NO. 4A/4M CROSSBAR
ASSIGNMENT PRACTICES
INCOMING TRUNK SERVICE OBSERVING

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1. GENERAL

1.01 Service Observing Equipment is provided in No. 4A/4M switching systems to permit service observations on circuits assigned to 1-way incoming and 2-way Intertoll-Type Relays. Incoming service observations are used to measure the quality of service on calls switching through a given machine and completing within its home numbering plan area (HNPA). Incoming service observations are also used to guage service levels between switching systems, between terminating end offices, HNPA networks, areas, companies, and as a measure of total System toll performance. This practice describes the service observing equipment provided in No. 4A/4M switching systems and sets forth assignment practices for trunk selection for incoming service observations.

2. SERVICE OBSERVING EQUIPMENT

2.01 One or more multi-line automatic call distributing circuits are provided at each No. 4 switching system. Many No. 4 installations have two service observing circuits with 100 loop connectors. Each service observing circuit is relay rack mounted with maximum of 50 loop connector sockets. The specific quantities provided can be found in the traffic order and in W.E.Co. wiring lists for the No. 4 office.

2.02 The quantity and type of 1-way incoming and 2-way intertoll relays cabled for service observing are specified in the traffic order. This information will usually be listed along with the Sender Link Frame (SLF) information.

2.03 The relays designated for service observing will be cabled to eight-contact Jones-type sockets. These will appear in the same bay or the adjacent bay to the service observing circuits. See Figure 1 for a typical equipment layout.

2.04 Connection of a given relay to the service observing circuit is made by the insertion of a patch cord into the socket of a particular relay and connecting the other end to a loop socket of the appropriate service observing circuit. Assignments of trunks to be observed are made by the service observing group.

2.05 The No. 4 service observing circuit can be connected to a No. 12 or to a No. 7M service observing desk. The observer activates the circuit by key operation at the observing desk. Once activated, an incoming seizure of any one of the trunks patched to the 50 loops associated with this circuit will be connected through to the service observing desk. A lamp display at the service observing desk will indicate which loop is being observed. With this display the observer can determine from the assignment records the trunk group name and trunk number being observed.

3. ASSIGNMENT PRACTICES

3.01 *Trunk Selection*

3.01.1 Trunks must be assigned in a manner which will guarantee that the service observer will be able to meet the requirement for incoming trunk service observations as specified in the Traffic Service Observing Practice. These requirements call for 6,000 observations a month on class 1, 2, and 3 offices and 2,000 observations a month on class 4 offices, distributed over the time of day in proportion to traffic distribution. To meet these requirements the trunks assigned must be those which carry a heavy amount of incoming traffic on side-hours as well as during the busy hours.

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3.01.2 The quantity of trunks per group to be assigned for service observing should be in "approximate proportion" to the size of the group. That is, if a group of 80 trunks has 6 trunks assigned to observing relays, a group having 240 trunks should have somewhere near 18. This is done so that the service observer can select trunks and obtain observations that will be in approximate proportion to the traffic offered by each group. However, it is not intended that the number of trunks assigned to service observing relays must be in a precise, constant ratio with the number of trunks in each group as this would be difficult to administer and require constant plant rearrangements.

3.01.3 An adequate service observing base can best be provided if service observing equipment relays are assigned to trunks within the first 15% of the group, *as selected at the distant end.* This 15% rule applies to both 1-way incoming, and 2-way trunks. This is done to assure that all trunks are carrying about equal traffic and therefore observations will be well spread over all observed trunks.

3.01.4 The only exception to the "approximate proportion" rule is any large, final trunk group which is carrying little first-routed traffic, hence relatively light traffic in the side-hours. Fewer trunks in these groups should be assigned to service observing equipped relays. This will result in fewer observations on groups which are actually carrying fewer messages per trunk on a total-day basis.

3.01.5 If possible, at least one trunk in each trunk group qualifying for service observing (3.01.6) should be assigned to an observing relay. This is desirable to achieve a mix of traffic arriving from different parts of the network.

3.01.6 The following rules should be followed to insure that the calls observed will be those that will complete within a switching system's serving (down-chain) area.

(a) Assign service observing equipped relays to incoming trunks from switching systems of equal or higher class (Class 1, 2, 3, etc.) located within your system's home numbering plan area (HNPA).

(b) Assign service observing equipped relays to incoming trunks from any class system outside of your serving (dependent) area. DO NOT MAKE ASSIGNMENTS TO TRUNKS FROM YOUR SUBTENDING NETWORK.

For most conditions, these rules will assure that all observations will be on calls terminating, down-chain, to the machine's serving area.

3.01.7 Trunks assigned to serving observing relays must be those which are among the first choice (first 15%) at the distant end. The recommended procedure for sequence of trunk selection depends upon the two offices' Common Language Location Identification (CLLI) codes. The office with the alphabetically lower CLLI code will start its trunk selection with the low-numbered trunk and select in an ascending order, (1, 2, 3, etc.). The office with alphabetically higher CLLI code will start its selection with the highest number trunk and select in descending order (9, 8, 7, etc.). Examples of trunk selection and relays to be selected for service observing at each office are shown in Figure 2.

3.01.8 Offices which are making their service observing assignments to the high-numbered trunks will have to be alert to trunk changes to be sure that (1) as circuits are added, the observed trunks remain in the first 15% of the group, and (2) as circuits are discontinued, sufficient trunks in the group remain assigned to service observing relays.

3.01.9 Preferably, only trunks in the one-way portion of one-way/two-way trunk groups should be assigned to observing relays. However, if the one-way portion is small it may be necessary to assign some two-way trunks to have an adequate number of trunks assigned for the size of the combined groups.

3.01.10 Individual final and common final trunk groups should be considered as separate groups and the preceding rules should be applied to each group.

3.02 *Assignment Forms*

3.02.1 Form E-6466, Figure 3, has been designed for listing the trunks assigned to relays equipped for Service Observing. All trunks within a group should be listed together, as shown. This will enable the Service Observer to make trunk selections in proportion to the number of trunks assigned to observed relays and to the size of the trunk group (3.01.2). Trunk assignments should be entered in pencil to facilitate record changes. It is desirable, for ease in updating, that trunk groups be listed in alphabetical order. Additional instructions for completing this form are shown on Figure 3.

3.02.2 Copies of these forms should be sent to the Service Observing group for their use in selecting trunks to be patched to the 50 connectors associated with each service observing circuit. Forms should be up-dated and sent to service observing on a monthly basis, or as arranged locally, and whenever a large number of changes have been made to observable relays.

3.02.3 Form E-6466 is stocked by the Western Electric Co. distributing houses. Forms in packages of 25 can be obtained by requisition.

3.02.4 Figure 4 shows the form on which the service observing people assign the 50 relays they wish patched-up for observing. This form is sent to the switching system maintenance group for connection or rearrangement of the patch cords. The moving of patch cords is usually done after 10 P.M. on the last day of each quarter. This will vary locally due to office coverage and the ability to obtain an adequate observing base.

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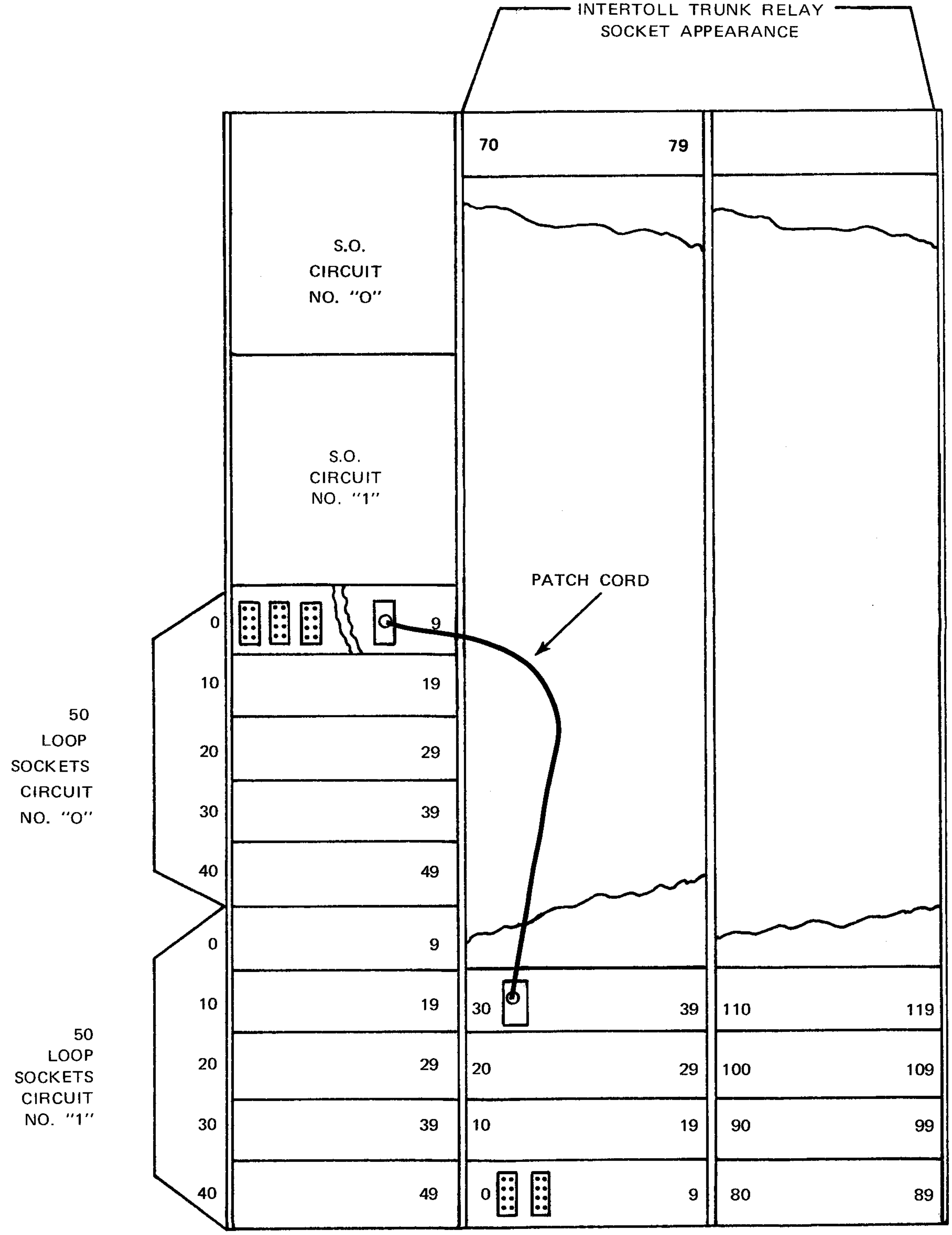

SERVICE OBSERVING EQUIPMENT ARRANGEMENT

SELECTION OF TRUNKS FOR SERVICE OBSERVING

TWO-WAY TRUNKS

Numeric sequential selection of two-way trunks within a trunk group depends on the alphabetic order of the terminal cities' CLLI codes. See Div. H, Sec. 13c(5).

Example:

Trunk Group	Order of Selection at "A" Office	Order of Selection at "Z" Office
ALBQ NM ↔ ANHM CA		
"A" Office = ALBQ	1,2,3....39,40	
"Z" Office = ANHM		40,39,....3,2,1

Assignment of trunks to Service Observing relays at these offices would be:

Office	Select From Trk No.'s*
ALBQ	40 – 35
ANHM	1 – 6

Note: Where the distant terminal does not select in numeric sequence, trunks assigned for service observing should be those which are last choice outgoing at the No. 4 office.

ONE-WAY TRUNKS

Trunk selection sequence of One-Way trunks depends upon assignment procedure at originating terminal.

Example:

Trunk Group	Order of Selection at "A" Office	Order of Selection at "Z" Office
JCVL FL TAMP FL		
"A" Office = JCVL	2,3,4....20,1	
"Z" Office = TAMP		None

Assignment of trunks to Service Observing relays at these offices would be:

Office	Select From Trk No.'s*
JCVL	None
TAMP	2,3,4

* Represent first 15% Trunk Selection at Distant Offices

ITEM	INFORMATION
Heading Switching	Enter switching system name or CLLI. Be specific if there are multiple entities in the same building.
Assignment Trunk Group	Enter the CLLI (All or sufficient for identification) of the trunk group.
TRK No.	Enter the number of the trunk assigned to the observing relay. List together all trunks in each trunk group.
WT	(a) Enter a check (√) if trunk is within first choice 15% as selected at distant end. There usually will be a check for each entry unless a shortage of relays necessitates assigning to a lower choice trunk. or (b) If locally preferred, enter the weighting (H,M,L) of the trunk assigned. Entries usually will be "H"
Patch Bay Patch Jack	Enter bay number, if necessary, and S.O. Jack to which the relay assigned to this circuit is cabled.

Example

	TRK		Patch	
Trunk Group	No.	WT	Bay	Jack
Atla GA	1	√		28
	3	√		109
	6	√		72
Balt MD	2	√		98
	3	√		16

FORM E-6466
(AUG. 1974)

INCOMING TRUNK SERVICE OBSERVING
PATCHING BAY ASSIGNMENTS

Switching System ______________________ Date ____________

TRUNK GROUP	TRK. NO.	WT	PATCH		TRUNK GROUP	TRK. NO.	WT	PATCH	
			BAY	JACK				BAY	JACK

PAGE _____ OF _____

SAMPLE FORM (3-74)

DDD INCOMING TRUNK LOOP ASSIGNMENT

SHEET NO. ____________

SWITCHING SYSTEM ______________________________ CITY ______________________

PREPARED BY ______________________________ DATE ______________________

TO BE COMPLETED BY ____________________ A.M. P.M. ON ____________ 19______

PLANT WORK: CONNECTED BY ____________________ ____________ ____________

NAME DATE TIME

LOOP NUMBER	INCOMING TRUNK GROUP	INCOMING TRUNK NUMBER	LOCATION ON PATCHING BAY		
00					
01					
02					
03					
04					
05					
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SERVICE OBSERVING TRUNK SELECTION FORM