not recorded by the office selected.

The way station is disconnected by means of a disconnect signal which immediately follows the standard EOM and is controlled by a 5 position switch located in the sending console.

Switching center equipment invites each station to send and thus controls tributary

station transmission. The equipment differentiates between Priority and Routine message requests and accepts them in sequential order. Routine messages are accepted when no Priority message requests are indicated.

Receiving position terminations are equipped with SNI's which are selected by the code letter of the calling station. The code letter is not forwarded in subsequent transmission.

### ***Circuit Equipped with Two Outgoing Line Positions***

In some cases two outgoing line positions are associated with the same circuit. This arrangement enables the station to handle High Precedence messages on one position and Low Precedence on the other position.

A High Precedence message will seize the circuit at the end of any message which may be in the process of transmission. Each position has its own numbering machine and code letter. The latter is transmitted over the circuit to the next automatic center to select the proper SNI.

### ***Automatic***

#### ***"Connect Through" Facilities***

Facilities are available which will permit authorized stations to establish through connections or, more commonly, a "talk" circuit. The connection will be established when an authorized station requests that a through connection be established with another station. The request, while following the standard message format, contains certain characters in lieu of the repeated prosign. The director recognizes the character and treats the message as High Precedence. The Conn Thru lamp glows at the receiving position, the Attendant lamp glows accompanied by the two stroke chime and the cross-office transmitter is stopped to prevent cross-office switching, all simultaneously.

Operation of the Conn Thru switch at this time disables the EOM reading circuit, opens the MWI "add" circuit, activating a double tape feed arrangement, disables the features of switching to an MX position and permits cross-office switching to start. The MWI must be stepped back to "one" if it is at a higher number. The Conn Thru and Attendant

lamps are extinguished when the Conn Thru switch is operated.

Each message will start with a certain predetermined character and end with an EOM indicator. A SOM will not be used on the items transmitted.

The double tape feed-out feature at the receiving position provides for the immediate transmission of each item should there be a pause by the originating station between items.

When it is desired to terminate the connection a message with a SOM is transmitted. This causes the receiving position transmitter to stop, the Conn Thru and Attendant lamps to light and the two stroke chime to sound. If it is not an actual disconnect order, the transmitter is restarted by operating the Re Start switch. If it is a disconnect order the transmitter is restarted and the Conn Thru switch is returned to Norm after the SOM has passed through the transmitter. The MWI must be set at the proper number if additional messages have been received in the meantime.

### ***Messages Containing Collective Routing Indicators***

The Traffic Control Center is equipped with a printer-perforator, page teleprinter and two distributor-transmitters for receiving messages and sending to the receiving positions. The distributor-transmitters are equipped for "flip-flop" operation so that the messages may be transmitted readily.

Messages which require collective routing are prepared by originating stations and limited to no more than nine routing indicators. The routing indicators of stations on the same multi-station circuit will not be contained in the same pilot since all but one of the messages would be handled through the spillover position similar to the Multiple-Call messages previously explained.

When such a message is received, the two ends of the text segment of the tape will be spliced and inserted in the TEXT distributor-transmitter. The pre-cut tape containing the pilots will be placed in the PILOT distributor-transmitter. At this point a switch is thrown to condition the transmitter to work on a "flip-flop" basis. The transfer from one transmitter to the other and back again is accomplished by certain char-

acters which normally appear in the tape. More specifically, the "space" function between routing indicators transfers the line to the TEXT transmitter whereupon this transmitter starts and continues transmission until the EOM is reached. When this

occurs, the transmitter stops and the PILOT transmitter transmits the next routing indicator. Sequence numbers are inserted automatically before each message. This cycle continues until there is no tape remaining in the PILOT transmitter.



SWITCHING EQUIPMENT	UNIT NUMBER	UNIT AREA FT <sup>2</sup>	WEIGHT PER UNIT LBS	LBS/ FT <sup>2</sup> **	POWER 120V 85% RE	TOTAL POWER	BTU/HR PER UNIT
RECEIVING CABINET	7502-A	22.2	2200	100	10-AMP	4, 10-A	4096
RECEIVING CONTROL CABINET	7504-A						
SENDING CABINET	7506-A	8.70	1200	138	6-AMP	276-A	2458
DIRECTOR CABINET	7514-A	22.20	2200	100	5-AMP	10-AMP	2048
DIRECTOR CONTROL CABINET	7516-A						
TRAFFIC CONTROL CABINET	8684-A	13.50	800	}	3-AMP	3-AMP	1229
TFC. CONTROL SUPVR. CABINET	8686-A	5.50	300				
PORT. LCL. TER. TABLE (T-CART)	7522-B	5.00	300		5-AMP	15-AMP	2049
END PANEL (RIGHT)	7509-A	*	*				
END PANEL (LEFT)	7510-A	*	*				
END PANEL (CENTER DOOR SECTION)	7511-A	*	*				
END PANEL	7512-A	*	*				

\* End Panel Combination Receiving Side Total Weight 600 Lbs. Occupied Area is equal to 7 Ft Dist Weight is equal to 86 Lbs/Ft

\* End Panel Sending Side equals 300 Lbs. Occupied Area is equal to 2.75 Ft Dist Weight is equal to 109 Lbs/Ft.

\*\* Dist Weight Per Unit Area May Be Reduced By Including Front Operating Area.