SWITCHING SYSTEMS MANAGEMENT
NO. 1 CROSSBAR
INEFFECTIVE ATTEMPT ANALYSIS

CONTENTS PAGE

Figures

1. GENERAL

1.01 This practice presents recommended procedures for the identification and analyzation of ineffective attempts (IAs) in No. 1 Crossbar Offices. These procedures provide methods to highlight IAs and outline analysis techniques to facilitate their prompt corrections. The thresholds for applying these procedures are components of the Network Switching Performance Measurement Plan (NSPMP) for No. 1 Crossbar Offices, as described in DFMP, Division H, Section 4b.

1.02 Whenever this section is reissued, this paragraph will contain the reason for reissue.

2. ANALYSIS PROCEDURES

2.01 These analysis procedures should be used whenever any of the following conditions occur in a No. 1 Crossbar Office:

- The NSPMP monthly originating overflow components performance is 2 or greater for two consecutive months.
- Any two of the other NSPMP components have an index of less than 96 for two consecutive months.
- In the absence of those indications, these procedures should be used on a routine basis, at least quarterly, to further minimize the possibility of potential problems going undetected.

2.02 Customer-originated calls that have not been completed due to overload conditions or switching machine troubles are IAs. Excessive IAs often produce dissatisfied customers and, in

addition, cause some portion of the calls to be regenerated, which will aggravate overload conditions.

2.03 Analysis of switching machine data allows the network administrator to place the IAs into the overload or trouble category, identify the source of the problem, and take steps to eliminate the condition.

2.04 The responsibility for IA data collection, recording, and preliminary analysis lies with Network Administration. It should be recognized, however, that part of the data collection process may require that Network Maintenance furnish register readings to Network Administration. Final analysis, leading to corrective programs, and implementation of the programs, is the joint responsibility of Network Administration and Network Maintenance. IA analysis may be a vital input to the customer trouble report committee (structure and activities outlined in GL 75-08-233) and provide a new perspective for their prioritizing service improvement programs. A closely coordinated effort between Network Maintenance and Network Administration is required to maintain IAs at acceptable levels. Network Maintenance, however, bears the primary responsibility for correcting machine troubles while Network Administration is responsible for the reduction of overflow/overload problems. These procedures are intended to supplement the effort to improve service represented by the NSPMP for No. 1 Crossbar. The major difference is that in IA anslysis the worst condition is analyzed, highlighting the major causes of failures, and consequently leading to earlier correction of incipient problems.

2.05 IAs are an indication of poor service and wasted switching capacity. The regenerated attempts caused by IA use network capacity and, in heavy load periods, can adversely affect service.

2.06 These procedures outline methods of using the switching data to facilitate identification of defective equipment or the cause of overload/overflow conditions. Normal maintenance procedures can then be used to pinpoint equipment troubles.

2.07 The network administrator can use the overflow data (trunk or equipment) to review the distribution of the traffic loads over the switching machine or the adequacy of equipment provision. For example, a No Circuit (NC) condition on a final trunk group normally indicates a requirement for more trunks, but other factors should also be investigated, such as the number of trunks out of service; are the overflows a one-time condition; the status of high usage groups in the cluster, etc. The IA analysis should be done on incoming and originating data at least once a week using the busiest hour of the busiest day as defined below.

ANALYSIS PERIODS

2.08 The Originating Ineffective Attempts (OIA) busy hour is the period during which the highest OIA are normally recorded each week. This hour may be determined by reviewing the office busy period load (3 to 5 hours) on the busiest day of the week (total originating peg count). The hour that normally has the highest OIA will be used in this procedure. One important caution is that the office busy hour is not always the same as the trunk usage busy hour. In the event that an NC condition is the major cause of OIA, the OIA busy hour may vary from the office busy hour.

2.09 The Incoming Ineffective Attempts (IIA) busy hour is the period during which the highest IIA is normally recorded each week. This hour may be determined by reviewing the hours with the highest incoming peg count on the busiest day of the week. The hour that normally has the highest IIA will be used in this procedure.

2.10 All data must be collected on schedule for the predetermined busy hour to obtain optimum effectiveness from the analysis. The data must be obtained on a near real-time basis. Turnaround time on all methods of collection is important. When IA data is collected on film it is necessary to synchronize all cameras involved. For offices with multiple program timers this may call for re-scheduling of camera operation to obtain usuable data. For example, the trunks and common control equipment must be measured in the same time period for validation to be possible. When data is collected on a completely manual basis it must be done systematically. All registers needed for IA measurements must be read in the same sequence each time or the data will be skewed. This, in turn, may result in poor validation.

2.11 These IA procedures should also be used to analyze data collected during severe overload conditions caused by snow, rain, civil disorder, etc.

Under these conditions equipment may be used that is normally dormant.

3. DESCRIPTION OF MEASUREMENTS

3.01 The following is a description of measurements.

- ***Total Originating Marker Peg Count:*** This register counts the number of marker operations on which an idle outgoing trunk or overflow terminal is obtained, whether or not an idle channel from district junctor to trunk is available. Included in this count are scorings resulting from sender testing, calls handled manually, and marker retrials which are not included in the district junctor peg count registrations. One register is assigned per originating marker.

- ***Number of Reorder Registrations:*** Reorders (RO) are the result of all second-trial failures and auxiliary stuck senders. Second-trial failures occur from sender troubles, failure to find an idle channel and trunk troubles occurring on second trials. (Assume office overflow and RO are split.)

  When the originating marker (SD 25016) is equipped with "IF" option, reorder and office overflow will score the same register (Fig. 1). Fig. 2 provides the information on a method to split the RO and office overflow (total NC) registrations.

  When the originating marker (SD 25016) is equipped with "IG" option, (Fig. 3), RO may be obtained by connecting a register to the route advance punching of the route relay or by connecting a lead to the 9-top contact of the OF1 relay (Fig. 4). Consideration can be given to utilizing a miscellaneous cross connection point that has common appearances in all markers if a single register for all markers is desired. A register connected to the PC punching of the route relay will provide the office overflow (total NC) registrations (Fig. 4). The minimum requirement is one RO register per marker group.

- ***Number of Stuck Sender Registrations:*** This register scores when a sender in the group fails to release within its allotted operating time. One register is assigned per sender group.

- ***Number of No Circuit Registrations (Office Overflow):*** This register scores each time the originating marker fails to find an idle trunk on the last route (all trunks busy). This is the office overflow register mentioned above.

- ***Number of Multiple Trial Registrations:*** This is a specially-designed register which records each time an originating marker handles a second-or third-trial call. Second trials are a result of sender troubles, marker troubles, matching loss and trunking troubles. The marker, upon recognizing a second-trial call from the sender, begins testing for an idle trunk in ground supply 3, bypassing ground supplies 1 and 2. The marker, upon recognizing a third-trial call from the sender, will route the call to ground supply 5 (RO). One register is assigned per marker group.

  Installation of this register can be accomplished by the addition of one wire per originating marker (Fig. 5).

  Office Overflow (NC), reorder and multiple trial registers are not currently provided for the No. 1 Crossbar. Action has been initiated to include them in the standard SDs. The data represented, however, is extremely important to the analysis of IAs. Where possible, local arrangements to implement these should be considered.

- ***Number of Stuck Auxiliary Sender Registrations:*** This register counts the number of auxiliary sender timeouts due to causes other than partially dialed calls. This results from an auxiliary sender not completing its function in 6-12 seconds. One register is assigned per group of auxiliary senders.

- ***Permanent Signal Peg Count (PSPC):*** This is the actual number of permanent signal requests that the originating marker was able to place on an idle permanent signal tone trunk. Permanent signals are caused by subscriber "off hook" conditions or cable troubles which cause a short circuit on the line. One register is assigned per marker group.

- ***Permanent Signal Overflow (PS OVFL):*** This is the actual number of permanent signal requests that the originating marker is unable to place on an idle permanent signal trunk.

- ***Plant Access Test Code Registrations:*** These registers may be assigned individually to each test code or there may be a total register assigned for all test codes. In either case, the scorings attributed to non-subscriber initiated calls will be recorded (eg, installer ring back, automatic number announcement). This number should be subtracted from the total originating peg count. These pegs do not have any bearing on subscriber attempts.

- ***Choke Network Registrations:*** This number should be subtracted from the total originating peg count. This is not a true measurement of service.

  Where choke networks are not provided and office performance is adversely affected by mass calling situations IA measurements will show the true impact on the subscriber.

- ***Plant Access Test Code Overflow Registrations:*** These registers may be assigned individually to each test code or there may be a total register assigned for all test codes. In either case the scorings attributed to non-subscriber initiated calls resulting in overflow will be recorded. This number should be subtracted from total office overflow. These overflows have no bearing on NCs to the subscriber.

- ***Choke Network Overflow Registrations:*** This number should be subtracted from the total office overflow. This is not a true measurement of IAs to the subscriber.

  Where choke networks are not provided and office performance is adversely affected by mass calling situations IA measurements will show the true impact on the subscriber.

- ***Toll Overflow Registrations:*** This register will record the number of times the marker fails to find an idle CAMA, TSP or toll completing trunk. This number is derived from the sum of the overflows on the CAMA, TSP and toll completing trunk group and is an indicator of the grade of service on toll completing calls.

- ***Final Tandem Peg Count Registrations:*** This register records the number of calls directed to the final tandem route. When there is more than one final tandem route the peg count would equal the sum of all final tandem routes. One register is assigned for each final tandem trunk group.

- ***Final Tandem Overflow Registrations:*** This is an indicator of the type of service given to the subscriber on the final tandem route. This final tandem overflow plus the toll overflow gives two major portions of the total NCs. The remaining portion of the total NCs should equate to the overflow on the non-alternate route trunk groups.

- ***Incoming Link Frame Peg Count Registrations:*** This register provides a count of incoming traffic and is operated when the incoming trunk circuit returns a ringing, busy or overflow signal. Verification calls are also counted. One register is assigned per incoming link frame.

- ***Incoming Matching Loss Peg Count Registrations:*** This register operates when a terminating marker fails to find an idle path from an incoming trunk to an idle line. A failure to complete may be caused by busy line links to the desired horizontal group, busy line junctors to these frames, or busy incoming links associated with the line junctors to these frames. Registrations show the extent to which incoming calls are unable to reach an idle line because of matching failures, and thus are used to determine the effect of matching loss on incoming service. One register is assigned per incoming link frame.

- ***Terminating Marker Trouble Registrations:*** This register scores each time the marker fails to complete a call in a predetermined time or detects a trouble on its check leads. All terminating marker trouble registrations do not result in an IA; however, it is a good indicator of the service rendered. In addition, many terminating failures are not included in the registrations because of insufficient data provision. "Busy

signals" and "no answers" are considered as completed attempts.

- ***Number Group Peg Count Registrations:*** This register counts the number of calls served by the number group. Calls to busy lines and overflows are not counted. One register is assigned per number group.

- ***Line Busy:*** This register scores each time the terminating marker encounters a busy line.

- ***Incoming First Failure to Match (IFFM):*** This register scores when the terminating marker fails to find an idle path from an incoming trunk to an idle line for both single line and terminal hunting line subscribers on the first attempt.

4. VALIDITY CHECKS

4.01 Description of Validity Checks

- The originating marker peg count should approximate the total of district junctor peg count plus office link frame overflows. (.9 to 1.01)

- Office link frame seizures should not normally exceed originating marker peg count by more than 30 percent. Two causes of office link frame seizures exceeding this limit are office link frame imbalance and excessive alternate routing.

- The number of multiple trials should be equal to or greater than the sum of office link frame overflows and auxiliary stuck senders.

- The number of NCs should be equal to or greater than the sum of final tandem overflows and toll NCs.

- The number of ROs should be equal to or greater than the sum of originating matching loss (OML) (2FTM) and auxiliary stuck senders.

  Validity check on RO register: Block top 1 and 2 contacts of the DM relay normal (made). Operate "OF" key at OTI—GSE key in vertical position. ("OF" key forces a marker third trial and, therefore, represents a reorder condition.) Each marker should score RO register and should not score the office overflow register.

  Validity check on NC (office overflow register): Block top 1 and 2 contacts of the DM relay normal (made). All keys normal at OTI—GSE key in vertical position. Make district junctor test code trunks busy and write code up at OTI. Each marker should score the PC register on the office overflow and not score the reorder register (RO).

- Number group peg count plus incoming matching loss peg count should approximate total incoming link peg count less line busy peg count. (.97 to 1.03)

- Terminating marker total channel peg count plus incoming matching loss peg count should approximate total incoming link peg count less line busy peg count. (.97 to 1.03)

- The incoming link frame peg count should be greater than the number group peg count by up to 20 percent.

5. ANALYSIS CALCULATIONS

5.01 Description of Analysis Calculations

- ***Subscriber Attempts:*** Subscriber attempts are derived by subtracting the sum of multiple trial peg count, PS peg count less overflows, plant access peg count and choke peg count from total marker peg count.

  The total originating marker peg count will not score unless the marker has been able to place the request on a PS tone trunk. For this reason PSOVFL must be subtracted from PSPC to obtain carried permanent signals.

  SUB ATT = MKR PC-[MULTI.TRL.PC+

  (PSPC-PSOVFL)+PLT ACC PC + Choke PC]

- ***Percent Originating Ineffective Attempts:*** This percent is derived by

dividing the number of OIA by the number of subscriber attempts.

$$\% \text{ OIA} = \frac{\text{total number OIA}}{\text{subscriber attempts}} \times 100$$

- ***Number of Originating Ineffective Attempts:*** This number is equal to the sum of stuck senders, ROs and NC less plant access overflow and choke overflow.

  Number of OIA = stuck senders + RO +

  [NC - (PLT ACC OVF + Choke OVF)]

- ***Percent Switch:*** This is the percentage of OIA which is ***assumed*** to have occurred within the originating switch. It is obtained by dividing the total RO by the subscriber attempts.

$$\% \text{ SW} = \frac{\text{RO}}{\text{subscriber attempts}} \times 100$$

It is true that some ROs result from troubles at the distant ends, but this will still be a ***close enough approximation*** to indicate whether or not the originating switch is a major source of OIA.

Percent NCs taken from the office overflow peg count (assume office overflow and RO are split)—the percentage of calls failing to find an idle trunk in the final route.

$$\% \text{ NC} = \frac{\text{NC} - (\text{PLT ACC OVF} + \text{Choke OVF})}{\text{subscriber attempts}} \times 100$$

This is an ***accurate measurement*** when the split between office overflow and RO is accomplished as shown in figures 1 through 4.

- ***Percent External:*** The percentage of OIA ***assumed*** to have occurred because of blockage or trouble in the distant tandem, terminating office or in the trunking network.

$$\% \text{ EXT.} = \frac{\text{stuck senders}}{\text{subscriber attempts}} \times 100$$

- ***Percent Final Tandem Overflow:*** The percentage of overflows occurring on the final tandem routes. This is derived by dividing the number of final tandem overflows by the final tandem peg count.

$$\% \text{ final TDM OVFL} = \frac{\text{final TDM OVFL}}{\text{final TDM PC}} \times 100$$

- ***Percent Final Tandem Traffic:*** This is a percentage indicating the total subscriber attempts routing over the final tandem routes. This number in itself is not meaningful, but it is extremely useful to develop trends in each entity or for comparison between entities. This is an indicator to measure the traffic offered to the final tandem route. Marker second trials can

affect this measurement considerably. As explained in multiple trial measurements, second trials will skip ground supply 1 and ground supply 2 and offer traffic to ground supply 3.

If percent final tandem traffic rises, it should be compared with multiple trial registrations. A first failure, on a direct route with alternate route features, will not attempt to place the call on a second trial basis in the original route (if in ground supplies 1 or 2). The second attempt will place it in ground supply 3 and direct it toward the final tandem. The data may indicate that many calls are being placed in the final tandem route due to trouble conditions. This could cause unnecessary and costly additions of trunks to the final tandem route.

$$\% \text{ final TDM TFFC} = \frac{\text{final TDM PC}}{\text{subscriber attempts}} \times 100$$

- ***Percent Incoming Ineffective Attempts:*** This percent is derived as follows:

$$\% \text{ IIA} = \frac{\text{IML PC} + \text{TERM MKR TBL REG PC}}{\text{total INC link PC}} \times 100$$

It is recognized that all terminating marker trouble registrations do not result in an IIA; however, it is a good indicator of the service rendered. In addition, many incoming failures are not included in the registrations because of insufficient data provision. "Busy signals" and "no answers" ***are considered*** as completed attempts.

- ***Percent Incoming Matching Loss:*** This percent is derived as follows:

$$\% \text{ IML} = \frac{\text{incoming matching loss PC}}{\text{total INC link PC}} \times 100$$

- ***Percent Incoming Matching Loss Minus Line Busy:*** This percentage is derived by dividing IML by incoming minus busy peg count (Note 1).

$$\% \text{ IML} - \text{LB} = \frac{\text{incoming matching loss PC}}{\text{total INC link PC} - \text{BY}} \times 100$$

- ***Percent IFFM:*** This percentage is derived by dividing IFFM by incoming minus busy peg count (Note 1).

$$\% \text{ IFFM} = \frac{\text{IFFM}}{\text{total INC link PC} - \text{BY}} \times 100$$

Note 1: In offices not equipped with line busy peg count there are two alternate methods of approximating total incoming peg count minus line busy. Use ***either*** terminating marker total channel peg count plus IML ***or*** number group peg count plus IML.

If the RO and office overflow (NC) are not split as recommended the alternative is to calculate the values as follows. RO is derived by subtracting the summation of all final group overflows (FTGOVF) from office overflow (OFCOVF).

$RO = OFCOVF - (FTGOVF_1 + FTGOVF_2 + \text{------} FTGOVF_N)$

6. ANALYSIS FORMATS

6.01 Recommended analysis formats are shown on Fig. 6 and Fig. 7. For local reproduction purposes a full page form is provided on an unnumbered page at the end of this section for recording incoming ineffective attempts and originating ineffective attempts.

6.02 The following explains recommended analysis format procedures.

- ***Reorders (RO):*** Reorders are the result of sender troubles, matching loss and trunking troubles occurring on a second trial. Auxiliary stuck senders and the failure to connect to an auxiliary sender are also contributing factors. To properly analyze the RO data it may become necessary to use the RO trap (Fig. 8) circuit which identifies the originating sender, district junctor, NXX code, class of service and X0X, X1X code involved in a given RO.

- ***No Circuits (office overflow):*** Total office overflow peg count must be matched against the sum of all final trunk group overflows. This sum must include all trunk groups that score office overflow. ***If the sum of all final trunk group overflows does not match the total office overflow,*** further analysis and validation will be necessary. Validate all overflow registers for correct operation and assignment. Check ground supply assignments for routes that have no alternate routes. These assignments must always be in ground supply 3 or 4. A first trial failure will cause the marker to alternate route to ground supply 3. If these routes are in ground supply 1 or 2 with no alternate route they will route advance to ground supply 5 and score the office overflow peg count. It ***will not*** score the overflow for the original route and therefore the total office overflow peg count ***will not*** validate with the total final trunk group overflow.

  It should be apparent in the assignment of ground supply 1 or 2 on groups that have no alternate route that the subscriber is receiving only one trial to complete a call.

  Check the peg count and overflow path of office overflow for proper operation.

  Mutilated digits incoming to the universal sender, or caused by the universal sender itself, are routed to office overflow. This inflates the office overflow and cannot be accounted for in the final trunk group overflows. This will cause a validation problem that should be corrected. Assignment of a separate route relay to universal sender overflow will enable accurate analysis.

- ***Stuck Subscriber Senders:*** Present central office procedures, ie, stuck sender tracing and routine of subscriber senders on subscriber sender test frame, should be followed.

- ***Incoming Matching Loss:*** IML is an indication of the load on the channels in an office. If IML deviates substantially from the acceptable load service, relationship checks should be made for office imbalance and channels made busy. Tests insuring channel availability and proper channel selection by the markers should be considered if the above checks do not reveal the source of the problem.

- ***Terminating Marker Trouble Registrations:*** It should be determined that no terminating marker is accounting for more than an average amount of indications. If this condition exists it indicates terminating marker or block relay frame troubles. A frame procedure review should be considered.

- ***Number of Multiple Trials:*** An upward trend could indicate possible trouble in trunking field (RP Terminations) or an office frame imbalance.

- ***Office Link Frame Overflows:*** Determine if any pair of office link frames

are responsible for a high percentage of the OLF overflows. Trunk rearrangements may be needed if an imbalance exists. Each OLF overflow results in a multiple trial attempt by the originating marker.

- ***Originating Matching Loss (2FTM):*** Analyze in conjunction with OLF overflows to determine if any OLF imbalance exists. Each OML will result in RO (failure to the subscriber).

- ***Auxiliary Senders:*** Each stuck auxiliary sender or failure of a subscriber sender to connect to an auxiliary sender will result in RO (failure to subscriber). It is critical to subscriber service that only one auxiliary sender per group remain stuck during the busy hour.

- ***Choke Networks:*** The choke network, by design, is intended to block calls. As such, different analysis techniques apply; therefore, that data is excluded from this procedure.

7. ABBREVIATIONS

CAMA: centralized automatic message accounting

DM: dial tone marker

GS: ground supply

IA: ineffective attempt

IFFM: incoming first failure to match

IIA: incoming ineffective attempt

IML: incoming matching loss

NC: no circuit

NSPMP: network switching performance measurement plan

OIA: originating ineffective attempt

OLF: office link frame

OML: originating matching loss

PC: peg count

PSOVFL: permanent signal overflow

PSPC: permanent signal peg count

RO: reorder

TSP: traffic service position

1 X-BAR OVERFLOW (NC) & RO PATH

BEFORE MODIFICATION "IF" OPTION SD 25016-01

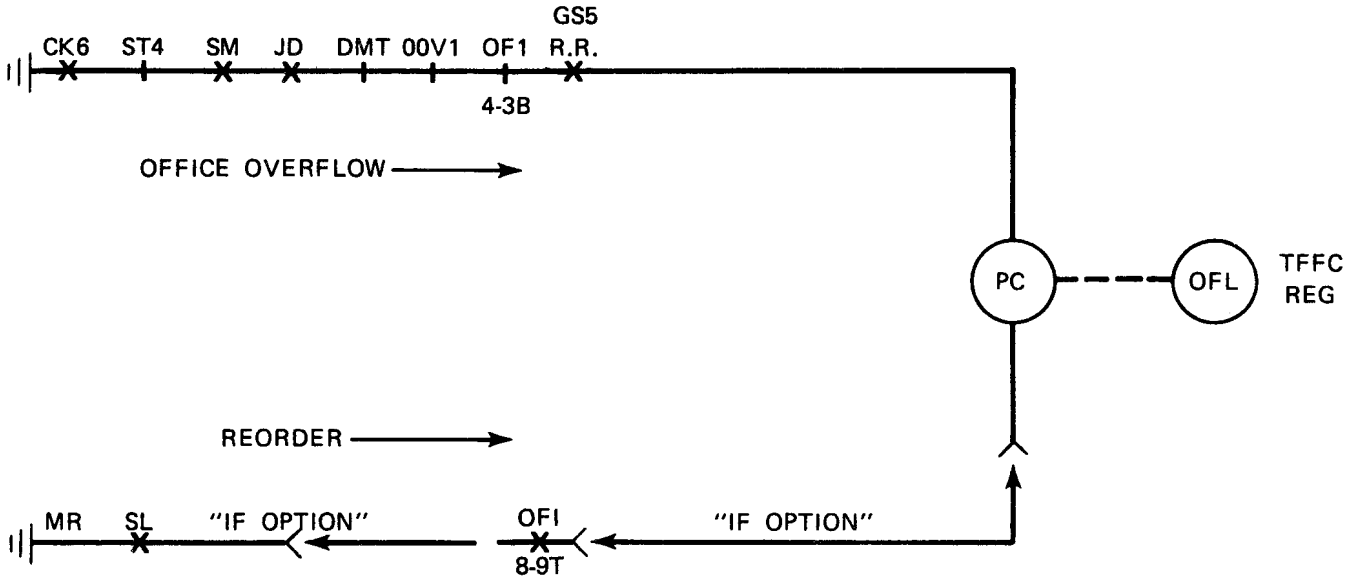
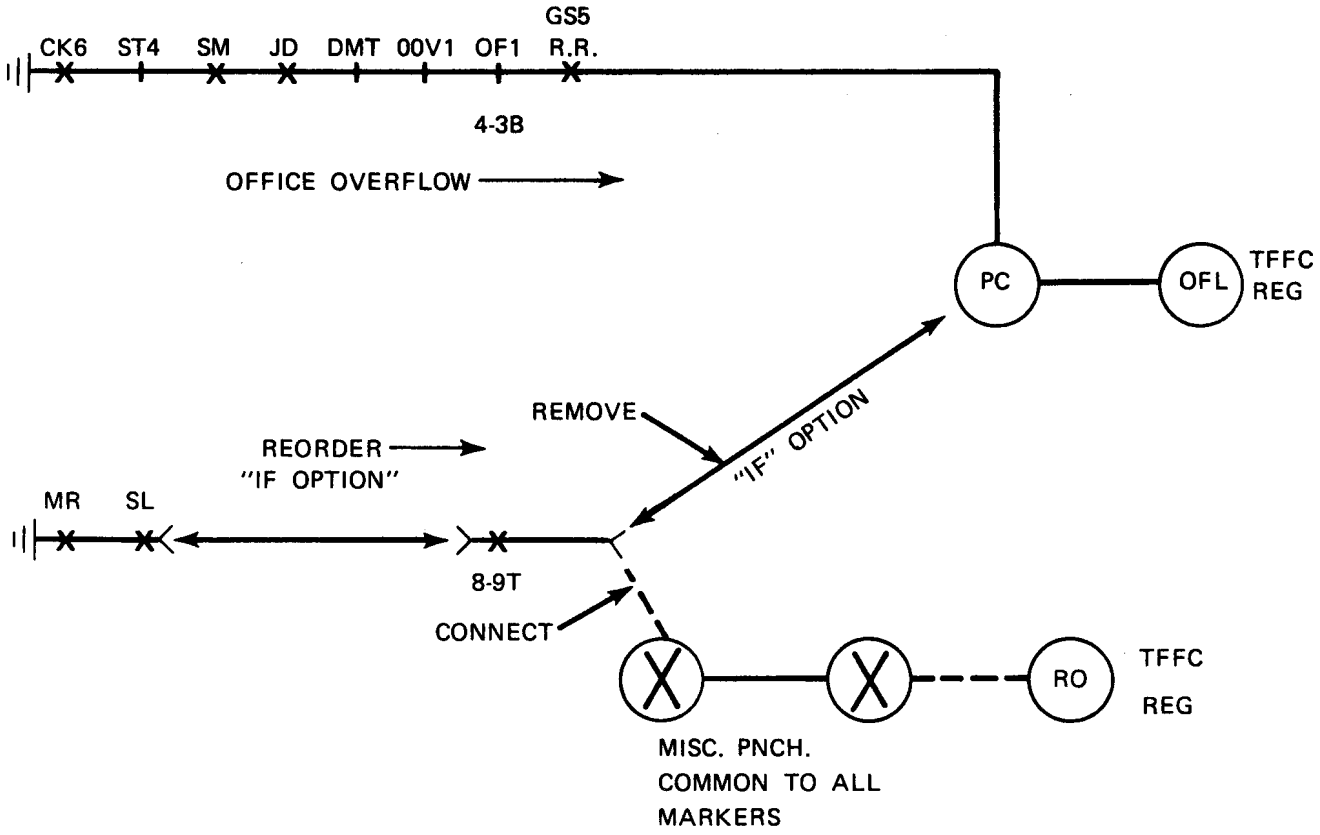


Fig. 1—Reorder and Office Overflow

1 X-BAR PROPOSED OVERFLOW (NC) & RO

REGISTER INSTALLATION "IF" OPTION SD 25016-01

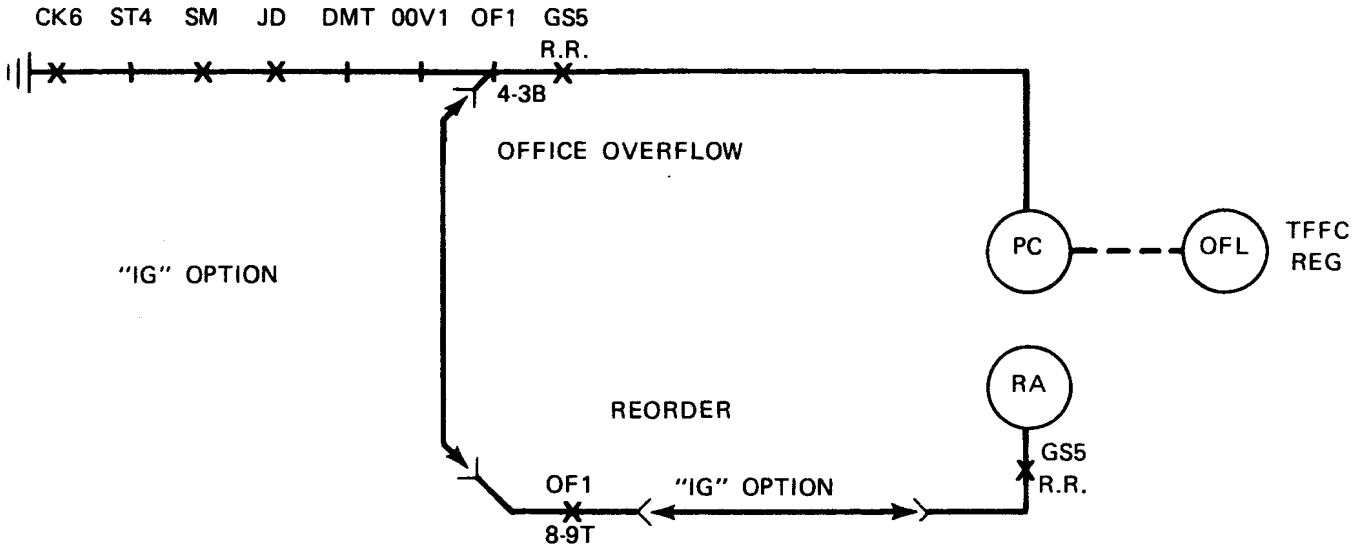


REMOVE "IF OPTION" FROM 9T-OFI RELAY
AND CONNECT BETWEEN 9T-OF1 RELAY
AND A MISC. PNCH. COMMON TO ALL MKRS.
– CONNECT TO A TFFC. REG. TO SPLIT RO
AND OFFICE OVERFLOW.

Fig. 2—Method for Splitting Reorder and Office Overflow

#1 X-BAR OVERFLOW (NC) & RO PATH

BEFORE MODIFICATION "IG" OPTION SD 25016-01

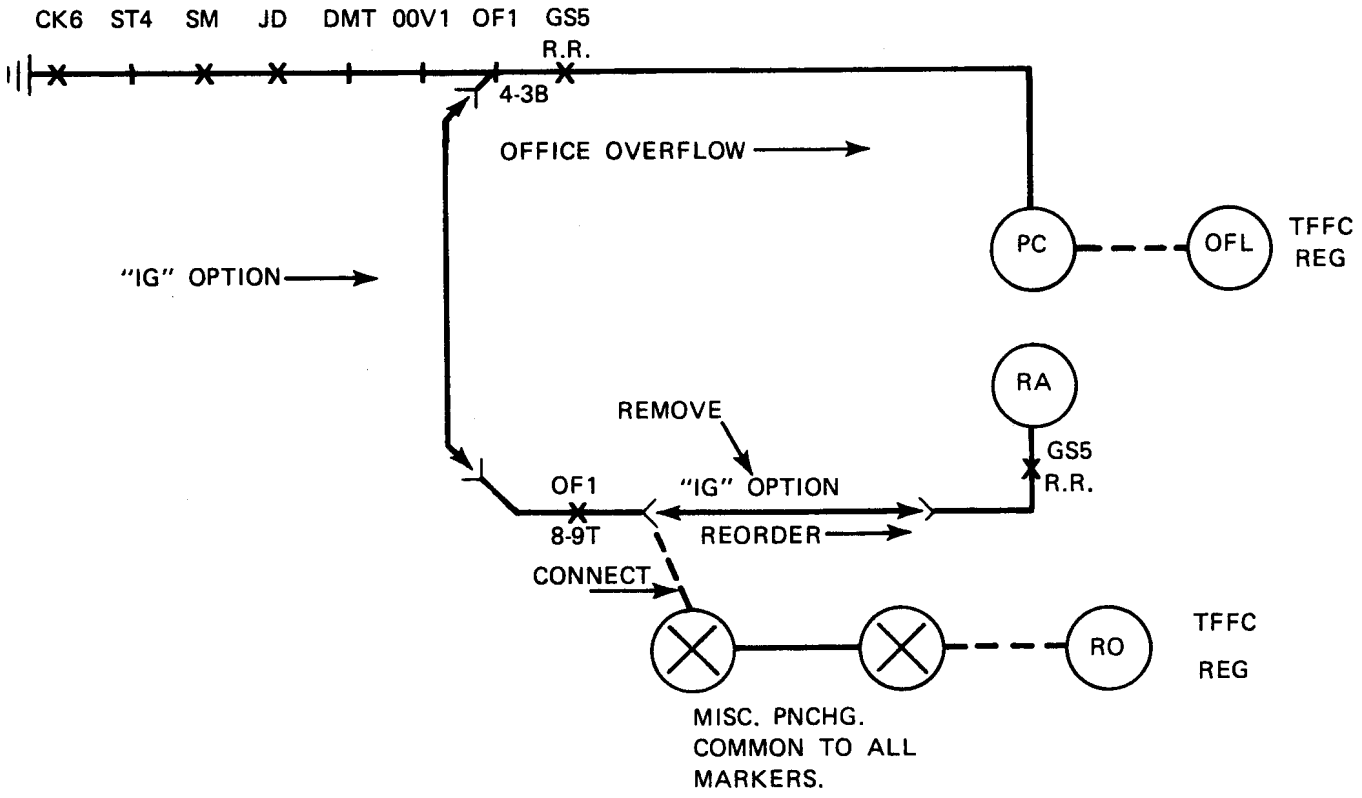


THIS INSTALLATION DOES NOT MEASURE RO UNLESS A TRAFFIC REGISTER IS CONNECTED TO THE RA PUNCHING OF THE OVERFLOW ROUTE RELAY.

Fig. 3—Originating Marker Equipped with IG Option

1 X-BAR PROPOSED OVERFLOW (NC) & RO

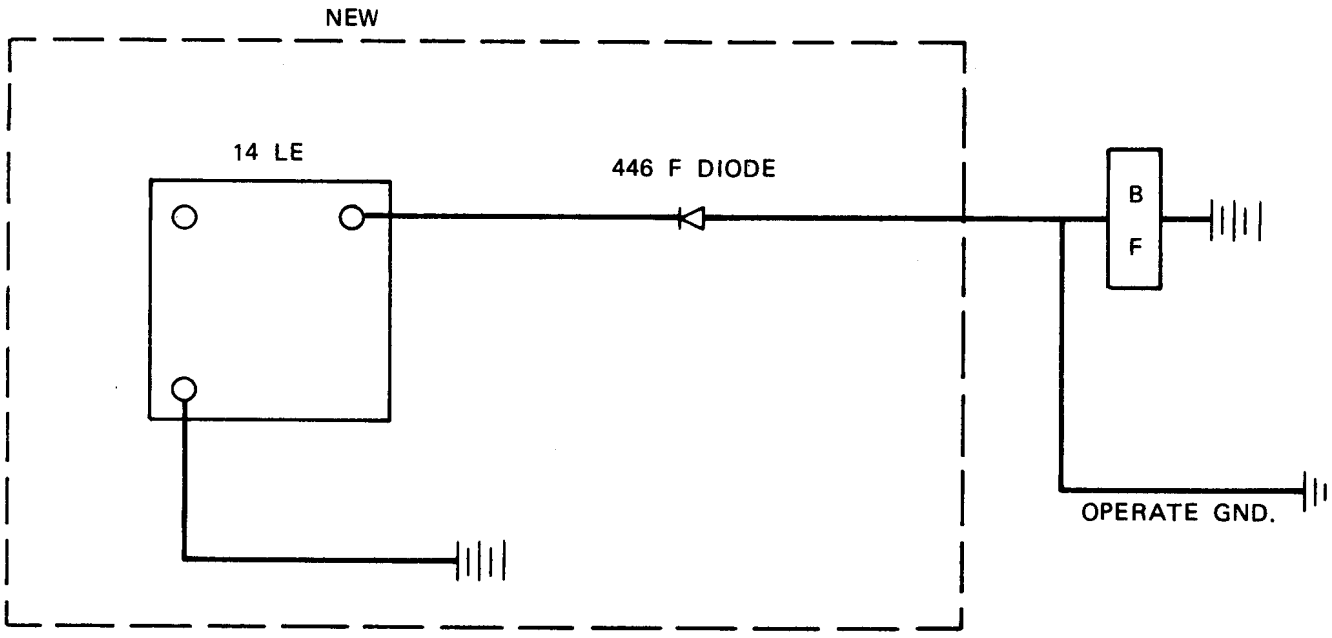
REGISTER INSTALLATION "IG" OPTION SD 25016-01



REMOVAL OF "IG" OPTION FROM 9T-OF1 RELAY AND A CONNECTION INSTALLED BETWEEN 9T-OF1 RELAY AND A MISC. PNCHG. COMMON TO ALL MARKERS-CONNECTED TO A TRAFFIC REGISTER WILL MEASURE REORDER.

Fig. 4—Remove IG Option

MULTIPLE TRIAL REGISTER



THIS REGISTER INTRODUCED A MEASUREMENT THAT WAS NOT PREVIOUSLY AVAILABLE.

Fig. 5—Multiple Trial Register

INCOMING INEFFECTIVE ATTEMPTS

XBAR NO. 1

DATE	BH END TIME	% I.I.A.	INC. LK. FR. PC	IML PC	% IML	TERM. MKR. TBL. REG	LINE * BY PC	% IML-LB	IFFM PC	% IFFM
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)

(1) = $\frac{3+5}{2}$

(4) = $\frac{3}{2}$

(7) = $\frac{3}{2\text{-}6}$

(9) = $\frac{8}{2\text{-}6}$

RECOMMENDED I.I.A. ANALYSIS FORMAT

*If Line BY PC is not available see Section III for alternatives.

Fig. 6—Recommended IIA Analysis Format

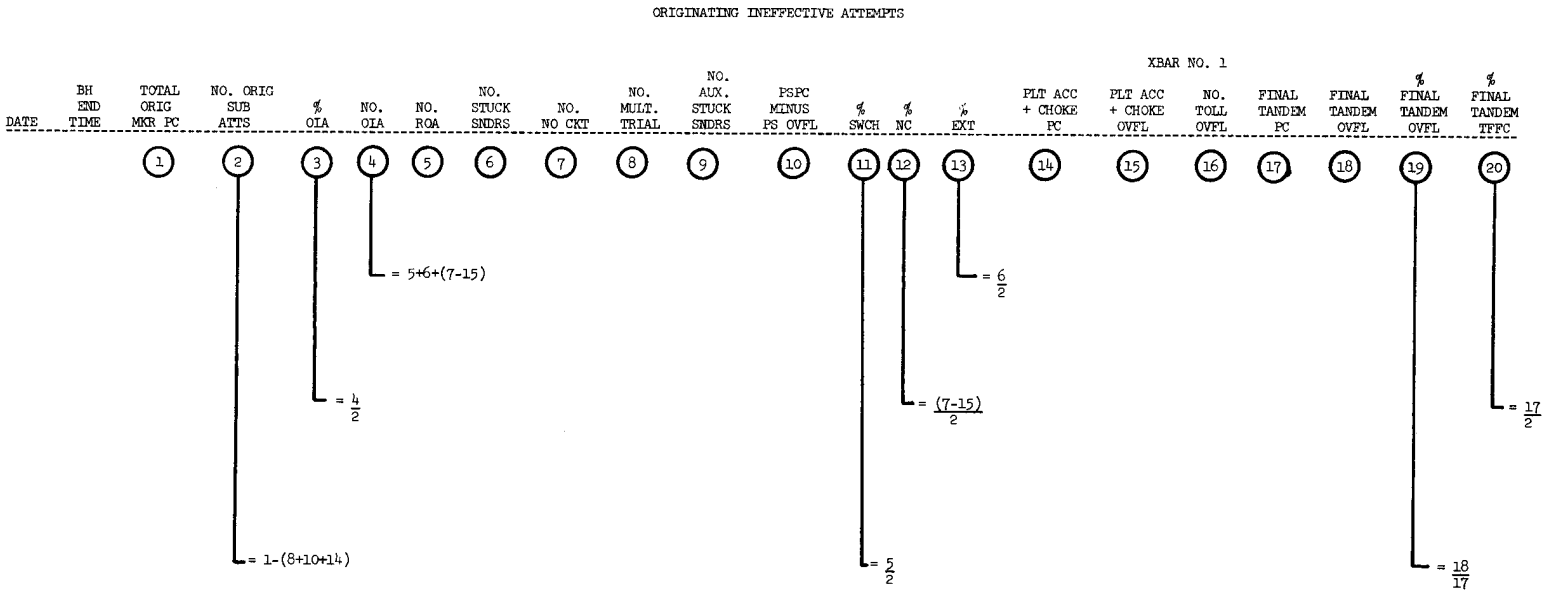
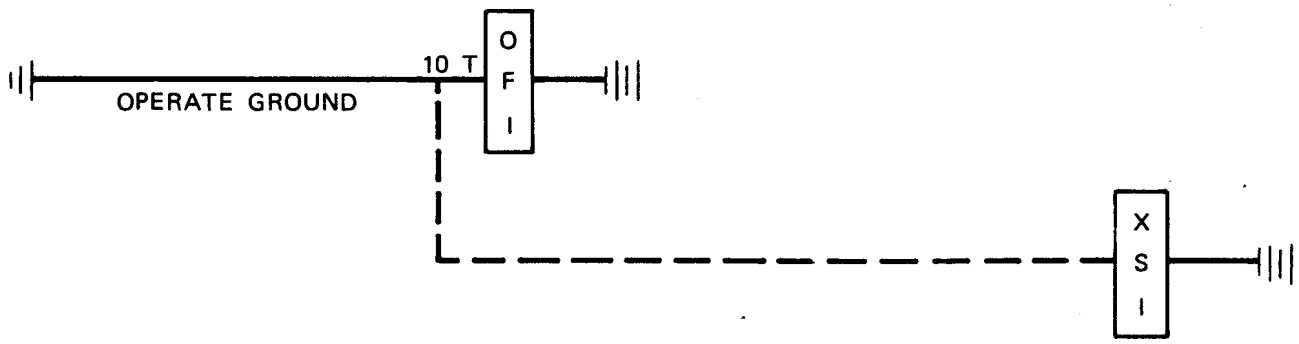


Fig. 7—Recommended OIA Analysis Format

RO TRAP CIRCUIT



CONNECT STRAP FROM THE WNDG. OF THE "OFI" RLY. TO THE WNDG. OF THE "XSI" RLY. THE O.T.I WILL BE CALLED IN ONLY ON AN "RO" CONDITION.

Fig. 8—RO Trap Circuits (Sheet 1 of 2)

REORDER TRAP INDICATIONS

MARKER TRAPPED	ORIG. SENDER			DISTRICT JUNCTOR			CODE			CLASS SERVICE	AREA
	FR	CN	SN	LK	SW	M	A	B	C	D	CC

Fig. 8—RO Trap Indications (Sheet 2 of 2)

INCOMING INEFFECTIVE ATTEMPTS

XBAR NO. 1

DATE	BH END TIME	% I.I.A.	INC. LK. FR. PC	IML PC	% IML	TERM. MKR. TBL. REG	LINE * BY PC	% IML-LB	IFFM PC	% IFFM

ORIGINATING INEFFECTIVE ATTEMPTS

XBAR NO. 1

DATE	BH END TIME	TOTAL ORIG MKR PC	NO. ORIG SUB ATTS	% % OIA	NO. OIA	NO. ROA	NO. STUCK SNDRS	NO. NO CKT	NO. MULT. TRIAL	NO. AUX. STUCK SNDRS	PSPC MINUS PS OVFL	% SWCH	% % NC	% % EXT	PLT ACC + CHOKE PC	PLT ACC + CHOKE OVFL	NO. TOLL OVFL	FINAL TANDEM PC	FINAL TANDEM OVFL	% FINAL TANDEM OVFL	% FINAL TANDEM TFFC