# REROUTE PACKAGE

# DESCRIPTION

# ENGINEERING AND ADMINISTRATIVE DATA

# ACQUISITION SYSTEM/NETWORK MANAGEMENT (EADAS/NM)

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## 1. GENERAL

1.01 Reroutes provide the network manager with the ability to expand the capacity of the network by shifting traffic from trunk groups experiencing excess demand to those with spare capacity. This section provides a complete package containing all control, analysis, and monitor pages in Engineering and Administrative Data Acquisition System/ Network Management (EADAS/NM) related to

reroute activity. Descriptions and examples of pages used to implement flexible and preprogrammed reroutes are also included. Use of the analysis page and how to assign reroute sets to the Reroute Active Monitor (RAM) file are explained.

**1.02** This section is reissued to describe changes in Network Management features for some switching systems and to describe new cathode ray tube (CRT) page features resulting from the development of EADAS/NM, generic 1NM6. Revision arrows are used to emphasize the more significant changes. The specific reasons for this reissue follow:

(a) To describe hard-to-reach (HTR) control list and source list differences between No. 4 ESS switch offices equipped with generic 4E7 and those offices equipped with generic prior to 4E7.

(b) To describe new reroute features of No. 4 ESS switch, generic 4E7

(c) To describe new traffic codes used by EADAS/NM, generic 1NM6 with CRT Pages CN23 and CN24

(d) To describe new scrolling feature for CRT Pages AN21 and CN24.

**1.03** The title for each figure includes a number(s) in parentheses which identifies the paragraph(s) in which the figure is referenced.

**1.04** All features related to reroute activity, through and including the issuance of generic 1NM6 for EADAS/NM, are included in this section. Since the CRT pages may change, the program application document, PA-3B029, should be consulted for possible changes if the EADAS/NM computer has a later generic.

**1.05** While some of the features described may be applicable to the overseas network, only the domestic network is discussed in this section.

**1.06** Parts 2, 3, and 4 of this section provide information and rerouting rationale which may be elementary to an experienced network manager. However, information in this section has been designed to allow the experienced network manager to select portions needed and to skip portions not needed.

**1.07** Common Language Location Identifiers (CLLI codes) used in this section are described as follows:

- ATLNGATL01T—Atlanta, Georgia (No. 4 ESS Switch Regional Center)
- BRHMALMT01T—Birmingham, Alabama (No. 4 ESS Switch Sectional Center)
- DLLSTXTL34T—Dallas, Texas (No. 4 ESS Switch Regional Center)
- HSTNTX0144T—Houston,Texas (No. 4 ESS Switch Sectional Center)
- LFYTLAMA03T—Lafayette, Louisiana (No. 1 ESS Switch Primary Center)
- MOBLALAZ01T—Mobile, Alabama (No. 4 ESS Switch Primary Center)
- MONRLAMA03T—Monroe, Louisiana (No. 1 ESS Switch Toll Center)
- MTGMALMT01T—Montgomery, Alabama (No. 4 ESS Switch Primary Center)
- NWORLAMA04T—New Orleans, Louisiana (No. 4 ESS Switch Sectional Center)
- SHPTLATL02T—Shreveport, Louisiana (No. 4A CC [Common Channel Interoffice Signaling—CCIS] Primary Center).

## 2. TYPES OF REROUTES AND TRAFFIC

### A. General

**2.01** The percentage and type reroute allowed varies from one switching system to another. A breakdown of the capabilities of each switching system is given in Table A.

**2.02** Spray reroutes are available via EADAS/NM CRT pages for the No. 1/1A ESS switch only. Another method must be used to implement spray reroutes in a No. 4A CC Switching System. See Part 2E in this section for detailed information on spray reroutes.

**2.03** ***Preprogrammed Reroute:*** This is an arrangement where preplanned decisions concerning percentage, type traffic, type reroute, and via route(s) have been made and the necessary information has already been entered into the software of the switching system encountering the overflow prob-

lem. Implementation of the reroute requires only a message from EADAS/NM specifying which preplan (PP) number the network manager wants activated. In switching systems which do not have flexible reroute capability, this is the only method of implementing a reroute. Page CN21 is used to implement preprogrammed reroutes.

**2.04** ***Flexible Reroute:*** This feature enables the network manager to implement the most desirable reroute without being confined to preprogrammed arrangements. Some switching systems have both preprogrammed and flexible reroute capability. Others, such as No. 4 ESS switch, have only flexible capability. Table A lists the type of reroutes available in each switching system. Flexible reroutes are implemented through the EADAS/NM CRT System, using Page CN23.

**2.05** The No. 4 ESS switch reroute capability is available through EADAS/NM with generic 1NM5 and later. However, the data link between EADAS/NM and the No. 4 ESS switch must be high speed. If an EADAS/NM Center is still using low-speed data links to its No. 4 ESS switch offices, no reroutes can be implemented through EADAS/NM in the No. 4 ESS switch offices. Until high-speed data links are installed, No. 4 ESS switch reroutes have to be implemented via direct link through the No. 4 ESS switch Network Management Data Terminal (NMDT). The EADAS/NM displays any reroutes taken in No. 4 ESS switch offices linked to the EADAS/NM processor whether the link is high speed or low speed. It should be noted that not all No. 4 ESS switch offices have to be high speed. A mix of high speed to some offices and low speed to other No. 4 ESS switch offices can exist. This would result in having control capability to the high-speed offices and no control capability to the low-speed offices.

### B. Traffic Control Options

**2.06** To implement a control in the network, the network manager must specify the type of traffic which is to be affected in order for the control to be accepted by a switching system. The specifications must include the following information:

(a) ***Specific type of codes*** to be affected by the control (HTR, HTR and unspecified [H_U], non-HTR [NHR], allow previously rerouted [APR], etc).

(b) ***Specific routing*** to be affected such as alternate (ALT), direct and alternate (DAR), etc.

(c) ***Percentage*** of traffic to be affected. (Table A defines the allowable percentages for each switching system.)

> ***Note:*** A discussion of the specific applications in various switching systems is contained in the following paragraphs (2.07 through 2.15). Examples are provided for ease of understanding. It must be stressed that comprehensive planning and coordination is a must before selecting the various control options.

#### Code Related Traffic

**2.07** Code-related traffic classifications work in conjunction with route-related classifications to provide a means to select discrete traffic to be affected by a network control.

**2.08** ***Hard-to-Reach (HTR):*** The HTR traffic classification is available in No. 4A CC and No. 4 ESS switch offices only. It is derived differently in each switching system. Also there are major differences between No. 4 ESS switch offices equipped with generic 4E7 and those No. 4 ESS switch offices equipped with earlier generics. These differences are described in the following paragraphs:

(a) The No. 4 ESS switch maintains its own dynamic HTR list which is based upon an ineffective network attempts threshold. The network manager can alter the active HTR list in a No. 4 ESS switch by manually inhibiting codes already on the list and/or manually adding desired codes to the list. The switching system automatically monitors for HTR codes on a 6-digit basis when the numbering plan area (NPA) being monitored is on 6-digit resolution. When the NPA is not on 6-digit resolution, 3-digit HTR monitoring is performed on the NPA. Any code desired may be entered manually on a 6-digit or 3-digit basis by the network manager whether or not the involved NPA is on 6-digit resolution. The entry of a code on the HTR control list does not affect any calls until the HTR call encounters a control specifying HTR control action such as reroute, cancel from, cancel to, or skip. The No. 4 ESS switch does not monitor 7- and 10-digit codes for HTR purposes.

(b) In a No. 4 ESS switch office equipped with generic 4E6 or earlier, there is one HTR list to which the No. 4 ESS switch assigns all codes it has determined to be HTR. Any HTR control action

taken by the program will be based on the codes contained in this list.

(c) In a No. 4 ESS switch office equipped with generic 4E7, these are two HTR lists. These are the HTR "source" list and the HTR "control" list. Any HTR control action is based on the codes contained in the "control" list. A code is assigned to the HTR control list on an automatic basis only if a connected No. 4 ESS switch (also equipped with generic 4E7) signals that the code is HTR. If a particular No. 4 ESS switch determines that a code is HTR, the code is placed on that No. 4 ESS switch office HTR source list. An HTR indication is then returned along with the CCIS failure message to any distant office trying to complete a call to a source list code. This results in the distant office adding the code to the HTR control list. The only way for the code to get from the original office's source list to the HTR control list in the original office is by manual assignment. If the original office tries to complete a call to this code through another 4E7 office which has the code on the source list, then it can automatically put the code on the HTR control list in response to a received HTR indication as described previously.◀

(d) The No. 4A CC Switching System does not have a dynamic HTR list. All codes on the HTR list for this switching system have to be entered manually using EADAS/NM Page CN01 or must be entered in advance as part of a preprogrammed control.◀ In addition to 3- and 6-digit codes, the No. 4A CC Switching System allows the classification of 7- and 10-digit codes as HTR. As with No. 4 ESS switch, classifying a code as HTR does nothing to restrict traffic until the HTR call encounters a control specifying HTR control action.

(e) The network manager should keep in mind that the HTR classification of traffic is a way to divide traffic into more specific portions and may be used to select certain codes for reroute control if desired. Any code desired may be classified as HTR. ▶The following example explains how HTR may be used in conjunction with a reroute control in a No. 4 ESS switch office equipped with generic 4E6 or earlier:◀

***Example:*** Refer to Fig. 1. Assume that the SHPTLATL02T (Shreveport, Louisiana) switching system has failed and cannot handle any traffic. Note that the NWORLAMA04T (New Orleans, Louisiana) switching system's only normal route to MONRLAMA03T (Monroe, Louisiana) is through the SHPT switching system. Figure 1 further shows that MTGMALMT01T (Montgomery, Alabama) has a MONR trunk group. Assuming that NWOR has spare capacity on its MTGM group and MTGM has spare capacity on its MONR trunk group, the network manager can take controls at NWOR and MTGM to reroute traffic destined for MONR around the failed SHPT switching system.

Assuming the situation in the previous example, the following actions could be taken by the network manager, in the order indicated, to take control:

(1) In the NWOR No. 4 ESS switch, using EADAS/NM Page CN01, manually enter all MONR codes on the HTR list. (See Note 1.)

(2) Finalize the MTGM to MONR (VB) trunk group at MTGM.

(3) Implement a 100% DAR SKIP HTR control in NWOR on the NWOR to SHPT trunk group. It may be necessary to use a lesser percentage depending upon the amount of spare capacity available on the AV and VB trunk groups. (See Note 2.)

(4) Implement a 100% DAR REROUTE HTR in NWOR on the NWOR to SHPT trunk group via the NWOR to MTGM trunk group. (See Notes 2 and 3.)

***Note 1:*** The NWOR No. 4 ESS switch may have all SHPT codes on its control HTR list. These will have to be inhibited or they also will be handled by the skip and reroute controls.

***Note 2:*** An immediate HTR reroute would achieve the same result as that obtained in (3) and (4) above. However, immediate reroutes are not available in the No. 4 ESS switch until generic 4E8 is installed. The network manager should be aware that to vary the amount and/or type of traffic handled by a skip-reroute combination in a No. 4 ESS switch, the percentage and/or type (alternate/ direct and alternate [ ALT/DAR]; HTR/H+U) of the skip control

must be manipulated. Generic programming in the No. 4 ESS switch is coded to make a reroute, of any percentage or type, handle all skipped traffic, regardless of the code-related classification defined by the reroute (HTR or H+U). The skip-reroute combination described in (3) and (4) would reroute 100 percent of the HTR traffic and not handle any other traffic. The same result would occur if the reroute were implemented at 25 percent because 100 percent of the HTR traffic is being skipped. If the reroute were implemented at 25 percent H+U, it would handle 100 percent of the skipped traffic and 25 percent of the traffic overflowing the controlled group.

***Note 3:*** ▶Reroutes for HTR-only traffic are not available in No. 4 ESS switch offices equipped with generic 4E7. The HTR traffic can be rerouted but it has to be combined with unspecified traffic (H_U). With 4E7, HTR traffic can be excluded from a reroute by using the NHR category but there is no standard way to reroute pure HTR traffic.◀

***Note 4:*** If NWOR, in the previous example, were a No. 4A CC Switching System, the skip and reroute controls could not both be in effect at the same time on the NWOR to SHPT trunk group. Also, the MONR codes would have to be declared HTR to the NWOR switching system. In this case, the NWOR toll testboard would have to make the NWOR to SHPT trunks busy and cause the calls to overflow to the reroute which could then send the HTR marked traffic through MTGM. Another way to handle the MONR traffic would be to use an immediate reroute (100% DAR HTR) at NWOR on the NWOR-SHPT trunk group. This would allow all SHPT codes to continue making attempts on the NWOR-SHPT group. With an immediate reroute, the network manager may still need to have some or all the NWOR to SHPT trunks made busy in order to remove attempts from the group. This would relieve pressure on the SHPT switching system and reduce sender time-outs in the NWOR switching system.

**2.09** ***Previously Rerouted:*** This classification is described here in order to give a good understanding of the differences between previously-rerouted and nonpreviously-rerouted (NPR) traffic.

(a) Previously-rerouted traffic can be received by a switching system over both CCIS and non-CCIS (conventional) trunk groups. However, it can only be detected as such by a CCIS machine over a CCIS trunk group.

(b) Previously-rerouted traffic is identified by a traveling class mark sent from the preceding switching system during the CCIS process.

(c) If a rerouted call is received over a conventional trunk group, the receiving (or via) switching system cannot determine that it is a rerouted call and treats the call as an NPR call.

▶(d) A previously-rerouted call can be either HTR or not HTR depending upon that code's current status on the HTR control list.◀

(e) In a No. 4 ESS switch, detected previously-rerouted or out-of-chain (OOC) traffic will advance through the via office's entire routing chain until it finds an idle trunk or a no circuit (NC) condition on a final trunk group. If it finds NC on a final group, it sends a national trunk congestion (NTC) signal to the preceding switching system and that switching system disposes of the call. No previously-rerouted call (OOC) is ever rerouted in a No. 4 ESS switch (generic 4E7 and earlier). This applies to automatic OOC (AOOC) and manual reroutes (if detected by the No. 4 ESS switch).

(f) In No. 4A CC generics prior to PG-68101, the previously rerouted call process is different from that described for the No. 4 ESS switch. Detected previously-rerouted (OOC) traffic will not advance to the next route and will cause the No. 4A CC via switching system to send an **NTC** message if the destination trunk group (VB) is busy. However, input message **NET-11** can be used to defeat the normal blocking of previously rerouted calls when the intended via (VB) route becomes busy. Implementation of the **NET-11** message on the intended via route will allow the previously-rerouted traffic to advance to the next route before returning an **NTC** message to the preceding switching system. If the network manager wishes the call to proceed further up the routing chain, a **NET-11** message also has to be input for the next route, then the next, etc. Implementing a reroute on a trunk group for which an active **NET-11** message is in effect will allow the previously-rerouted calls to be handled by the reroute (unless the reroute specified HTR-only traffic).

(g) In the No. 4A CC, generic PG-68101 and after, the call-handling logic allows the previously-

rerouted call to progress on a normal basis up the entire routing chain of the via office. If the network manager chooses to stop progression of the previously rerouted call, a cancel reroute overflow (CRO) control may be implemented on any trunk group within the routing chain being used by the previously-rerouted call. It will not proceed beyond that point. ▶Using the allow previously-rerouted (APR) traffic option on Page CN23 will cause previously-rerouted traffic to be handled by the reroute. Use of the H_U or HTR options alone will not reroute previously-rerouted traffic.

**2.10** ***Unspecified:*** This category includes all traffic not identified as HTR and/or previously rerouted. It is available as a separate controllable portion of traffic only for the No. 4 ESS switch equipped with generic 4E7. To reroute this type traffic using CN23, the option non-hard-to-reach (NHR) has to be specified.

**2.11** As indicated in Table A, the H_U option is available for all machines. Use of this category indicates the inclusion of HTR and unspecified traffic in the reroute. Because of the lack of ability to identify previously-rerouted traffic in No. 1/1A ESS switch and No. 4A Electronic Translator System (ETS) (non-CCIS) machines, selection of this option will include all HTR, NPR, and previously-rerouted (OOC) traffic for No. 1/1A ESS switch and No. 4A ETS offices. This does not include nonreroutable traffic. See paragraph 3.16 for explanation of nonreroutable traffic.

**2.12** ***International Switch Center (ISC) traffic:*** This category allows the network manager to include in the reroute international calls. If this category is not designated (+), international calls are automatically excluded from the reroute.◀

**Route-Related Traffic**

**2.13** The route-related classification allows the network manager to discriminate between first-routed traffic and alternate-routed traffic which has already had a chance to complete.

**2.14** As mentioned in paragraph 2.07, these classifications work in conjunction with code-related classifications to provide specific choices of traffic for the network manager's selection. One code-related and one route-related classification has to be specified by the network manager for each control.

**2.15** The network manager should be aware that any route-related classification can contain traffic falling into any or all of the code-related classifications. For example, the ALT classification could contain HTR, unspecified NPR, and previously-rerouted traffic. See subparagraphs (a), (b), and (c) for explanation.

(a) Specifying the ALT classification of traffic when rerouting affects only traffic which alternate routes to the trunk group being controlled. This classification is not used as frequently as the DAR classification. The following two examples explain ALT:

***Example 1:*** Refer to Fig. 2. Assume that the network manager has implemented a regular reroute at SHPT of 100% ALT ALL on the SHPT-BRHMALMT01T (Birmingham, Alabama) trunk group via the SHPT-DLLSTXTL34T (Dallas, Texas) trunk group. Notice that only one group overflows to the SHPT-BRHM trunk group. This reroute sends traffic which overflows the SHPT-MTGM group to the SHPT-DLLS group after it is offered to the SHPT-BRHM trunk group. Traffic which overflows the SHPT-BRHM trunk group will not be affected by this reroute unless it first overflowed the SHPT-MTGM trunk group. Direct routed traffic continues on its normal route, ie, overflows to the SHPT-NWOR trunk group.

***Example 2:*** Refer to Fig. 2. Assume that the network manager has implemented a regular reroute at SHPT of 100% ALT ALL on the SHPT-MTGM trunk group via the SHPT-DLLS trunk group. Note that no trunk groups overflow to the SHPT-MTGM trunk group. Therefore, this reroute does nothing to affect traffic. This is the danger of specifying the ALT classification when taking a control. Keep in mind that the ALT classification is referring to traffic which alternate routes to the route being controlled.

(b) Specifying the DAR classification of traffic when rerouting affects traffic alternate routing to the controlled group and traffic using the controlled group as a first route (direct routed [DIR] traffic). As in ALT, this traffic can be controlled before or after it is offered to the controlled

trunk group. The following example explains DAR:

***Example:*** Refer to Fig. 2. Assume that the network manager has implemented a regular reroute at SHPT of 100% DAR ALL on the SHPT-BRHM trunk group via the SHPT-DLLS trunk group. This reroute will send all traffic which overflows the SHPT-BRHM group to the SHPT-DLLS trunk group (except nonreroutable traffic). See paragraph 3.16.

(c) As a separate classification, DIR is available only in No. 1/1A ESS switch-type offices. Specifying the DIR classification affects only traffic which is using the controlled trunk group as a first route. However, this classification is seldom used alone. In the No. 1/1A ESS switch machine, the network manager has the ability (on immediate reroutes only) to specify a percentage for DIR traffic and a separate percentage for ALT. The percentages may be the same or may vary as the network manager specifies.

### C. Regular Reroute

**2.16** A regular reroute affects traffic which overflows the trunk group being controlled. It sends traffic, which would normally go to the next alternate route, to a via route selected by the network manager. ▶That is, a regular reroute of 100% DAR H_U APR on the SHPT-BRHM trunk group via the SHPT-DLLS trunk group sends all traffic overflowing the SHPT-BRHM group to the SHPT-DLLS group.◀ An exception to this would be traffic which is marked as nonreroutable (NRRT) in the SHPT software. The NRRT traffic is not affected by any reroute regardless of the traffic code or route classifications used. It is allowed to continue to the next route as usual. Points to remember about regular reroutes are as follows:

(a) If previously-rerouted traffic is being received via a conventional trunk group, the CCIS Switching System (No. 4A CC or No. 4 ESS switch) cannot distinguish it from traffic originated within its own hierarchy. ▶Therefore, when implementing a reroute specifying H_U traffic only, the network manager should be aware that it could also affect previously-rerouted traffic and make the appropriate arrangements.◀

(b) If a 50-percent reroute is implemented, the other 50 percent continues on its normal route. Any traffic not directly affected by the reroute continues on its normal route.

(c) Implementing a regular reroute does not directly remove any network pressure on the controlled group. It may indirectly relieve pressure on the controlled group by causing a reduction in customer-regenerated attempts.

(d) Implementing a regular reroute makes a direct reduction in the network pressure seen on the next alternate group (if the controlled group is overflowing).

### D. Immediate Reroute

**2.17** An immediate reroute (IRR) affects traffic before it is offered to the group being controlled and results in reducing the network pressure on the controlled group by the amount of traffic being rerouted. This is not a commonly-used control. The network manager should carefully consider what this control does before implementation in order to be sure of getting the kind of control action desired. Some points to remember about immediate reroutes are as follows:

(a) The same precautions for previously-rerouted traffic apply here as those listed for regular reroutes.

(b) Any traffic not directly handled by the reroute continues on its normal route.

(c) ▶Implementing a 100% DAR H_U APR immediate reroute removes all traffic (except NRRT traffic) from the controlled end of the trunk group and will idle the group unless there is sufficient traffic from the distant end to keep it filled.◀

(d) In a No. 1/1A ESS switch office, if an immediate reroute call encounters a busy via route, the call will return in chain and be offered to the next group in chain past the FROM trunk group. If the FROM trunk group is a final, the call will be sent to no circuit announcement (NCA).

### E. Spray Reroute

**2.18** Basically, a spray reroute gives the network manager the ability to specify more than one via route for an overflow problem. This spreads the overflow over two or more via routes and reduces the possibility of having to remove the reroute due to an overloaded via route.

**2.19** Spray reroute capability exists in No. 1/1A ESS switch and No. 4A CC (PG-68101, Issue 3

or later) machines. There are significant differences between the No. 1/1A ESS switch and the No. 4A CC systems, both in implementation and in application of the reroute. The following subparagraphs (a), (b) and (c) describe spray reroutes in each type switching system:

(a) For No. 4A CCs, due to input and output window limitations on Page CN23, flexible spray reroute capability does not exist through the EADAS/NM CRT System. To implement a spray reroute in a No. 4A CC Switching System, the network manager in an EADAS/NM Center has to use **CH2ETS** in the EADAS/NM or ask a person at the switching system to implement the reroute. The message required to implement a spray reroute is **NET-18** (Fig. 3). Following are some points to remember in the use of spray reroutes in the No. 4A CC Switching System:

(1) Spray reroutes must be activated on a flexible (***nonpreprogrammed***) basis.

(2) Up to seven via routes can be specified for any given spray reroute.

(3) Sixteen is the maximum number of spray reroutes that can be active at any one time.

(4) The FROM trunk group and the via trunk groups can be CCIS or conventional signaling or any combination of the two types of signaling.

(5) A spray reroute can be specified as a regular (overflow) reroute or as an immediate reroute.

(6) All options available to nonspray reroutes are also available to spray reroutes.

(7) A spray-rerouted call which is directed to a busy via route in the spray pattern will overflow to the next trunk group in the spray pattern. If all trunk groups in the spray pattern are busy, the spray-rerouted call will be routed to no-circuit-announcement (NCA).

(8) Spray-rerouted call attempts will be evenly distributed among all via routes in the spray pattern.

(9) A spray-rerouted call will be subjected to the following network management and CCIS network overload controls active on the via routes in the spray pattern: CANCEL-TO (CANT), SKIP, selective dynamic overload control (SDOC), selective trunk reservation (STR), group signaling congestion (GSC), and CANT portion of the finalized CANT control. A spray-rerouted call that skips a via route due to network management controls or GSC will be routed to the next trunk group in the spray pattern.

(10) A spray-rerouted call will ignore the following network management controls active on the via routes in the spray pattern: immediate reroute (spray or nonspray), regular reroute (spray or nonspray), traffic overload reroute control (TORC), cancel reroute overflow (CRO), cancel-from (CANF), and the CANF portion of the finalized CANT control.

(11) A study register can be associated with the FROM trunk group to count the number of calls subjected to a regular or immediate spray reroute control. This count is scored regardless of whether or not the call seizes a trunk in a via route. No provisions are made to identify how many of these calls go to each via group.

(b) Figure 3 shows the input message required to implement a spray reroute in a No. 4A CC Switching System. The following items should help clarify usage of input message **NET-18:**

(1) Any noncapitalized alpha character indicates a variable field which must be filled in by the network manager. If the network manager chooses to use less than the maximum of seven via routes, the route pattern index (RPI) fields (iiii) not used must be completed with 9999 or a repeat of an RPI already specified.

(2) A period (.) must always end any complete input message to the No. 4A CC Switching System. However, **NET-18** is a 2-line input message. The first line ends with the (/) after which the network manager must depress the carriage return key. No further action should be taken until an **OK** response is displayed on the CRT. Then, the second line is typed and ended with a period (.). A carriage return then transmits the entire message.

(3) Input message **NET-18** must be followed by a **NET-00** execute message (Fig. 4) to the No.

4A CC Switching System or the spray reroute will not be implemented.

(4) Under the FUNCTION request, **s** implements the reroute, and **r** removes the reroute.

(5) If the percentage of the reroute needs to be changed, one **NET-18** message is required to remove the reroute at the existing percentage, and another **NET-18** message, followed by a **NET-00** message, is required for the new percentage.

(6) The **NET-00** message is not required after a **NET-18** removal message.

(7) The easy-to-reach (ETR) traffic classification is the same as H_U (see paragraph 2.11) types of traffic. It will not reroute all traffic unless **y** is specified on the reroute-allowed option.

(8) For the reroute-allowed (RRA) field, a **y** entry will reroute previously-rerouted traffic. An **n** entry will not reroute previously-rerouted traffic. A combination of DAR, ETR, and RRA-Y corresponds to the H_U APR classification discussed in Part 2B of this section.

***Note:*** Spray reroutes in the No. 4A CC Switching System will not be logged in the EADAS/NM CTRLOG or in the EADAS/NM RAM file. Therefore, it is necessary for the network manager to maintain a paper log on spray reroutes.

(c) Spray reroutes in No. 1/1A ESS switch offices can be implemented on a preprogrammed basis only. Pages CN21 and CN32 may be used to implement spray reroutes in No. 1/1A ESS switch offices. Both pages are discussed in Part 7 of this section. Figure 5 shows a spray reroute on Pages CN21 and CN32. Page CN32 will show only the first leg of the spray reroute. The following items relate to spray reroutes in No. 1/1A ESS switch offices:

(1) Up to three via routes may be specified for each spray reroute.

(2) The maximum number of spray reroutes that can be active at one time is limited to the number of programmed control slots provided in the No. 1/1A ESS switch and/or the "reroute parameter set" card value, whichever is lower. If the parameter is set at "NMRR = 0-63," then the only limitation is the number of preprogrammed control slots.

(3) Rerouted call attempts are equally spread over all the via routes.

(4) A rerouted call will be offered to only one via route and return to the next in-chain group if the via route is busy. If the next in-chain route is NCA, the call will receive an NCA.

(5) Immediate and regular spray reroutes are available in No. 1/1A ESS switch.

(6) Any prehunt controls in effect on the via group will cause the spray-rerouted call to be cancelled and sent to NCA. Prehunt controls include the following: cancel-to, skip, immediate reroute, TR SDOC, etc.

### F. Traffic Overload Reroute Control (TORC)

**2.20** This type reroute is available at No. 4A ETS regional centers only and is used to handle overflow on interregional finals. The TORC provides the regional network manager with a maximum of 10 regional via routes and 128 sectional via routes for each interregional final. The TORCs are implemented through EADAS/NM using Page CN22 or using **CH2ETS**. Due to the limited number of No. 4 ETS regional switching systems still in existence, this section does not cover TORC or Page CN22 in any detail. Additional information on Page CN22 can be found in Section 190-540-421.

## 3. REROUTE PROCEDURES

### A. General

**3.01** The purpose of Part 3 is to list some of the most commonly accepted network management procedures and provide some clarification through the use of specific examples. Some procedures and precautions are described which generally offer the best solutions to certain problems. However, this section is not intended to establish network management policy. General network management policy is contained in the Network Management Handbook (Blue Book).

**3.02** While reroutes are advantageous to both the customers in completing calls and to the telephone companies in increasing revenues, they are complicated, dangerous tools capable of inflicting serious damage to the message network. It cannot be stressed enough how important it is to do proper planning and coordination before implementing each reroute. Ideally, no reroute should be implemented without first going through the planning and coordination described in Section 2.6 of the Network Management Handbook. A T801 should exist for every reroute normally used in an EADAS/NM cluster. However, situations occasionally occur for which no plans have been made. In these cases an "expedient" reroute may be used, provided care is taken to avoid the problems described in Part 4 of this section.

**3.03** The job of devising reroutes, both planned and "expedient," should be performed by knowledgeable and experienced people to avoid causing harm to the message network. In every case, prior to implementing a reroute, the approval of the via office network manager must be obtained. Otherwise, the reroute should not be implemented.

**3.04** Generally, reroute procedures follow a set pattern of steps and reroutes are usually implemented to handle overflow on final trunk groups. However, there are other reasons for implementing reroutes. There are also various types of reroutes, most of which can handle different types of traffic as specified by the network manager. A typical reroute goes through the following stages (see Parts 3C through 3F of this section):

(1) Identification of the problem

(2) Search for idle capacity and selection of the best via route

(3) Implementation of reroute

(4) Monitor and removal.

**3.05** Before implementation, decisions must be made concerning:

(1) Which type of reroute is to be used and what kind of traffic should be rerouted? This is discussed in Part 2 of this section.

(2) Should traffic be rerouted from the final group that is overflowing or to one or more of the high-usage groups contributing to the final group overflow? This is covered in Part 3B of this section.

**3.06** Some types of reroutes cannot be implemented via the EADAS/NM CRT System but may be implemented through other means. This is discussed in paragraph 2.19(a).

**3.07** There are a number of pitfalls that should be considered before implementing a reroute. Some of these are covered in Part 4 of this section.

**3.08** Some of the reasons for implementing reroutes other than handling final group overflow are as follows:

(a) To get around a failed office (immediate reroute)

(b) During a focussed overload situation in the network, to allow calls to get out of a particular office (immediate reroute)

(c) Facility failures (immediate or regular reroute)

(d) To relieve network pressure on a final group, thus, providing a better chance for nonreroutable and first-routed traffic to complete on the final group (immediate reroute only).

**3.09** There are a few basic guidelines that apply to most reroutes. These are covered in Part 3G of this section.

**3.10** The network manager can be very selective in the type traffic to be rerouted. The different types of traffic available for rerouting are covered in Part 2.

### B. Final Group Versus High-Usage Group Rerouting

**3.11** As stated in paragraph 3.04, most reroutes are implemented to handle final group overflow. This can be done directly or indirectly. The direct method is to implement a regular reroute sending the overflow off the final group through another switching system capable of handling the traffic. The indirect method is to use Page TG41 (see Section 190-540-419) and locate the high-usage group(s) which contribute most heavily to the final group overflow, then, reroute the individual high-usage groups in lieu

of, or in addition to, rerouting the final group. Generally, the network manager should be as selective as possible when choosing which reroute to implement. This will allow the manager to be more aware of what traffic is being rerouted and which group(s) might be affected in the via office.

**3.12** Consider the NWOR-SHPT final trunk group in Fig. 6. Unless calling pressures at each end of the group are very unbalanced, both ends will probably be overflowing. Therefore, the network manager may need to investigate rerouting at NWOR and SHPT.

**3.13** ***Down-chain Overflow:*** When implementing a reroute at NWOR on the NWOR-SHPT group, the network manager can see that no other groups alternate route to this group from the NWOR end. Consequently, when overflow is rerouted from this group, only traffic destined for SHPT and its subtending switching systems is affected by the reroute. Thus, the manager can more readily determine which group(s) are affected in the via switching system with a down-chain reroute than with an up-chain reroute. In this case, it would be a reasonable decision to reroute overflow directly from the final group at NWOR. See round robin reroute example (paragraph 4.16) for a further discussion of this reroute.

**3.14** ***Up-chain Overflow:*** When looking at the group from the other end (SHPT), Fig. 6 shows a total of at least five groups (ATLN, BRHM, DLLS, LFYT, and OTHER REGIONS) which overflow to the SHPT-NWOR group. Traffic which overflows the SHPT-NWOR group could contain calls destined for any one or all of these distant switching systems and logically could affect all these groups at the via switching system. When rerouting at the lower-ranking end of a final group, the network manager is sending the switching system traffic destined for all distant points (world traffic) with the exclusion of switching systems subtending the A switching system.

**3.15** Using Page TG41 (see Section 190-540-419) for the SHPT-NWOR group will show the network manager all groups that overflow to this group. The groups will be ranked by order of the number of overflow counts. This will let the manager know immediately which groups are having the most impact on the up-chain final to NWOR at SHPT. As a result, the network manager may decide to reroute one or more of the high-usage trunk groups shown on Page TG41 rather than rerouting the final group itself.

**3.16** Another thought to consider when rerouting a final group rather than rerouting a high-usage group prior to the final is that many final groups contain NRRT traffic. This is more prevalent in up-chain finals than in down-chain finals. The NRRT traffic consists of codes marked by the routing engineer to prohibit their being affected by a reroute. Implementing a regular reroute on a final group containing NRRT traffic sends other traffic to the via route but allows the NRRT calls to go to an NCA in the A switching system after overflowing the controlled trunk group.

**3.17** Some advantages and disadvantages of final group versus high-usage group rerouting are as follows:

(a) The advantages of final group rerouting are:

(1) Ability to handle entire overflow problem with one reroute, if a via route with sufficient capacity can be found

(2) Less analysis work required.

(b) The disadvantages of final group rerouting are:

(1) Does not relieve any network pressure on the final since all traffic is allowed to make an attempt on the final group before being handled by the reroute (regular reroute). (See paragraph 3.08.)

(2) Reroute handles world traffic (up-chain final) and may affect numerous trunk groups in the via switching system. For this reason, up-chain reroutes are generally avoided.

(3) Provides no help for NRRT-type traffic (regular reroute). (See paragraph 3.08.)

(c) The advantages of rerouting prior to final (high-usage groups) are:

(1) Relieves network pressure on the final group and gives nonreroutable traffic a better chance to complete; it also protects first-route traffic on the final from heavy alternate routed pressures.

(2) Allows the network manager to be much more selective in traffic being rerouted, resulting in better knowledge of possible effects on via office's network.

(3) Often allows the network manager to reroute smaller amounts of traffic; thus, it can increase the number of via routes having the capacity to handle the traffic being rerouted.

(d) The disadvantages of rerouting prior to final (high-usage groups) are:

(1) Requires more analysis work

(2) Sometimes requires the implementation of more than one reroute to handle the problem

(3) Sometimes not enough high-usage overflow to account for all final group overflow; in which case, the final group would also have to be rerouted.

### C. Identification of Overflow Problems

**3.18** Before any reroute activity is initiated, there usually has to be some indication of an existing or impending overflow problem. (The different methods of identification are discussed in succeeding paragraphs.) This indication can come from any or all of the following sources:

- Exception printer
- Exception display (wallboard)
- Monitor printer.

**3.19** Through observing the network over a period of time, the network manager can learn to anticipate the overflow problems most likely to arise on any given day. In these cases, the network manager could already have the best via route selected and be prepared to implement it immediately after the problem develops. The network manager should know from experience at what percentage occupancy (% OCC) the affected final group begins to overflow and set the monitor or exception thresholds accordingly.

#### Exception Printer

**3.20** This is the heart of the EADAS/NM Exception Reporting System and is designed to keep the network manager abreast of current network status. Data on all trunk groups entered in the exception system are calculated each 5 minutes and matched against the threshold table prepared by the center's data base group. Each 5 minutes, the exception printer will print data on all trunk groups reaching or exceeding any threshold category being calculated for them. By selecting the proper threshold levels for final trunk groups, the network manager can react in a timely manner to network problems. Two threshold categories are very important in detecting or anticipating network overflow situations. They are as follows:

(a) The ***percentage of overflow (% OFL)*** category can be set to any whole percentage value from 1 percent through 999 percent. The network manager selects the percentage which provides the most timely information to the EADAS/NM Center. Setting the % OFL threshold to a low value results in receiving an indication sooner. The % OFL threshold lets the network manager know of a problem after it begins.

(b) The ***% OCC*** category can also be set to any whole percentage value from 1 percent through 999 percent. The network manager selects the percentage which best meets the needs of the EADAS/NM Center. In this category, as in the % OFL category, the network manager receives an indication after reaching the preset threshold level. Experience will dictate the best threshold level for each type trunk group.

***Note:*** Changing the value set in the threshold level for a particular category affects all trunk groups assigned to that threshold level.

**3.21** Figure 7 shows a typical exception printout. Notice that when any threshold category is reached or exceeded, all categories are printed for that group and the category exceeding its threshold level is marked with an asterisk.

#### Exception Display—Wallboard

**3.22** Once the network manager understands how to interpret the various wallboard indicators, a glance at the wallboard usually provides enough information to tell whether or not there are any network problems requiring attention. The wallboard also gives a more complete picture of the center's total network than is immediately available through observing the printout from the exception printer.

**3.23** In a regular EADAS/NM Center, many of the final group indicators are located on the internal side of the display board on office data panels. A typical office data panel is shown in Fig. 8. The office data panel displays both switching system and trunk group indications. All indicators on one horizontal line apply to the location shown on the designation strip in the center of the line. The small squares denote equipped indicators. All trunk group indicators are located to the left of the designation strip. All switching system indicators are located on the right. In the following examples, only trunk group exceptions are discussed; only the columns to the left of the designation strip are involved.

**3.24** An X in a square means that indicator has been flipped (activated) by the EADAS/NM computer. This happens when the computer determines that a trunk group mapped to that line of indicators has reached or exceeded the threshold on the particular category mapped to that indicator.

**3.25** The vertical columns of indicators labeled TA and FA (TO ABOVE and FROM ABOVE) are significant to reroute activity and are described as follows:

***Note:*** Figure 8 and the description thereof in this paragraph is a typical example that applies in a number of clusters. However, some cluster display boards are arranged differently. The discussion of the various threshold categories is valid regardless of board arrangement.

(a) The TA column is used to indicate up-chain problems. There are two indicators per line in this column. The indicator on the right is used to display excessive connection rates on the trunk group(s) mapped to that indicator. The indicator on the left is used to display a maximum of three trunk group threshold categories. All three are indicative of network pressure on the trunk group(s) mapped to the indicator. They are as follows:

(1) The attempts per circuit per hour (ACH) threshold category is computed using the following formula:

$$\frac{PC}{EQ2W} \cdot \frac{60}{a} = ACH$$

a = MEASUREMENT INTERVAL IN MINUTES
EQ2W = EQUIVALENT 2-WAY TRUNKS IN THE TRUNK GROUP BEING MEASURED.
PC = TOTAL PEG COUNT (ATTEMPTS) ON THE TRUNK GROUP DURING THE "a" PERIOD

This threshold category is very responsive to fluctuations in traffic volumes and is not really decisive in indicating potential reroute situations. If not set high or turned off, this category can serve to mask the real trouble-indicating categories, which are % OFL and % OCC. This category is better used on a peak day to indicate pressure control candidates. If used on an average busy day (ABD) basis, great care should be taken in the analysis work to determine the proper threshold value that will not cover up more meaningful indications.

(2) The % OFL is derived by dividing the overflow count by the total peg count on the group and multiplying the result by 100. For example, use the following:

$$\frac{\text{OVERFLOW COUNT}}{\text{PEG COUNT}} \cdot 100 = \% \text{ OFL}$$

This threshold category is used to show when a trunk group has reached or exceeded the preset level of overflow. On final groups, it gives a definite indication of a trunk group needing reroute attention. As stated in the exception printer description, this indication is after-the-fact information. It is driven by the same calculations used to cause an exception printout.

(3) The % OCC is an average of the last two 5-minute periods of data. If either period of data is missing, no calculation is made. It is derived by using the following formula:

$$\frac{(\text{SUM OF USAGE COUNTS}) \cdot S \cdot 100}{\text{NUMBER OF TRUNKS} \cdot 6 \cdot N1}$$

N1 = NUMBER OF 10-MINUTE INTERVALS
S = 1 IF USAGE IS ON SINGLE SCAN
2 IF USAGE IS ON ALTERNATE SCAN

This category, if used correctly, can give advance warning of an impending overflow situation. The threshold level for this category should be set slightly lower than the point at which the final trunk group will begin overflowing.

***Note 1:*** The three categories discussed (ACH, % OFL, and % OCC) use the same indicator. This is through the concept of OR'ing similar exceptions to a common indicator. Not only can multiple exceptions from the same trunk group appear on the same indicator, but often, more than one trunk group will be OR'd to the same indicator.

***Note 2:*** The exception board indicators are updated by the EADAS/NM computer every 5 minutes.

(b) The FA column is used to indicate down-chain problems. The two indicators in this column are arranged exactly like those in the TA column with the indicator on the right being used for connections-per-circuit-per-hour (CCH) and the indicator on the left being used for ACH, % OFL, and % OCC. For a description of these threshold categories, see TA column description.

**3.26** For the TA trunk group definition, the following explanations apply (Fig. 9):

(a) The TA trunk group is a group from a lower-ranking switching system to a higher-ranking switching system within the same routing ladder. To avoid confusion on this point, look at the MONRLAMA03T toll center switching system. The MONR final up-chain routing ladder is MONR-SHPT, SHPT-NWOR, and, last NWOR-ATLN. All of these switching systems are in MONR's final routing ladder and are higher ranking switching systems than MONR. Therefore, any trunk group from MONR to SHPT, NWOR, or ATLN would be a TA trunk group. Looking at Fig. 9, it is obvious that MONR has only one TA trunk group. That group is the MONR-SHPT group. Also, MONR has a trunk group to MTGM (which is a higher-ranking switching system than MONR) but, since it is not in the MONR final routing ladder, it is classed as a lateral group.

(b) Look at the trunk groups shown for SHPT. The up-chain routing ladder for SHPT is SHPT-NWOR and NWOR-ATLN. Any trunk group from SHPT to NWOR or ATLN would be a TA group. Obviously, SHPT has two TA trunk groups; SHPT-NWOR and SHPT-ATLN. Outgoing exceptions from SHPT on either of these groups will flip indicator(s) in the TA column on the line associated with the SHPTLATL02T switching system. See line 27, Fig. 8. All other groups from the SHPT switching system, except the SHPT-MONR group, are classed as lateral trunk groups. In most cases, TA indicators are driven by data originating in the reference switching system, ie, TA information on line 27, Fig. 8, would be gathered from the SHPT switching system. An exception to this is when the reference switching system is not providing data to the EADAS/NM computer. In this case, the higher-ranking switching system will gather incoming data for the reference switching system. It will be mapped to the reference switching system trunk indicators as shown in Fig. 8, lines 19 and 25 in the TA column.

**3.27** For the FA trunk group definition, FA trunk groups are the same groups discussed in the TA definition except that data are gathered from the distant end of the trunk group on an outgoing basis instead of being gathered from the reference switching systems, eg, in Fig. 9, the NWOR-LFYT trunk is both a TA and a FA trunk group for LFYT. When LFYT gathers peg count (PC), OFL, and % OCC data on the LFYT to NWOR group, the data is mapped on line 21, Fig. 8, as TA information for the reference switching system LFYTLAMA03T (Lafayette, Louisiana). When NWOR gathers PC, OFL, and % OCC data on the NWOR to LFYT group, it is mapped on line 21 as FA information for the reference switching system LFYT.

**3.28** If the network manager chooses to use the CRT pages to clarify an ambiguous TA or FA indication, Page EX41 can be used (see Section 190-540-423) to quickly determine which trunk group is causing the indication.

**3.29** An example of a TA indication is as follows: in Fig. 8, line 27, the TA indicator could be either the SHPT-NWOR or the SHPT-ATLN trunk group (see Fig. 9). The network manager could easily locate the offending group(s) by pulling up Page EX41 and typing **SHPTLATL02T** in the OFFICE window and a + in the TA window. The system will respond by displaying the TO ABOVE group(s) having exceptions during the past 5-minute exception period for the SHPT area.

**3.30** The FA indication in Fig. 8, line 27, could be defined in the same manner except that the + should be entered in the FA window. Keep in mind that the FA data originates in the distant switching system but is still mapped to the reference switching system on the display board. That is, if the reference switching system, for some reason, is not giving data, the FA indications are still functional for the reference switching system because the data are being gathered at other switching systems.

**Trunk Group Monitor System—Monitor Printer**

**3.31** The trunk group monitor system and the RAM file are two separate systems. Both systems print out on the monitor printer. This paragraph discusses the trunk group monitor system only. The RAM file is discussed in Part 6 of this section. Some features of the Trunk Group Monitor System follow :

(a) The trunk group monitor system is separate from the exception system and can be arranged to print either on an exception basis or on a scheduled basis.

(b) The maximum number of trunk groups that can be assigned to the trunk group monitor is 64. If assigning the groups on an exception basis, an upper or lower threshold can be used or both an upper and lower threshold can be assigned. This results in a window which will provide a printout if the category being measured falls to the lower threshold or rises to the upper threshold.

(c) The thresholds assigned by Page IN33 do not change those applied by the exception system. A change on a threshold category in the monitor system affects only one group.

(d) Trunk groups assigned to the trunk group monitor can be set to monitor on 5-, 10-, 15-, or 20-minute intervals.

(e) The threshold categories allowed in the trunk group monitor are as follows: PC, OFL (see note), % OFL (see note), ACH, outgoing connections-per-circuit-per-hour (OCCH), incoming connections-per-circuit-per-hour (ICCH), incoming peg count (IPC), % OCC (see note), and holding time (HT).

*Note:* These categories are useful in identifying potential reroute candidates. See Fig. 10 for an example of a monitor printout.

(f) The monitor system can provide advance warning of final group overflow situations if the network manager sets the thresholds properly. Notice that the OFL category is an overflow count rather than a percentage figure. This allows the network manager to obtain a printout in the first 5 minutes after the trunk group begins overflowing if the OFL threshold is set to ABOVE 1.

**D. Search for Idle Capacity and Best Via Route(s)**

**3.32** Generally, the best via route is the AV, VB combination which yields the most equivalent idle circuits (EQIC). This is after taking into consideration control capability at the A and V switching systems and determining that screening in the via switching system will not prohibit switching of the call to the B switching system.

**3.33** The method of locating idle capacity depends upon whether the network manager is (1) planning for some future reroute situation, or (2) trying to handle a real-time problem. Both cases are covered in the succeeding paragraphs.

**3.34** When planning for future reroute situations, the network manager's decisions must be based on past experience and historical data. There are several types of historical data which can be used in making these decisions. Three are as follows:

(a) The ***Peak Traffic Analysis (PTA) Report*** is available through network management lines of organization and covers all United States and Canadian trunk groups at Class 1, 2, and 3 offices and selected Class 4 offices. The PTA System is operated only on peak days and selected ABDs. It processes 15 hours of data on each trunk group and does a number of sorts and analyzations within the program. The program produces several reports. Three of these reports are:

(1) The ***Trunk Group Performance Report*** gives peg count (PC), OFL, % OFL, and % OCC on all trunk groups on an hourly basis for 15 hours.

(2) The ***A-V Spare Capacity Report*** lists all trunk groups which had the required number of hours at less than the specified % OCC threshold.

(3) The ***Problem-Solution Report*** identifies final group overflow problems and provides

recommended solutions (via routes to handle the problem).

(b) The ***Trunking Studies (5-Day and 20-Day)*** provide PC, OFL, % OFL, and usage information for trunk groups associated with the switching system being studied. No analyzation or sorting is provided.

(c) If the proper WRYTSNAP and TAPE5MIN tapes for the date in question are available, the network manager can run the EADAS/NM **PLAYBACK** command and analyze actual control and trunk group data for the desired date. (See PA-3B021,04, Section 8.)

(d) On a ***real-time*** basis, the network manager would use Page AN21. This page is explained in Part 5 of this section.

### E. Implementation of Reroutes

**3.35** After determining that a reroute is necessary, the network manager must make the following decisions:

(a) Can a high usage group be rerouted to relieve the problem or will the final group have to be rerouted?

(b) Which type of reroute should be used?

(c) Is a preprogrammed reroute available or would a flexible reroute be better in solving the existing problem?

(d) What percentage should be rerouted?

(e) Which type of traffic should be rerouted?

(f) What controls are necessary in the A and V switching systems?

(g) What kind of monitoring arrangements are necessary?

**3.36** Table A provides information on the capabilities of different types of switching systems concerning types of reroutes, traffic, and controls available. Some of the capabilities displayed in Table A are not accessible through the EADAS/NM pages but may be available through other methods as follows:

(a) The EADAS/NM **CH2ETS** mode (transparent mode to No. 4A Switching Systems).

(b) The NMDTs directly linked to No. 4 ESS switch offices (No. 4 ESS switch controls are available through EADAS/NM if the No. 4 ESS switch in question has a high-speed data link to the EADAS/NM computer and generic 1NM5 or later is installed in the EADAS/NM computer).

(c) Verbal contact with personnel on site or personnel in Switching Control Centers (SCCs).

**3.37** Preprogrammed (PP) reroutes may be implemented via Page CN32 if the network manager knows the PP reroute numbers. However, no RAM file assignment can be made from Page CN32. Neither can controls on the AV and VB trunk groups be implemented from Page CN32. For this reason, the network manager may want to consider implementing all PP reroutes using Page CN21 or Page CN24. Page CN21 automatically identifies the PP numbers and allows a RAM file assignment. The AV and BV trunk group finalizations can also be applied from Page CN21. Page CN21 is described in Part 7 of this section. Page CN24 will make automatic (nonprint) assignments to the RAM file. It can also make assignments to the monitor printer if the proper data base information is contained in the **BLDPLNS** file. Page CN24 is described in Part 9 of this section.

**3.38** Flexible reroutes can be implemented using Page CN23 and CN24. Page CN23 is described in Part 8 of this section.

### F. Monitor and Removal of Reroutes

#### Monitoring Reroutes

**3.39** When a reroute is implemented, some provision is usually made to alert the network manager if the AV or VB trunk group(s) start overflowing. This is done by assigning these groups to the RAM file via Pages CN21 and CN23. The RAM file is described in Part 6 of this section.

**3.40** When monitoring the AV and VB legs of a reroute, the network manager normally considers the following three questions:

(1) What is the penalty to first routed traffic? None? Minimal? Heavy?

(2) What is the ***net*** number of calls being saved by the reroute after subtracting AV and VB overflow?

(3) Has the rerouted traffic already had a reasonable chance of completion on its first route?

**3.41** Once the AV and/or VB routes start overflowing, the network manager makes a value judgment to decide whether to lower the reroute percentage, remove the reroute, or to leave it as it is. With a CRO control in effect on the AV route, the network manager may often decide to leave the reroute in effect as it is, because unless the via route is a final group, the first routed traffic can continue routing to its next route.

**3.42** If the rerouted traffic has already had a reasonable chance for completion on its first route, the network manager normally would not want to penalize first-routed traffic on the AV or VB groups by allowing too much competition for its circuits from the rerouted traffic. However, if the rerouted traffic has not already had a chance to complete due to facility failure, etc, on its first route, a more severe penalty may be considered for first routed traffic on the AV and VB groups in order to give the rerouted traffic a reasonable chance for completion.

#### Reroute Removal

**3.43** The CRT page used to remove a reroute depends upon whether the reroute is PP or flexible. Each case is discussed as follows:

(a) Preprogrammed reroutes can be removed using Pages TG31, TG32, CN32, CN21, or, possibly, CN24. However, the RAM file assignment can be removed only from Page CN21 or Page CN24 (if Page CN24 was used to implement the reroute). Therefore, the network manager may want to use Page CN21 or Page CN24 when removing PP reroutes. There is an easy transfer from the CN25 monitor page to Page CN21 for removal of PP reroutes.

(b) Flexible reroutes can be removed using Pages TG31, TG32, CN23, or CN24. However, the RAM file assignment can be removed only from Page CN23 or Page CN24 (if Page CN24 was used to implement the reroute). Therefore, the network manager may want to use Page CN23 or Page CN24 when removing flexible reroutes. There is an easy transfer from the CN25 monitor page to Page CN23 for removal of flexible reroutes.

### G. Reroute Guidelines

**3.44** The network manager would normally consider the following items (most of which are discussed in detail in Parts 2, 3, and 4 of this section) before implementing a reroute:

(a) ***Traffic reroutes*** should be as specific as possible, especially on up-chain finals where rerouting final group overflow would amount to rerouting world traffic. The network manager should consider rerouting high usage (HU) groups in lieu of final group rerouting.

(b) ***Via routes*** should conform to the following:

(1) They should have enough available capacity to handle the amount of traffic being rerouted.

(2) They should establish connectivity with A-V and V-B links. Tandem reroutes, such as A-V, V-V, V-B, could be considered if a satisfactory 2-link reroute cannot be established.

(c) ***Via offices*** should conform to the following:

(1) Be free of screening which would prohibit switching the rerouted calls to the B switching system.

(2) Be checked for possible routing deviations to avoid accidental round robins when rerouting to relieve down-chain finals.

(3) Type facility should be checked on VB trunk group to avoid problems associated with attempting to link an incoming satellite group with an outgoing satellite group.

(4) ***Do not*** reroute through a switching system having sender delay.

(5) In most cases, do not reroute traffic destined for a switching system having sender delay.

(d) When applying ***finalization,*** use the following guidelines:

(1) Use CRO where available; otherwise, use CANF 100% DAR.

(2) Always finalize the AV route when rerouting to handle up-chain or down-chain problems. Sometimes AV finalization is not necessary if the B switching system is not in the

switching system hierarchy. The AV finalization is not necessary in No. 1/1A ESS switch or No. 4 ESS switch offices.

(3) Ensure all necessary finalization is applied at via switching on VB route(s). Be on guard for nonstandard routing in the via switching system. See example in paragraph 4.16.

(e) When ***monitoring reroutes,*** the following should be considered:

(1) Always monitor via routes.

(2) Consider penalty to first-routed traffic on via route.

(3) Consider ***net calls*** being saved before removing reroute because of via route overflow.

(4) Consider whether rerouted traffic has already had a reasonable chance for completion.

(f) When ***implementing and removing reroutes,*** use the following guidelines:

(1) Always implement the necessary protective finalization on AV and VB routes ***before*** activating the reroute.

(2) Use Page CN21 to implement PP reroutes.

(3) Use Page CN23 to implement flexible reroutes.

(4) Always remove the reroute ***before*** removing protective finalization on AV and BV routes.

(5) Use Page CN21 to remove PP reroutes.

(6) Use Page CN23 to remove flexible reroutes.

(7) Remove AV and VB finalizations.

## 4. REROUTE PRECAUTIONS

### A. General

**4.01** The purpose of Part 4 is to provide detailed examples of specific reroute problems. This section is not intended to establish network management policy. As stated in paragraph 3.01, general network management policy is contained in the Network Management Handbook.

**4.02** With the advent of flexible reroute capability, the potential for implementing reroutes which could cause harm to the network has greatly increased. Also increased is the possibility of implementing an ineffectual reroute which only shifts unsuccessful attempts from one switching system to another using intertoll trunks and switching capacity in the process. For this reason, the importance of performing the proper planning and coordination job prior to implementing reroutes must again be stressed. This job must be done by knowledgeable, experienced personnel.

**4.03** The T-801 process described in the Network Management Handbook, Section 2.6, is still a valid requirement for all reroute activity. All reroutes should be covered by a current T-801. This ensures that the via switching system network manager is aware of the possible effects in the via system when accepting the reroute. It also specifies the proper finalization for each switching system.

**4.04** A current T-801 should exist for every reroute. However, emergencies occasionally dictate the use of reroutes for which no previous plans have been made. These expedient reroutes must still have the approval of the via switching system network manager. The "A" and "V" switching system network managers should also avoid the situations described in Parts 4B through 4E (paragraphs 4.05 through 4.29).

### B. Via Office Screening

**4.05** Some switching systems are arranged to look at incoming traffic and discriminate between different trunk groups in deciding whether to complete the incoming call or to send it to a vacant code announcement (VCA). This is determined by the person responsible for routing in that switching system and is usually done to assure the correct routing of certain traffic through a switching system. An example of this might be as follows (see Fig. 11):

***Example:*** Assume that the network manager in the EADAS/NM Center sees trunking data for both the NWOR sectional center area and the BRHM sectional center area. The man-

ager receives an indication that there is overflow on the final trunk group between NWOR and SHPT. Using Page AN21, the network manager determines there is ample capacity on the NWOR-BRHM (AV) trunk group and on the BRHM-SHPT (VB) trunk group to handle the entire overflow problem. The manager's normal inclination would be to implement a reroute to send the NWOR-SHPT overflow through the BRHM switching system and CANCEL FROM (CF) 100% DAR or CRO 100% on the VB trunk group. This is a good reroute ***provided there is no screening on the 318 NPA in the BRHM*** switching system. The following should be considered:

(1) The routing engineer for the BRHM switching system knows that the only locations which, on a normal basis, should send the BRHM switching system traffic destined for the 318 NPA are: (a) MTGM, (b) MOBLALAZ01T (Mobile, Alabama), (c) other 205NPA toll offices, and (d) end offices off the BRHM switching system.

(2) Accordingly, the routing engineer could arrange for screening on ABC digits 318 and route to VCA any 318 calls received on trunk groups other than those mentioned.

(3) In most cases, this kind of action is not taken by a routing person. However, this can legitimately be done if the routing engineer feels there is a need to do so.

**4.06** Assuming the above screening does exist, this example illustrates what can happen if the network manager takes action based on incomplete knowledge of a particular routing situation. Implementation of the reroute just described would result in the following undesirable effects:

(1) The customer would receive a VCA from the BRHM switching system stating "Your call cannot be completed as dialed" rather than the correct announcement (NCA) stating that "All circuits are busy now."

(2) Circuits in the NWOR-BRHM trunk group would be tied up unnecessarily while returning the BRHM VCA to the customer through the NWOR switching system.

(3) Additional switching capacity would be required in the BRHM switching system to switch the rerouted 318 NPA calls to a VCA.

(4) The network manager could allow an overflow situation to continue unrelieved, thinking that the problem had been adequately handled.

(5) The problem could get worse due to customer regeneration of calls.

### C. Internal Machine Loops

**4.07** Occasionally, the via route which can best handle an overflow situation is within the same sectional center area. In Fig. 12, the SHPT-NWOR trunk group is a final group. Also, the SHPT-LFYT group is a "high usage" group which overflows to the SHPT-NWOR group.

**4.08** Assume that the network manager notices an overflow problem on the SHPT-NWOR trunk group. Using Page AN21, the manager determines there is ample capacity on the SHPT-LFYT(AV) trunk group and on the LFYT-NWOR (VB) trunk group to handle the overflow problem. The network manager also notices there is no need to finalize (CF 100% DAR or CRO 100%) on the NWOR trunk group at the LFYT switching system because that group is already a final trunk group. The network manager activates a reroute sending the SHPTLATL02T -NWOR overflow through the LFYT switching system and takes no finalization controls. For the moment, the overflow problem is handled.

**4.09** The previous reroute was a good choice to use. However, the following list shows what can happen if the SHPT-LFYT trunk group begins to overflow:

(1) There would be some confusion in handling the call since implementation of the reroute results in having two groups overflowing to each other. That is, the SHPT-LFYT group overflow goes to the SHPT-NWOR group, and the SHPT-NWOR overflow goes to the SHPT-LFYT group.

(2) While this situation might cause the network manager some confusion, it would be disastrous to the SHPT switching system as long as both trunk groups were in an overflow condition.

(3) The SHPT switching system will handle one call at a time and will concentrate on that call until it finds some way to dispose of the call. Its options in disposing of a call are:

- Send it to an idle trunk on the destination trunk group.

- Or, if this fails, overflow it to the next route(s) until it finds an idle trunk.

- If, after reaching the final trunk group, there is still no idle trunk, send it to an announcement trunk.

(4) In this situation, the SHPT switching system never sees an end to the routing chain. (It cannot find a final trunk group.) Its only way to dispose of the call is on an idle trunk. Accordingly, it will search continuously for an idle trunk in the two trunk groups mentioned until someone hangs up a phone and a circuit becomes idle. This uses up enormous amounts of real time in the SHPT processor and will delay all calls attempting to switch through the SHPT switching system.

(5) Another possible adverse effect of an internal loop is that, if it is allowed to continue long enough, it can cause a System Initialization "A" (SIA) level in the SHPT processor which would remove all existing network management controls.

(6) A common misconception regarding the No. 4A ETS Switching System is that implementing a reroute which can cause an internal loop immediately causes an SIA which would clear all controls and thus clear the internal loop problem. An SIA can be caused by an internal loop, but it is not always an immediate event. In many cases, the internal loop can intermittently exist for longer periods of time (even up to several hours) if one of the trunk groups involved is a large group.

(7) It is a good practice to always finalize the AV trunk group if the via switching system is in the same routing hierarchy as the A switching system. This finalization could be implemented prior to implementation of the reroute or at the same time on the reroute page. There are two types of finalizations available. They are:

- The cancel from (CF) 100% DAR control affects all traffic including direct, alternate, and rerouted traffic.

- The CRO control affects only rerouted traffic and allows all other traffic to proceed on its normal route.

(8) When implementing finalization because of a reroute, using the CRO control results in affecting ***only the rerouted traffic.*** If CRO is not available, the CF 100% DAR control may be used.

(9) Finalization of the AV route is not necessary when the A switching system is a No. 1/1A ESS switch or a No. 4 ESS switch since the software in these switching systems has generic safeguards against internal loops.

### D. Round Robin Reroutes

**4.10** This type reroute problem develops as a result of the following two conditions:

(1) Both the A and B switching systems are in the same routing hierarchy and B is in the A subtending network.

***Note:*** Round robin routing will not occur if A is subtending to B; A is always assumed to be the switching system implementing the reroute.

(2) No finalization on the VB trunk group is in the via switching system.

**4.11** This type reroute can result in effectively removing entire trunk groups from the network and, in various degrees, the degradation of transmission quality on completed calls, depending upon how many switches are made between the A and B switching systems before an idle circuit becomes available.

**4.12** Another facet of implementing a round robin reroute is that the problem is not readily discernable to the network manager. This is especially true where large trunk groups are involved. This type reroute causes no switching system problems normally and can be detected only by observing trunk group data which are delayed by at least 5 minutes. Add a period for analyzation to the 5-minute delay, and the problem may be allowed to continue for several data intervals before the network manager is aware that action is required.

**4.13** The following example and the example in paragraph 4.17 explain what happens when a round robin reroute is implemented. These are staged examples and assume a non-CCIS network. Consequently, they show the worst possibilities. In some cases, a CCIS network will avoid the type round robin reroutes discussed in the examples. However, the network manager should be aware that in the CCIS

network, round robin reroutes also occur if the proper finalization is not applied in the via switching system.

> ***Example:*** Assume the network manager sees an overflow problem on the NWOR-LFYT trunk group. See Fig. 13. Using Page AN21, the network manager finds there is sufficient capacity to handle the problem on the NWOR-BRHM (AV) and BRHM-LFYT (VB) trunk groups. The manager then implements a reroute sending the NWOR-LFYT overflow through the BRHM switching system. The manager does not finalize the VB (BRHM-LFYT) trunk group at BRHM. This handles the overflow problem for the moment.

**4.14** In this example, the reroute was a legitimate response to the network manager's overflow problem providing the additional precaution of finalizing the VB group at BRHM had been taken. However, since the VB group was not finalized, consider what the network manager's omission could cause.

**4.15** In the example, consider what would happen if the BRHM-LFYT trunk group began overflowing. Notice that the normal overflow route for this group is the BRHM-NWOR trunk group. If NWOR sends BRHM a call destined for LFYT at the same time BRHM trunk group to LFYT is overflowing, then BRHM will immediately send it back to NWOR (by overflowing the BRHM-LFYT trunk group). When NWOR gets it back, another search will be made on the NWOR-LFYT trunk group. If no idle circuit is found, NWOR will send it back to BRHM. At this point, two NWOR-BRHM trunks and one BRHM-NWOR trunk are being used by this call and it still has not been completed. This round robin routing process of swapping the call back and forth between the NWOR and BRHM switching systems could continue until all trunks between BRHM and NWOR are tied up with this call or until an idle trunk becomes available on either the NWOR-LFYT or the BRHM-LFYT trunk group.

**4.16** Another (worse) variation of the same reroute could occur if NWOR were a No. 4A CC Switching System and the network manager also neglected to finalize the AV (NWOR-BRHM) trunk group. In this case, not only could the NWOR-BRHM and the BRHM-NWOR trunk group(s) be exhausted on one call, but the NWOR-ATLNGATL01T (Atlanta, Georgia) and ATLN-NWOR groups could also be exhausted (Fig. 13). The ATLN-BRHM and BRHM-ATLN trunk groups could be adversely affected because direct traffic between NWOR and BRHM in both directions has been forced to alternate route to the up-chain finals.

**4.17** The following round robin routing example is much more subtle than the reroute discussed in the example in paragraph 4.13:

> ***Example:*** Refer to Fig. 13. Assume the network manager sees an overflow problem on the NWOR-SHPT trunk group. Using Page AN21, the network manager determines that the best via route to handle the overflow problem is through the MTGM switching system. The network manager implements a finalization control on the MTGM-SHPT (VB) trunk group. Then, the manager implements a reroute sending the NWOR-SHPT overflow to the NWOR-MTGM (AV) trunk group and assumes that the MTGM switching system will direct this traffic to the MTGM-SHPT trunk group. The network manager feels the overflow problem has been handled and adequate finalization controls have been implemented to protect the network. Had MTGM not had a MONR trunk group, the network manager's assumption would most likely have been correct. See paragraphs 4.18 through 4.22.

**4.18** In Fig. 13, the MONR Toll Center is a subtending switching system of the SHPT switching system. Also, when NWOR sends a call to SHPT, it could be destined for either the SHPT area or the MONR area. Logically, following the previous statements, the network manager should know that overflow on the NWOR-SHPT trunk group could contain calls destined for SHPT and calls destined for MONR.

**4.19** Refer to Fig. 13, and note the following:

(1) The MTGM switching system has trunk groups to both MONR and SHPT.

(2) The MTGM switching system overflows the MTGM-SHPT trunk group to the MTGM-NWOR trunk group.

(3) The MTGM switching system overflows the MTGM-MONR trunk group to the MTGM-BRHM trunk group bypassing SHPT and NWOR.

(4) The BRHM switching system has a SHPT group and a NWOR group and does normal routing on each, ie, the BRHM-SHPT group overflows to the BRHM-NWOR group which overflows to the BRHM-ATLN up-chain final group.

(5) The ATLN Regional Center Switching System has a SHPT group which overflows to the ATLN-NWOR group.

**4.20** In this example, the network manager finalized the MTGM-SHPT (VB) group. This finalization protects the network if NWOR sends MTGM a call destined for SHPT at a time when the MTGM-SHPT trunk group is overflowing. However, if NWOR sends MTGM a call destined for MONR and at the same time the MTGM-MONR trunk group is overflowing, MTGM will overflow the call to the up-chain final (MTGM-BRHM) trunk group. The following three alternatives (listed in actual sequence) are available to the BRHM machine (Fig. 13):

(a) Since BRHM does not have a MONR trunk group, BRHM will try to complete the call on the BRHM-SHPT trunk group. The call will be switched to SHPT and SHPT will complete it on the SHPT-MONR trunk group. At this point, there has been no adverse effect on the network other than introducing two additional switching links on the completed call.

(b) If the BRHM-SHPT trunk group is overflowing, BRHM will overflow the call to the BRHM-NWOR trunk group and NWOR will again receive the same call it sent to MTGM earlier. At this point, the call is using one trunk each on the NWOR-MTGM, MTGM-BRHM, and BRHM-NWOR trunk groups and still has not been completed. The NWOR switching system will start the same process again, and this 3-switching system round-robin routing will continue until one of the following occurs:

- An idle trunk becomes available in the NWOR-SHPT trunk group
- An idle trunk becomes available in the MTGM-MONR trunk group
- An idle trunk becomes available in the BRHM-SHPT trunk group
- Either the NWOR-MTGM, MTGM-BRHM, or BRHM-NWOR trunk group begins to overflow.

(c) If both the BRHM-SHPT and BRHM-NWOR trunk groups are overflowing, the BRHM switching system will overflow the call to the up-chain final (BRHM-ATLN) trunk group.

**4.21** If the round robin call has advanced to the point where BRHM is sending ATLN rerouted calls destined for MONR, then ATLN would have the following alternatives:

(a) Since the ATLN switching system does not have an ATLN-MONR trunk group, it will attempt to complete the call on the ATLN-SHPT trunk group. The call will be switched to SHPT and SHPT will complete it on the SHPT-MONR trunk group. At this point, three additional links have been inserted in the call's path, and transmission quality to the customer may begin to suffer.

(b) If the ATLN-SHPT trunk group is overflowing, ATLN will overflow the call to the ATLN-NWOR trunk group and NWOR will again receive the same call it sent MTGM earlier. At this point, the call is using one trunk each on the NWOR-MTGM, MTGM-BRHM, BRHM-ATLN, and ATLN-NWOR trunk groups and still has not been completed. The NWOR switching system will start the same process again, and this 4-switching system round robin routing will continue until one of the following occurs:

- An idle trunk becomes available on the NWOR-SHPT, MTGM-MONR, BRHM-SHPT, or ATLN-SHPT trunk group.
- An idle trunk becomes available on the BRHM-NWOR trunk group. This would eliminate ATLN from the round robin temporarily but would still leave a 3-switching system round robin routing in effect.
- Either the NWOR-MTGM, MTGM-BRHM, BRHM-ATLN, or ATLN-NWOR trunk group begins to overflow.

**4.22** The examples in paragraphs 4.13 and 4.17 point out the importance of finalizing the correct trunk groups. The example in paragraph 4.17 points out the common possibility that there may be more than one VB route out of the via switching system and each of these VB routes should be finalized.

***Note:*** In the example in paragraph 4.17, the original VB finalization on the MTGM-SHPT

trunk would have been sufficient protection had normal alternate routing been used on the MTGM-MONR trunk group. That is, if the MTGM-MONR trunk group overflowed to the MTGM-SHPT group, no round robin routing would occur as long as the MTGM-SHPT group is finalized.

**E. Satellite Trunks**

**4.23** Due to the speech delay introduced by satellite circuits, generic protections have been developed in No. 4A CC and No. 4 ESS switch offices to prevent the possibility of having more than one satellite circuit involved in any talking path.

**4.24** The network manager should know how these protections affect network traffic and tailor control actions accordingly.

**4.25** There are two possible complications the network manager may encounter in a via office related to satellite trunking. They are listed in paragraphs 4.26 and 4.27.

**4.26** Standard trunk engineering guidelines do not allow 100 percent of the trunks between two switching systems to be satellite circuits. The results of these guidelines are as follows:

(1) Since satellite and terrestrial facilities are not mixed on the same trunk group (or trunk subgroup), this results in having two separate trunk groups (or trunk subgroups) between the two switching systems. Each of these trunk groups is controlled individually.

(2) Standard overflow arrangements for these two trunk groups is for the terrestrial group to overflow to the satellite group and the satellite group to overflow to the next switching system. This is reversed in gateway switching systems.

(3) The conditions in the two previous paragraphs could cause some confusion when the network manager is trying to decide which of the groups to finalize in a reroute situation. Normal inclination would be to finalize the satellite group and assume this would allow the rerouted traffic to look at all trunks destined for the B office. This would be an acceptable control provided no traffic destined for the B office is received over a satellite group. See paragraph 4.27.

**4.27** The generic safeguards mentioned in paragraph 4.23 operate in the following manner:

(1) The No. 4A CC and No. 4 ESS switch are programmed to recognize when a call is received over a satellite group. Once a satellite call is received by either of these switching systems, it is class marked as such. When it is routed to another No. 4A CC or No. 4 ESS switch over a CCIS trunk, the distant switching systems also knows it is a satellite call because of the class mark. This class mark is lost if the satellite call is subsequently routed to another switching system via a trunk group using conventional (non-CCIS) signaling.

(2) When a satellite call is received, the generic will not allow the switching system to route it to another satellite trunk group. The switching system will act as if all trunks are busy on the second satellite group and route advance to the next route. If the next route is also satellite, it will continue route advancing until an idle trunk is found which uses a terrestrial facility or until a final group is reached. If no idle circuit using a terrestrial facility can be found, the switching system sends an NTC message back to the previous switching system.

(3) It should be noted by the network manager that a finalization control on the satellite group will not affect any call already bearing the satellite class mark. This call will skip over the satellite group and the finalization control and proceed on up the routing chain. If the network manager wants to stop the satellite call's progression up the routing chain, the finalization must be implemented on the ***terrestrial*** group or on a group higher in the routing chain which uses a terrestrial facility.

**4.28** Because of the conditions noted in paragraphs 4.26 and 4.27, the network manager should be aware of which groups are satellite and which groups are terrestrial. This can be highlighted by using the proper trunk group suffix in the EADAS/NM data base.

**4.29** It has been determined that, due to echo canceller limitations, some terrestrial facilities (determined by length of circuit) may not be suitable for use in conjunction with a satellite call. This is monitored by the Network Operations Center (NOC) and will, in some cases, result in the denial of a reroute request.

## 5. PAGE AN21—VIA ROUTE SEARCH ANALYSIS

### A. General

**5.01** Page AN21 is designed to help the EADAS/NM Network Manager readily identify via routes for overflow problems on a near real-time basis. It does a more thorough job than the network manager could do and saves time by analyzing for spare capacity and rank ordering its findings. It displays the AV trunk group having the most equivalent idle circuits (EQIC) first.

**5.02** Once data are displayed on this page, hitting the SEND key will not update controls. A freeze exists so it can be seen as it was at the time of the freeze.

**5.03** Standard inputs are the FROM switching system and the TO switching system CLLI codes. If no other parameters are selected, the page will default to internal search not apexed and rank 3. However, if an apex switching system of rank 4 is selected, the default search rank is 5. The rank default for class 1 and 2 switching systems is rank 3. Default for class 3, 4, and 5 switching systems is rank 5. All input and output windows for Page AN21 are desplayed in Fig. 14 and explained in Table B.

**5.04** One nonstandard way of operating the page is to input the FROM switching system only. All other top-of-the-page input windows, except INTER-EADAS, can be selected or left to default. The result of this action is to list, by the EQIC criterion, all possible AVs, rank 3 and above, within the cluster if allowed to default to internal, outside the cluster if external is selected. This feature allows the network manager to get quick information on the outbound capacity from a given switching system.

**5.05** Page AN21 starts searching for the "last choice" trunk group between A and B, and computes all the data required for future calculations and for a nonrequested (automatic) expansion on the AB trunk group. The next step is a search of V switching systems, if this is an internal search, to determine that a group exists between the A/V and V/B switching systems. The trunk group listed under the VIA OFFICE V heading is the ***last choice*** AV trunk group. In the internal search case, the VB trunk group will also be the last choice trunk group. See paragraph 5.20. The search can be limited by restricting switching systems to those subtending the apex (area V) switching system entry and/or the rank entry.

**5.06** ▶Three types of searches can be made; (1) INTERNAL, (2) EXTERNAL, and (3) INTER-EADAS. Only one type search can be performed by the page at a time. If INTERNAL and EXTERNAL are both designated, the page will default to an INTERNAL search. Designating INTER-EADAS and either INTERNAL or EXTERNAL results in an error.

**5.07** Once the page has compiled a list of potential reroutes, it organizes the list by displaying the AV group with the highest EQIC first, etc. The VB (or BV) group is linked to its associated AV trunk group and is subjected to the EQIC threshold when Page AN21 is making an INTER-EADAS search and on other type searches when the EQIC window is specified. It will always be displayed on the same line as the associated AV group.

**5.08** Most of the information displayed is self-explanatory. The AVAIL PP column gives the network manager a quick glance concerning the availability (A) of preprograms for certain via routes; column PPON will tell the network manager whether they are already on and FXON whether there is an active flexible reroute (RR) using the concerned via. Further details on the AV and VB route can be obtained by designating the corresponding expansion window (window 20).

**5.09** In the expansion area, it is important to note the window next to the CTRL reading (window 42). This window will display an **m** if more than one control is active on the trunk group specified by the SFX window (window 45). An **m** in this window should alert the network manager to the possibility of conflicts.

**5.10** Other actions, such as FRWD, BKWD, and TRANSFER TO, are standard EADAS/NM CRT actions.

### B. Operating Considerations

**5.11** This page is designed to work only if the FROM switching system is internal to the cluster. In addition to being able to perform INTER-EADAS searches to one distant EADAS/NM cluster at a time, the network manager has the ability to search the entire home EADAS/NM world in two

steps; one for INTERNAL ONLY and one for EXTERNAL ONLY. Such a search is very slow; it is suggested that rank and apex limitations be used in a stepwise manner unless time is of no concern.

**5.12** When specifying an INTER-EADAS search, there are several factors which could prevent the page from obtaining data. Some of these are as follows:

(a) The TO office must be external to the home EADAS/NM cluster.

(b) The TO office must be defined in both the home and distant clusters' WID (world ID) tables. If not defined, the following message will be displayed on the second segment of Page AN21:

(1) **Local NM can't translate local ID of B office to world ID** (for home cluster data base problem).

(2) **Distant NM can't translate world ID of B office** (for distant cluster problem).

(c) The INTER-EADAS window (window 7) must always be designated when making a new INTER-EADAS search request. Resending the page when window 7 contains an **s** will not result in an INTER-EADAS search.

(d) The distant cluster's request queue (Q) could already be filled. A maximum of two INTER-EADAS requests for data can be held in Q from distant EADAS/NM clusters. When a request is received while the queue is filled, the requesting location will display the following message on the second segment of Page AN21 at the CRT where the request was made: **Distant NM RR Q is full.**

**5.13** In an INTER-EADAS search, the distant cluster to be searched is determined by which B office is specified. The data transfer point (DTP) will automatically pass the request to the cluster which has the B office internal to its data base.

**5.14** When sending an INTER-EADAS request, an EQIC is always specified. If not input by the user, the page at the requesting location defaults to an EQIC value of 12. Once the request is received by the distant cluster, that system will search for all VB trunk groups within its data base. After compiling this list, it will apply the EQIC threshold specified and eliminate all candidates from the list with an EQIC value less than specified. Data from a maximum of 100 trunk groups can be sent from the distant cluster to the requesting cluster. The data transmitted will also contain control information described in window 24.

**5.15** The EQIC threshold allows the system to eliminate from consideration those trunk groups not capable of carrying the traffic to be rerouted. This threshold must be specified when using the INTER-EADAS window or the system will default to 12. However, when using the INTERNAL ONLY or EXTERNAL ONLY window, this threshold is optional. In either case the groups displayed are listed by order of ***highest EQIC on the AV first.*** Without specifying the EQIC window, the display could begin with an AV trunk group having a large EQIC while the VB or BV group on the same line shows no idle circuits. Using an EQIC threshold ensures that the AVB connections shown will have at least the number of idle circuits specified in the EQIC threshold.

**5.16** It should be noted that EQIC is computed on all groups displayed regardless of whether or not the EQIC threshold is specified. The system uses a 5-percent blocking criteria when computing the EQIC value. This results in having less idle circuits than might appear to be available upon looking at the trunk group data. For instance, a group of 48 circuits could show a percent occupancy of 75, indicating that 25 percent of the circuits (12) are idle. However, when the 5-percent blocking factor is applied, the system shows that the EQIC value is only 2. Another trunk group of 100 circuits and a percent occupancy of 75 would show an EQIC value of only 14.

**5.17** The following two transfer features are available:

(a) In the EXPANSION area of the page, the network manager has the ability to transfer the AB, AV, or VB (or BV) trunk group to Page CN13 for finalization.

(b) At the bottom of the page, the network manager can transfer the AB group to: PP-RR-CTRL, Page CN21, or to FLEX-RR-CTRL, Page CN23.

**5.18** If EXTERNAL ONLY is designated, both the A and B switching systems must be internal switching systems.

**5.19** The page algorithm selects the best 64 reroutes (based on AV) out of the first 300. If A, V, B connectivity is greater than 300, some potential reroutes will be lost to the search.

**5.20** If the EXTERNAL ONLY window (window 6) has been selected, no information is available from the via switching system, so the program obtains BV data from the B switching system. In that case, the BV trunk group selected is the first available 2-way trunk group entered in the data base. This is done to avoid conflicts for occupancy calculations. The network manager should be aware of this and may need to get more BV information using Page TG51 before making a reroute decision.

**5.21** The algorithm for "last choice" trunk group is based on the following:

(1) It looks at the first outgoing trunk group in the data base to see if it has an overflow (OVFL) route indicated.

(2) If an OVFL route is indicated, it looks at the OVFL CLLI to see if it is different from the trunk group CLLI.

(3) If the OVFL CLLI is different from the trunk group CLLI, the trunk group is considered the "last choice" trunk group. This rationale is used on via routes and AB routes.

***Note:*** At this point, the program does not consider different SFXs to constitute different CLLIs.

(4) If the OVFL CLLI is not different from the trunk group CLLI, it selects the next trunk group and begins comparing OVFL CLLI again.

(5) If the trunk group has no OVFL CLLI, it is considered to be the "last choice" group.

**5.22** When holding time is not available on the AB group, the search is not limited.

**5.23** The scroll feature is a fast scroll due to programming considerations. ▶Beginning with generic 1NM6, AN21 allows flexible scrolling. This is accomplished by overwriting the first PART OF window with the desired part and resending the page. The system will respond by displaying the desired part. Normal one-part-at-a-time scrolling is still available using the FWRD or BKWD window.◀

### C. Pitfalls and Precautions

**5.24** If the data base contains trunk groups where the OVFL CLLI has been inadvertently omitted, Page AN21 will show these trunk groups as last choice groups in error.

**5.25** Some final groups are split into several parts with the last or final part being small in comparison to the other parts which overflow to it. In these cases, Page AN21 will display only the last part of the final group. If the last part of the final group appears too small to carry the overflow traffic, the network manager may decide not to use it. This could cause the network manager to overlook a usable via route if other parts of the group have sufficient capacity. The network manager should be aware of such possibilities and may want to use Page TG51 to supplement the information gathered by Page AN21.

## 6. REROUTE ACTIVE MONITOR FILE

### A. General

**6.01** The purpose of the RAM file is to give the EADAS/NM Network Manager a complete listing of all reroutes involving machines in the cluster's data base.

**6.02** The reroutes listed in the RAM file do not have to be implemented within a cluster switching system. Page CN23 gives the network manager the ability to enter a reroute set into the RAM file where one of the cluster switching systems is the via switching system for another cluster.

**6.03** Assignments to the RAM file can take place automatically if controls on AB, AV, or VB are implemented or they can be made manually with no controls involved. (See paragraph 8.02.)

**6.04** Each reroute set contains the following information:

(a) Identity of the monitored trunk groups

(b) Via switching system identity

(c) The TO switching system identity

(d) Associated trunk group (AV, VB)

(e) The PP number (0 for flexible)

(f) Reroute reference number (if input)

(g) The OFL monitor threshold value

(h) Miscellaneous other information.

**6.05** Pages CN21, CN23, and CN24 are the driving elements to the RAM file. There is no other way to make an entry into the RAM file. These pages are discussed in detail in Parts 7, 8, and 9 of this section.

**6.06** Calculations are made on the monitored trunk group (AV and/or VB or alternates) each 5 minutes. If the monitored group is assigned to PRINT, the reroute set will print out on the monitor printer each 5 minutes that the monitored group reaches or exceeds the OFL threshold. In addition to printing on the monitor printer, these calculations also cause a monitor lamp to activate on the wallboard if the RRMONLAMP has been built in the miscellaneous file area of data base. This applies only to reroutes implemented by Pages CN21, CN23, or CN24 with a "print on" assignment.

**6.07** Page CN25 is the retrieval page for the RAM file. It is discussed in detail in Part 10 of this section.

### B. Limitations

**6.08** The RAM file is not limited; however, only 196 trunk groups can be assigned to PRINT at any one time. If the network manager attempts to make additional PRINT assignments after 196 monitored trunks are assigned to PRINT, the system will overwrite the 196th entry with the new entry. All entries in the RAM file can be retrieved by Page CN25. This includes entries through 196 ***and above.***

**6.09** If several reroutes are using the same via (monitored) route, only one OFL threshold (the last) input is good and applies to all reroute sets using that group as a monitored via group. This is not reflected when the reroute set is pulled up on Page CN25.

**6.10** An AB trunk group cannot be set up as a monitored trunk group. If the network manager wishes to assign the AB group as a monitored group, it must be entered on Page CN23 as an AV or VB trunk group in order to make the assignment.

### C. Precautions

**6.11** The RAM file may not contain all reroutes implemented in the network manager's cluster machines. The following reroutes ***will not*** be automatically assigned to the RAM file:

(a) Any reroute implemented on Page CN32 (PP)

(b) Any reroute implemented via the **CH2ETS** (transparent) mode.

***Note:*** It is important to know that while automatic assignment does not take place with the reroutes in this paragraph, the network manager can make manual assignments on Page CN23 and is encouraged to do so.

### D. RAM File Printouts and Displays

**6.12** Figure 15 shows two 5-minute reroute monitor printouts from the monitor printer. They are labeled ① and ②. Notice that the example also shows trunk group monitor printouts, control messages from No. 4 ETS Switching Systems, and verification and time messages from No. 4 ETS Switching Systems. These types of printouts and messages are normal for the monitor printer.

**6.13** The network manager can get a display of the contents of the RAM file by using the **RAM** command from the user mode at the CRT.

## 7. PREPROGRAMMED REROUTES

**7.01** As indicated in Table A, only two types of switching systems (No. 1/1A ESS switch and No. 4 ETS) have PP reroute capabilities. And, in the No. 1/1A ESS switch and No. 4 ETS (non-CCIS), reroutes can only be implemented on a PP basis. Pages CN21, CN24 and CN32 can be used to implement PP reroutes; however, as discussed in paragraphs 3.37 and 3.43, the network manager may prefer using Pages CN21 or CN24 due to the obvious advantages in finalization implementation and monitor assignment. Pages CN21 and CN32 are described in the following paragraphs.

### A. Page CN21

#### General

**7.02** The purpose of Page CN21 is to display and implement PP reroutes. This is begun by entering FROM and TO switching system CLLIs in the appropriate windows.

**7.03** Page CN21, in addition to displaying and implementing reroutes, gives the network man-

ager the ability to implement controls on the AV and/or VB groups or their alternates.

**7.04** Page CN21 is also one of the driving forces for the RAM file and gives the network manager the ability to assign monitor trunk groups to the file from this page.

**7.05** After expanding the desired reroute, the network manager can implement the reroute, operate controls on the AV and/or VB trunk group(s), and make monitor assignment(s) simultaneously or one at a time.

**7.06** In the expansion area, the network manager is shown the control status and traffic information for the AB, AV, and VB (if available) trunk groups in windows 18 through 30.

**7.07** For cancellation controls and monitor purposes, the network manager can assign alternate AV and/or VB trunk groups.

**7.08** A flow diagram example showing proper user progression through Page CN21 is shown in Fig. 16.

**7.09** A complete listing of all input and output windows for Page CN21 is displayed in the example given in Fig. 17 and explained in Table C.

**CN21—Page Operation**

**7.10** Any references to window numbers in the following steps (1) through (8) are related to the example given in Fig. 17:

(1) Use of Page CN21 begins with inputs in the FROM and TO windows, numbers 1 and 5, respectively.

(2) After sending the FROM and TO input, Page CN21 responds by displaying all trunk groups between FROM and TO switching systems in window 16 on the right of the page and automatically displaying all preprogrammed reroutes for the first group shown in window 16.

(3) If a group other than the first group is desired, the network manager must designate which individual group (window 17) is to be rerouted and resend the page. If only one group exists between the FROM and TO switching systems, the page will proceed to step (4) without a designate by the network manager.

(4) The page responds by displaying all available PP reroutes for the AB trunk group (up to a maximum of nine PPs) and each of their on/off status in windows 8 through 14. It also provides the PP key number in window 7.

(5) The network manager must now decide which via route to investigate, designate in the associated expansion window (window 15), and resend the page.

(6) If the expanded data in windows 20 through 30 show that this is a good via route, the manager then designates the associated ON window (window 8) and the proper finalization controls in windows 18 and/or 19 and designates the desired monitor group(s) AV and/or VB. Then, the page is resent.

*Note:* If the monitor group(s) is to be printed on the monitor printer, the network manager has to designate in window 43. If an overflow threshold other than 1 percent (the default value) is needed, the network manager must enter the desired value in window 33.

(7) The page will respond with **p** in all windows previously designated. The network manager then designates the EXECUTE window (window 40) and resends to implement all the actions requested on the page.

*Note:* The pending stage for Page CN21 can be bypassed if the network manager designates the EXECUTE window at the same time the reroute and cancellation windows are designated.

(8) If finalization controls were requested on the page, it will be held in a processing mode until the finalization control(s) are activated and then will show **s** associated with these controls and will put the reroute on queue (q). This does not apply to the No. 1/1A ESS switch where the processing mode will last until the reroute is also implemented.

**Considerations and Precautions**

**7.11** The following items should be helpful when using Page CN21:

(1) Windows CRO and CF cannot be operated on the same leg simultaneously.

(2) Once Page CN21 has controls pending, the only possible actions are; add another control, execute, or clear. Under error conditions, it is advisable to use the CLEAR window (window 42, Fig. 17) before taking any further action.

(3) If the requested finalization control is not activated, the page will not implement the reroute.

(4) Under expansion window (window 26) for control, the page will show CANF if any percentage of finalization is in effect on the AV and/or VB group. If this finalization is less than 100 percent, windows 18 and/or 19 will not show an **s**. If it is 100% DAR, these windows will show an **s**. If the finalization is other than 100% DAR, Page CN13 must be used to remove that control if 100% DAR is required.

(5) Controls cannot be removed and added in the same page operation even if different legs of the reroute are involved.

(6) The network manager can assign alternate monitor groups (windows 34, 35, and 37, 38) which are different from the AV and VB legs of the reroute. However, if an alternate AV and/or VB is entered, any control action requested in windows 18 and/or 19 for the AV and/or VB group(s) ***will be applied to the alternate group and not the normal AV or VB.***

(7) If window 29 (DOC) or window 30 (% DELAY) indicate congestion problems in A, B, or V switching systems, in most cases the reroute should not be implemented.

(8) For the expansion area (windows 20 through 28), the AB is always taken from the FROM and TO windows (window 1, window 5). The AV and VB values are taken from the AV and/or VB part of the RAM section windows (windows 34 and 35) and/or (windows 37 and 38); or if they don't exist, the via switching system under REROUTE VIA TRK window (window 10) that is designated by an **s** in window 15.

(9) All PP reroutes should be checked for expansion. If the expansion does not work, as noted by message 14, **NETWORK ANALYSIS DILEMMA**, the reroute cannot be implemented. The problem is probably a data base inconsistency.

(10) To make a RAM assignment from this page, it must be expanded.

(11) Even if the VB leg is external, the RAM part of the page will show an **s** off for the VB leg since the VB leg of the RAM assignment is independent of the VB leg of the reroute. Any legitimate trunk group can be assigned to the RAM VB leg by using alternate windows (windows 37 and 38).

(12) If the network manager assigns only one of the AV or VB legs to the printer and decides later to add the other leg, a printer OFF (window 44) for the first group must be done and then both groups must be added to the printer simultaneously.

(13) A cancellation control (CANF/CRO) and RAM assignment cannot be removed at the same time. The cancellation control should be removed first.

(14) If there is no **s** in window 19, there is no V-B trunk group.

(15) If the % OFL threshold is changed on a monitored trunk group while the printer is assigned (ON), the RAM will show the change but it will not be accepted for calculation until a PRINT OFF followed by a PRINT ON is performed.

**CN21—Example**

**7.12** The examples given in Fig. 18 show a typical use of Page CN21 from start to completion. The following describes each part of Fig. 18:

(1) Part ***A*** shows the abbreviated CLLI input for the FROM and TO switching systems. This must be sent before anything else can be done on the page.

(2) Part ***B*** shows the result of sending A. Note that the computer completes the CLLI for FROM and TO switching systems. It automatically displays all available PP reroutes for the trunk group displayed. It also lists each via route and gives the PP numbers and a description of each reroute, ie, type RR, % DIR, etc.

(3) Part *C*, shows the network manager has selected the STLS MO 09 14T via group for expansion of data.

(4) Part *D* is the result of sending C. The **s** in the expansion window is to remind the network manager that the expanded data is associated with the STLSMO0924 to STLSMO0914 (AV) trunk group and the STLSMO0914 to HNBLMOAC05T (VB) trunk group. This display also shows that there are no finalization controls on the AV and VB groups and no RAM assignments for either group. In the expansion area, the trunking data indicates this would be a good reroute to use. Also, in the expansion area, there are no reroutes, controls, or DOC (CCIS or electromechanical) in effect in the A, B, and V switching systems for these trunk groups. Also, none of the switching systems are in sender delay.

(5) Part *E*, shows the network manager wants to activate the reroute, implement a CANF 100% DAR on the AV and VB trunk groups, and assign the AV and VB groups as monitored groups with the PRINT option. The network manager is using an overflow threshold of 1 percent for each group.

(6) Part *F* results from sending E. The **s** in the RAM ON windows and PRINTER ON windows indicates the RAM assignment has already been implemented. The **p** in the control and reroute windows shows they are in a pending state awaiting a designate in the EXECUTE window (window 40). At this point, if a change is to be made, the network manager should designate the CLEAR window (window 42) and start over. If the manager is satisfied with the controls and reroute displayed, the EXECUTE window should be designated and the page resent.

(7) Part *G* shows what happens after the AV and VB trunk group controls are implemented. Until this time, no change is apparent between F and G other than the PROCESSING warning in window O which flashes until the data base is updated showing the controls in effect. Once the trunk group controls are activated, the page puts the reroute on Q and frees the page.

(8) Part *H* shows the page after the reroute is implemented.

(9) Part *I* shows what the network manager would see in response to a **RAM** command from the user mode on the CRT. If more than one reroute set is entered on the RAM file, all sets will be shown in response to this command.

### B. Page CN32

**7.13** Page CN32 is the EADAS/NM general control page. It is used to implement control actions not available through the other pages, such as: directional reservation equipment (DRE), DOC TRANSFER, MISCELLANEOUS KEY CONTROLS, and to indicate local control of directional reservation equipment (DRE) and DOC.

**7.14** In addition to items mentioned in paragraph 7.13, Page CN32 can be used to implement PP reroutes and controls. This would be done as follows:

(1) Enter the FROM switching system in the OFFICE window and send the page.

(2) The page will respond by giving the status of DRE units, DOC, and miscellaneous controls.

(3) Enter the desired PP number in the PREPROGRAM window and send the page.

(4) The page responds with a description of the PP and its ON/OFF status.

(5) To implement the PP, designate the ON window and send the page.

(6) ◗The page responds with a **p** in the ON window and the network manager puts a designate in the PPEXC window and sends the page.◖

**7.15** There are a number of reasons why Page CN32 is not the best page for implementing PP reroutes. Some of the reasons are as follows:

(a) No AV or VB controls can be taken from this page.

(b) No monitor groups can be assigned from this page.

(c) In order to use this page intelligently for implementing PP controls, the network manager must have a paper copy of PP controls for each switching system to be able to select the PP control number needed for entry on the page. Otherwise, the network manager has to make a random

search through the PPs and hope what is needed can be found.

**7.16** For the reasons stated, the network manager may prefer to use Page CN21 or Page CN24 to implement PP reroutes.

**7.17** Figure 19 illustrates Page CN32 but does not explain all its functions. See Section 190-540-421 for a complete description of Page CN32.

## 8. PAGE CN23—FLEXIBLE REROUTES

### A. General

**8.01** The purpose of this page is to display and implement flexible reroutes.

**8.02** Another use of this page is to assign reroute sets to the RAM file where:

(a) Only the via switching system is located within the cluster, eg, distant switching systems rerouting through this cluster's switching systems.

(b) The reroute was implemented using **CH2ETS** or Page CN32.

(c) The reroute was implemented in a No. 4 ESS switch office within the cluster's data base. This is necessary only when the No. 4 ESS switch office in question has a low-speed data link to the EADAS/NM computer.

**8.03** Page CN23 is one of the driving forces for the RAM file. This page gives the network manager the ability to assign AV and/or VB (or alternate) groups to the RAM file and the monitor printer.

**8.04** In addition to monitor assignments and reroute implementation, the network manager can also use this page to implement the necessary finalization controls (CRO/CF) associated with the reroute being implemented.

**8.05** This page defaults to the last choice trunk group on the A to B, A to V, and V to B groups when a definite suffix is not specified by the network manager.

**8.06** When control (RR, CRO, or CF) action(s) are taken from this page on the AB, AV, VB, or alternate AV or VB, an automatic assignment to the RAM file takes place regardless of whether or not the network manager specifies MONITOR ON. However, if the monitored groups are to be printed on the monitor printer, the network manager must assign them.

**8.07** Spray reroutes cannot be activated from Page CN23.

**8.08** Figure 20 shows a user flow diagram for Page CN23.

### B. Page Operation

**8.09** Any references to windows under Page Operation will be referring to Fig. 21. Window explanations for Fig. 21 are shown in Table D.

**8.10** Operation of this page begins with the input of the A and B Switching System CLLIs and sending the page. If a reroute is active on A-B, the V (via) trunk group will be automatically displayed. Another input possibility is the input of the reroute reference number (RREF) only and sending the page. However, this method can be used only after a RREF number has previously been assigned to this particular reroute set, ie, control, monitor, or reroute activation.

**8.11** Depending on the type of A switching system input (see Table A), different reroute options and capabilities will appear, such as the following:

(1) ▶Type of traffic (H_U,HTR/NHR,APR/ISC) (window 10)

(2) Reroute types available (RR, IRR) (window 12)◀

(3) Percentage and qualification (AR, DIR, DAR) (windows 5, 6, 14)

(4) Status of this reroute (ON or OFF) (windows 17, 18)

(5) Status of finalization (CRO, CF) on AV and/or VB (windows 19, 21)

(6) Monitor assignment and printer status (AV and/or VB) (windows 25, 26, 27, 32)

(7) Alternate leg monitored trunk groups, if assigned, with the associated overflow threshold(s), (windows 28 through 31, 33 through 35)

(8) The reroute reference number if assigned (window 24)

(9) The DOC and delay quantities for A, B, and V switching systems (windows 22, 23)

(10) Automatic expansion of AB data (windows 38 through 49).

**8.12** At this point, the network manager can take the following actions on AVB, simultaneously or step by step.

(1) Assign a new reroute reference number (window 24)

(2) Select a traffic type, reroute type, and percentage (windows 11, 13, 15, 16)

(3) Put in finalization control (windows 19, 21)

(4) Select monitor trunk groups and overflow threshold(s) (windows 25 through 28)

(5) Select reroute ON/OFF (windows 17, 18)

(6) Select monitor print ON or OFF (windows 26, 32).

**8.13** Control setup is similar to other pages (in terms of selection and pending) and execution follows the same procedure. Finalization controls will always be executed before turning on a reroute and the reverse will take place when taking them off.

**8.14** Since each of the actions described in paragraph 8.12 can be taken independently, a monitor assignment can be made without executing a reroute. This feature will cover the case of reroutes activated by a switching system outside the V cluster.

**8.15** If the network manager wishes to monitor a group or groups other than the AV and/or VB, alternate groups can be assigned in windows 29 through 31 and windows 33 through 35. However, if this is done, ***any finalization requested on the page will apply to the alternate group.***

**8.16** Attempted execution of controls not applicable to a particular A or V switching system will result in an error. In this case, the manager should CLEAR (window 52) the page and start again.

### C. Defaults

**8.17** All suffixes, if left blank, are defaulted to last choice, when applicable, or first available 2-way when outside the cluster.

**8.18** The VB monitor leg window will be left blank if V is outside the cluster. The same applies to the VB threshold and the cancel controls, unless an alternate leg is selected.

**8.19** If AV and/or VB monitor is designated and a blank is left in the corresponding alternate leg, the AV and/or VB leg will be put on RAM file. The alternate leg is put on RAM file if input by the network manager.

### D. Example

**8.20** Figure 22 shows the typical progression of a flexible reroute from determination of the overflow problem through reroute implementation, assignment to RAM file, and monitoring the reroute on Page CN25.

**8.21** In the Fig. 22 example, the network manager has already determined that the SPFDILSF41T to NRWYILN041T trunk group is the problem. The network manager has pulled up Page AN21, input the A and B offices, and sent the page. The following steps describe Fig. 22:

(1) Part ***A***, Page AN21 has responded with a list of the AV-VB combinations and rank ordered them by the highest EQIC on the AV trunk group. It has also given an automatic expansion on the AB trunk group. The network manager has put a designate in the CHCGIL57T expansion window to investigate the possibility of using it as a via route.

(2) After sending ***A,*** the page responds in Part ***B*** with expanded data for AV and VB and puts an **s** in the expansion window to show which via office is associated with the expanded data.

(3) In Part ***C***, the network manager decides that this AVB combination is the one wanted and designates the TRANSFER window to effect a transfer to Page CN23 (Flexible Reroute Control).

(4) In Part ***D***, the page transfers to Page CN23 with the correct CLLIs for A, V, and B, and provides automatic expansion of data for the AB

trunk groups. Notice that the RR shows an **s** in windows 18, 19, 21, and 32 for RR OFF, CRO and CF OFF for AV and VB, and an **s** in the PRINTER OFF window 32.

(5) In Part ***E,*** the network manager decides to implement a regular reroute of 75% DAR H_ U with CF controls on the AV and VB trunk groups. The network manager is also assigning the AV and VB groups to the RAM file and monitor printer. The page is then resent.

(6) The page responds with ***F.*** The AV and VB groups have been assigned to the RAM file and monitor printer. Notice that the overflow threshold (window 28) defaulted to 1 for the AV and VB trunk groups since the network manager did not input a value. All control items have been put in pending stage. The network manager then designates the EXECUTE window and resends the page.

***Note:*** The network manager can bypass the "pending" stage for Page CN23 by designating the EXECUTE window in addition to the other windows designated in step (5).

(7) In Part ***G,*** after some time processing, the page displays **s** in the finalization windows and puts the reroute on queue.

(8) Part ***H*** shows the reroute control ON and in Part ***I,*** the network manager enters a **v** in the transfer window to go to Page CN25.

(9) In Part ***J,*** the transfer to Page CN25 shows all reroutes using the CHCGILCL57T group as the V office. The network manager resends Page CN25 with a designate in the EXP window.

(10) Part ***K*** shows the reroute in effect and gives the associated expanded data.

## 9. PAGE CN24—CONTROL PLANS

### A. General

**9.01** The purpose of Page CN24 is to provide the network manager with a planned response to certain anticipated network problems. This page allows the manager to activate multiple controls with only one control operation.

**9.02** The following types of switching systems may be included in a plan for Page CN24 control implementation: No. 4A ETS, No. 4 ESS switch, No. 1 ESS switch, and No. 1A ESS switch. All other types of switching systems are excluded from control activation by Page CN24.

**9.03** Each plan for control implementation bears a "plan label" name and must reside in the planned control file (/MUSR/PLANS) in the cluster's data base. In order to display a particular plan, the manager must input the exact "plan label" name in the PLAN LABEL window and send the page. This name can be from 1 to 14 characters but must be input exactly as it appears in the planned control file. No abbreviations are accepted.

**9.04** Using the **PRTPLANS** command at the CRT will give the network manager a complete listing of all plan labels contained in the planned control file. Various types of sorts are available using the **PRTPLANS** command. This command is fully explained in Part 9B of this section.

**9.05** The types of controls which may be used with Page CN24 are as follows: RR, IRR, RR spray (RRS), IRR spray (IRRS), CANF, CANT, SKIP, CRO, and FCNT.

**9.06** The body of the page can display a maximum of 11 trunk group controls. There is a maximum of 6 parts to Page CN24 which limits the maximum number of controls in a plan to 66.

**9.07** A maximum of 100 plans may be contained in data base with a maximum of 600 controls in the entire planned control file.

**9.08** Controls may be linked together in the data base. This is done in blocks of controls. A maximum of four controls can be contained in any block of controls. A dot (.) indication next to the ON window of the page denotes the beginning of a block of controls. The other controls in that block will be displayed directly below and will not be marked with a dot. A finalization (CANF 100% DAR) that is associated with a reroute control is indicated on the page by an asterisk (* CANF) and will be located directly above the reroute.

**9.09** If it is not desirable to activate the entire plan, individual blocks of controls can be activated by designating the ON window for those blocks of controls to be activated. A designate (+) in any ON window of a block of controls will cause the entire

block to be activated. It is not possible to activate less than all the controls within a particular block of controls from Page CN24. The ON and OFF actions cannot be performed simultaneously from Page CN24.

**9.10** All controls in a plan can be activated or removed simultaneously from the lower part of the page using the COMPLETE PLAN ON or OFF window. This is true regardless of which part of Page CN24 is presently displayed.

**9.11** When implementing a complete plan (COMPLETE PLAN ON) which includes reroutes, the page implements all blocks of controls containing finalization first before the reroutes can be activated or entered into the control queue. Finalization controls are also implemented first within a block of controls containing both finalization and reroute controls. In the case where one finalization is associated with two reroutes, the reroutes will not be implemented without the finalization being done first.

**9.12** The status of a control will be indicated by a **c** in the ON window if a control other than the one displayed is in effect on the trunk group. An **s** will be displayed in the ON window if the displayed control is active and an **s** will be displayed in the OFF window if no controls are active on the trunk group. Caution should be exercised when the **c** is displayed since some office types require removal of the existing control before the displayed control can be activated. This is the case for the No. 4 ETS Switching System. In the No. 1/1A ESS switch, the removal step is not necessary. The displayed control can "override" the existing control. Another case where caution should be exercised is where a control already exists in a No. 4 ESS switch office. In a No. 4 ESS switch office, multiple controls can exist on a trunk group. Therefore, activation of the displayed control could result in having two controls in effect on the same trunk group. If the control to be activated in a No. 4 ESS switch office is the same type as the control already in effect, the displayed control can "override" the existing control as is done in the No. 1/1A ESS switch.

**9.13** All reroute controls, when activated using this page, will be placed on the RAM file and are therefore accessible to Page CN25. However, this does not assure a printout on the monitor printer. To have the reroute monitor group(s) print on the monitor printer, assignments must be made in the planned control file data base. These assignments are then activated and removed coincident with the operation of Page CN24. Any automatic RAM assignments made through the use of Page CN24 will automatically be removed when the associated controls are removed by Page CN24.

**9.14** An RR REF number can be assigned to any control in the planned control file. This assignment can be made as part of the initial data base input for the planned control file or it can be made from Page CN24 (window 10, Fig. 23) after displaying the plan. However, any RR REF assignments or changes made from Page CN24 are in effect only on a temporary basis until the **BLDPLNS** command is run. An RR REF number cannot be used more than once in the entire planned control file. However, it may appear more than once within the same control block if it has been assigned to a No. 1/1A ESS switch spray reroute. In this case, it will appear once for each displayed leg of the spray reroute. An RR REF number cannot contain alpha characters.

**9.15** Once an RR REF number has been assigned to a control, the individual control can be displayed on Page CN24 by entering the RR REF number in window 2 (Fig. 23) and sending the page. No CLLIs are required. ▶Using an RR REF number to retrieve a reroute control will cause the entire block of controls (maximum of four controls) to be displayed.◀ A plan label will not be displayed when using window 2 since a control can appear in more than one plan. However, the control can be activated or removed as displayed.

**9.16** Once a plan label is input and sent, each control in the plan will be displayed on a per-line basis. Details of each control are provided along with the associated office CLLIs: "A" (FROM office), "B" (TO office and trunk group suffix), and "V" (VIA office). A control that is not a reroute will be vacant in the VIA office area. The ON and OFF windows (Fig. 23) of the page are used for individual control activation or removal if the control is displayed as a result of sending an RR REF number in window 2. Otherwise, they are used to activate or remove individual blocks of controls. The ON and OFF windows are also used to display the status flags and response characters associated with each control.

**9.17** An expansion area is provided for traffic data and caution information. Trunk group suffixes are provided for all legs associated with the reroute designated for expansion in window 11 (Fig.

23). The VB leg data is obtained from a search of the via office's outgoing trunk group. If data are not available from the via office, no VB data are displayed. Each part of the expansion area is described in Fig. 23.

**B. PRTPLANS Command (Print Plans)**

**9.18** The purpose of the **PRTPLANS** command is to permit the network manager to obtain a copy of the control plans that are stored in the data base. The command provides several output options which range from a complete listing of all the plans to partial listings relating to specific plans.

**9.19** The **PRTPLANS** command is an interactive program which prompts the uses for the output desired. Use of this command must start from a CRT that is in the user mode.

**9.20** Once the CRT is in the user mode, the network manager inputs **PRTPLANS** followed by carriage return or line feed. The system then responds with "**OPTION:**."

**9.21** At this point, the network can input any one of six options. They are as follows: **l, lh, s, o** (alpha), **x**, and **h**.

**9.22** If the manager does not remember all the options or is not sure what each option does, entering the **h** option for help will result in the following explanatory response from the system:

option: h

l-ist plans file contents

lh-eader of plans file only

s-ingle plan listing

o-ffice listing of plans

x-exit

h-elp.

**9.23** Each option is explained in paragraphs 9.24 through 9.29.

**9.24** Option **l** lists the entire plans file contents. The system responds to this request by providing:

(1) A list of all plan labels

(2) The total count of plans within the file and the number of plans that can be added

(3) A list of all RR REF numbers assigned

(4) The total count of RR REF numbers assigned and the number of RR REF numbers that can be added

(5) A complete display of the contents of each plan label including the plan label, a list and description of each control in the plan, a count of the controls in the plan, and a listing of each trunk group within the plan that is assigned to the monitor printer along with its associated % OFL threshold and the part of the plan with which it is associated.

**9.25** Display of option **l** is lengthy and time consuming if the network manager is in a failure situation. However, it is very helpful to the data base manager trying to verify the contents of the planned control file.

**9.26** Option **lh** provides the following:

(1) A list of all plan labels

(2) The total count of plans within the file and the number of plans that can be added

(3) A list of all RR REF numbers assigned

(4) The total count of RR REF numbers assigned and the number of RR REF numbers that can be added.

**9.27** Since most plan labels will be somewhat descriptive of their intended use, the network manager will usually be able to select the appropriate plan label using the **lh** option and go on to Page CN24 for implementation.

**9.28** If the network manager is not sure what is contained in a particular plan label, the **s** option can be used to obtain complete details on a single plan label. System response to the **s** input is **PLAN LABEL:** At this point, the network manager must input the plan label name followed by a line feed. The system responds with a complete display of the contents of the specified plan label including the plan label, a

list and description of each control in the plan, a count of the controls in the plan, and a listing of each trunk group within the plan that is assigned to the monitor printer along with its associated % OFL threshold and the part of the plan with which it is associated.

**9.29** If the network manager wants the system to provide a list of all plans related to a certain FROM office, inputting the **o** option will result in a system response of **OFFICE**: At this point, the network manager inputs the FROM office for which the information is desired. The system responds with a listing of the entire contents of each plan label which contains one or more controls to be implemented at the FROM office specified. The listing for each plan label is the same as described for a single plan label in the previous paragraph.

**9.30** To exit from the **PRTPLANS** command and return to the FUNCTION mode, option **x** must be input by the network manager.

### C. Page Operation

**9.31** All input and output windows for Page CN24 are displayed in Fig. 23 and explained in Table E.

**9.32** After pulling up a blank Page CN24, the network manager can select one of two options to begin operation of the page. First, if the manager has a particular RR REF number in mind, it can be entered in window 2 and the page will respond with a display showing the control associated with the number entered. If the control is a reroute, the associated finalization, if provided in the data base, will also be displayed.

**9.33** At this point, the manager can do the following:

(1) Expand the reroute (window 11) for more information concerning the AB, AV, and VB trunk groups and control percentages.

(2) Assign or change the RR REF number (window 10).

(3) Begin activation of the displayed control(s) by designating the ON window (window 5) or the COMPLETE PLAN ON window (window 39). This would be followed with a designate in the EXECUTE window (window 41) once the page displays a **p** for pending.

(4) Begin removal of the displayed control if it is currently in effect. This would be done by designating the OFF window (window 6) or the COMPLETE PLAN OFF window (window 40). This would be followed with a designate in the EXECUTE window (window 41) once the page displays a **p** for pending.

**9.34** The second input option is to enter a plan label in the PLAN LABEL window. As described in paragraph 9.03, the plan label input by the network manager must match exactly with the name of the desired control plan in the data base. If the network manager does not know the full plan label name, use of the **PRTPLANS** command will provide a list of all available plans. The **PRTPLANS** command is described in Part 9B of this section.

**9.35** Once the plan label has been sent, the page responds with a list of all controls contained in the plan. At this point, the network manager can do the following:

(1) Expand any reroute or nonreroute control for more information. This must be done on a one-at-a-time basis.

(2) Assign or change an RR REF number. Any number of these can be added or changed simultaneously.

(3) Activate the entire control plan by designating the COMPLETE PLAN ON window (window 39). This is followed with a designate in the EXECUTE window (window 41) after the page displays **p** for pending.

(4) Deactivate the entire plan by designating the COMPLETE PLAN OFF window (window 40). This is followed with a designate in the EXECUTE window (window 41) when **p** is displayed by the page.

(5) If the manager does not wish to activate the entire plan, individual blocks of controls may be selected for activation by designating one ON window (window 5) for each block of controls to be activated. This is followed with a designate in the EXECUTE window (window 41) after **p** is displayed.

(6) If the manager does not wish to deactivate the entire plan, individual blocks of controls can

be selected for deactivation by designating an OFF window (window 6) for each block of controls to be activated. This is followed with a designate in the EXECUTE window (window 41) after **p** is displayed.

(7) If the manager wishes to activate an individual control within a block containing other controls, the RR REF number for the desired control can be entered in the RR REF window (window 2) and the page will clear the other entries and display only the desired control as described in paragraph 9.32. From that point, the manager has the options described in paragraph 9.33 and can activate the individual control without having to activate other controls in the block displayed with the plan label. If an associated finalization control exists, it must be activated at the same time the reroute is activated. If no reroute reference number is shown when the plan label is displayed, the manager can assign a number and then proceed as described previously.

**9.36** Figure 24 shows an example of inputting a plan label (Part A) and the resulting display (Part B).

**9.37** In Part B (Fig. 24), the following items can be noted:

(1) The dot (.) at the beginning of each block of controls. There are eight blocks of controls in this example.

(2) The asterisk (*) to the left of the first CANF control linking it to the RR displayed directly below the CANF. Note they are both in the same block of controls. The same applies to the second CANF and RR which are in a separate block of controls.

(3) The **s** in the OFF window indicating that none of the controls are presently active. Also, note that there is no **c** in the ON window which indicates that no other controls are presently active on the trunk groups.

(4) The RR REF number 5176 is duplicated. However, it is duplicated for separate legs of the same spray reroute which results in one reroute reference number per control.

(5) No percentage is displayed in the % window (window 9) for the RRS and the two CT controls. This could mean one of the following:

- The displayed control affects only ALT traffic.
- Different amounts of DIR and ALT traffic are affected by the displayed control.

(6) To determine which case is applicable for step (5), the network manager has to expand each control individually and consult windows 31, 32, and 33.

(7) Not all the displayed controls are assigned a reroute reference number; RR REF numbers can be assigned, if desired, using window 10.

(8) Four of the controls displayed are flexible controls; the others are preprogrammed controls (window 4).

### D. Considerations

**9.38** Since a control can appear in more than one control plan, it is possible to remove an integral part of another control plan (if two or more plans are active) when using the COMPLETE PLAN OFF window. The network manager should be aware of this possibility and check other plans in effect before using this option.

**9.39** Since one finalization control could apply to more than three reroutes, it may be advantageous to place it in a control block alone. This would not be necessary for finalization controls which apply to only one reroute.

**9.40** Page CN24 is capable of processing many controls with minimal effort on the part of the network manager. However, when executing these controls via the page, the "processing" state may at times seem lengthy. It should be noted that the time associated with implementing controls is dependent on the office type and traffic load. Typically, when activating controls in No. 1/1A ESS switch offices, implementation time should be less than 20 seconds per control after the EXECUTE is sent on the page. However, controls to offices in different basic EADAS are sent in parallel. Thus, if five controls are requested and each is to a No. 1/1A ESS switch located in a different basic EADAS, the time required to receive the **s** for all five controls should be approximately 20 seconds. Conversely, if all five controls were requested No. 1/1A ESS switch offices within the same basic EADAS, approximately 100 seconds

would be required to receive the **s** for all controls. This would also be the case where five controls are requested for a single No. 1/1A ESS switch.

**9.41** In No. 4A ETS and No. 4 ESS switch offices, controls are processed in EADAS/NM by queuing. The controls are placed in the queue on a per-office basis after sending the EXECUTE on the page. Reroutes which are associated with finalization controls will not be placed on queue until the associated finalization has actually been implemented. The page will be held in the "processing" mode until all controls have been implemented or put on queue.

**9.42** When implementing controls in No. 4A ETS offices, implementation is at least 1 minute per control. If implementing several controls in the same No. 4A ETS office, the page may be freed from the "processing" mode several minutes before all controls are actually implemented. All controls for the No. 4A ETS will show a **q** until actually implemented. The output of the monitor printer is useful in determining the state of controls when a number of controls are in queue.

**9.43** ▶When expanding a particular reroute control, window 33 will display a variety of codes depending upon which type of machine (see Table A) is the FROM office. The possible displays follow:

(a) For No. 1/1A ESS switch and No. 4A ETS (non-CCIS), window 33 will always be blank indicating the default which is H_U.

(b) For No. 4A CC, window 33 will display: blank for H_U; HTR for HTR; APR for the combination of the H_U and APR; and H&A for the combination of HTR and APR.

(c) For No. 4 ESS switch equipped with generic 4E6 and earlier, window 33 will display: blank for H_U; HTR for HTR; ISC for the combination of H_U and ISC; and H&I for the combination of HTR and ISC.

(d) For No. 4 ESS switch equipped with generic 4E7, window 33 will display: blank for H_U; NHR for NHR; ISC for the combination of H_U and ISC; and N&I for the combination of NHR and ISC.◀

**9.44** Running the **CTRLOG** command after Page CN24 is completed will verify that all controls are implemented as requested.

**9.45** ▶Beginning with generic 1NM6, Page CN24 allows flexible scrolling. This is accomplished by overwriting the first PART OF window with the desired part and resending the page. The system will respond by displaying the desired part. Normal one-part-at-a-time scrolling is still available using the FWRD or BKWD window.◀

## 10. PAGE CN25—MONITOR RR ANALYSIS

### A. General

**10.01** Entry to this page is by transfer from Page CN21 or Page CN23 or by requesting Page CN25 in a blank page window.

**10.02** This page is designed to monitor all reroutes entered into the RAM file. Since every reroute set (AVB) with a control on will be automatically entered into the RAM file (if implemented from Pages CN21, CN23, or CN24, this page can analyze those sets even when the network manager makes no effort to assign them to the RAM.

> ***Note:*** This page also displays reroute sets entered by Page CN23 in which no controls were applied by the home cluster, such as through reroutes activated by another cluster which use one of the home cluster offices as a via route.

**10.03** This page cannot activate or remove any controls (RR, CF, or CRO).

**10.04** It is important to remember that this page is driven by the RAM file and will ***not display any reroute that was not entered via Pages CN21, CN23, or CN24.*** Reroutes activated in No. 4 ESS switch offices (with low-speed data link), Page CN32, or by the **CH2ETS** mode will not be accessible to this page unless the network manager assigns them on Page CN23.

**10.05** Page CN25 has a maximum of eight parts for a grand total of 64 maximum reroutes that can be associated with each office A, B, or V.

**10.06** This page can also be used to clean up the RAM file in case of delta changes in controls during system downtime. The MONDEL window (window 43) will delete those reroute sets ***not assigned to the printer.*** The MONDEL window does nothing to reroute sets assigned to the printer.

**10.07** All the input and output windows for Page CN25 are displayed in Fig. 25 and explained in Table F.

**B. Page Operation**

**10.08** Analysis, using this page, can be done by office selection or by monitored trunk group selection.

**10.09** In the office selection method, the network manager inputs the CLLI for the office and has three choices concerning how this information is to be used by the page. The choices are as follows:

(1) If the network manager enters an **a** in window 1, the page will search the RAM file and list all reroute sets (up to a maximum of 64) where the input CLLI is the A office.

(2) A **b** entry in window 1, in addition to the CLLI entry, will cause the page to list all reroute sets where the input CLLI is the B office.

(3) Entering a **v** in window 1, in addition to the CLLI entry, obtains a list of all reroutes using the input CLLI as a via office.

***Note:*** As mentioned in paragraph 10.04, the limit of the Page CN25 search is the RAM file. There may be other reroutes for A, B, or V offices contained in the CTRLOG; but if they are not in the RAM file, Page CN25 will not display them. A practice the network manager should establish is to assign all known reroute sets to the RAM file as part of the normal implementation process.

**10.10** The monitored trunk group method of analysis consists of entering the FROM and TO CLLIs for the desired monitored trunk group in the appropriate windows (windows 7, 8) and sending the page. The page will respond with a list of reroutes associated with the input monitored trunk group.

**10.11** Any response for Page CN25 will give the AV, VB, and AB overflow associated with each reroute set, the status (on/off), and type of reroute in effect.

**10.12** This page also gives the network manager the ability to expand the data for any displayed reroute set. This expansion will not only give the manager trunk group information for the AV, VB, and AB trunk group but will show trunk group control status, sender delay, and DOC information for the A, B, and V offices.

**10.13** Transfers are available from this page to the Preprogrammed Reroute Page (Page CN21) and the Flexible Reroute Page (Page CN23) at the bottom of the page.

**10.14** An example of the Page CN25 display can be seen in Fig. 22, Parts ***J*** and ***K***.

## ♦ TABLE A ♦

### CAPABILITIES AND OPTIONS (NOTE 1)

| CAPABILITY | REROUTE SWITCHING SYSTEMS | | | | | |
|---|---|---|---|---|---|---|
| | NO. 4A ETS | NO. 4A ETS/CC (NOTE 2) | NO. 1 ESS SWITCH | NO. 4 ESS SWITCH GEN 4E6 | NO. 4 ESS SWITCH GEN 4E7 | NO. 4 ESS SWITCH GEN 4E8 (NOTE 3) |
| Type of Reroute | RR | RR, IRR RRS, IRRS | RR, IRR RRS, IRRS | RR | RR | RR |
| PP/FLEX | PP | PP, FLEX | PP | FLEX | FLEX | FLEX |
| Percentages | 25, 50, 75 100 | 12, 25, 37, 50 62, 75, 87, 100 | 25, 50, 75, 100 | 25, 50, 75, 87, 100 | 25, 50, 75, 87, 100 | 12, 25, 37, 50 62, 75, 87, 100 |
| Traffic Code | H_U* | H_U, HTR, APR | H_U* | H_U, HTR, ISC | H_U, NHR, ISC | H_U, NHR, ISC |
| Traffic Type | ALT, DAR | ALT, DAR | DIR, ALT, DAR† | DAR | DAR | DAR, ALT ‡ |
| AV/VB Controls | CF/H_U* Mon-Assgn | CRO CF/H_U* Mon-Assgn | CF/H_U* Mon-Assgn | CF/H_U Mon-Assgn | CF/H_U Mon-Assgn | CF/H_U Mon-Assgn |

*Note 1: Legend:*

APR = Allow previously rerouted traffic to be affected by this reroute
ALT = Alternate routed traffic only
CF = Cancel from (affects type of traffic specified)
CRO = Cancel reroute overflow (affects rerouted calls only)
DAR = Direct and alternate routed traffic
DIR = Direct routed traffic only
FLEX = Flexible reroute
HTR = Hard-to-reach
H_U = Hard-To-Reach and Unspecified traffic affected
IRR = Immediate reroute
IRRS = Immediate spray reroute
ISC = Internationally Switched Calls affected
NHR = Non Hard-To-Reach traffic affected
PP = Programmed reroute
RR = Regular reroute
RRS = Regular spray reroute

*Note 2:* No. 4A CC spray RR is not available through EADAS/NM.

*Note 3:* Generic 4E8 contains many network management features which are not available to prior No. 4 ESS switch generics. However, only the additional percentages are available through EADAS/NM, generic 1NM6. These additional features must be utilized through the No. 4 ESS switch NMDT terminals until EADAS/NM, generic 1NM7 is released and installed.

* This control affects all traffic including previously rerouted (out-of-chain) traffic.
† No. 1 ESS switch can reroute different percentages on DIR and ALT traffic with immediate reroutes only. For regular reroutes, No. 1 ESS switch controls only DAR traffic.
‡ This traffic classification is available in the machine but not available through EADAS/NM. In the No. 4 ESS switch, it can be applied to immediate RR only.

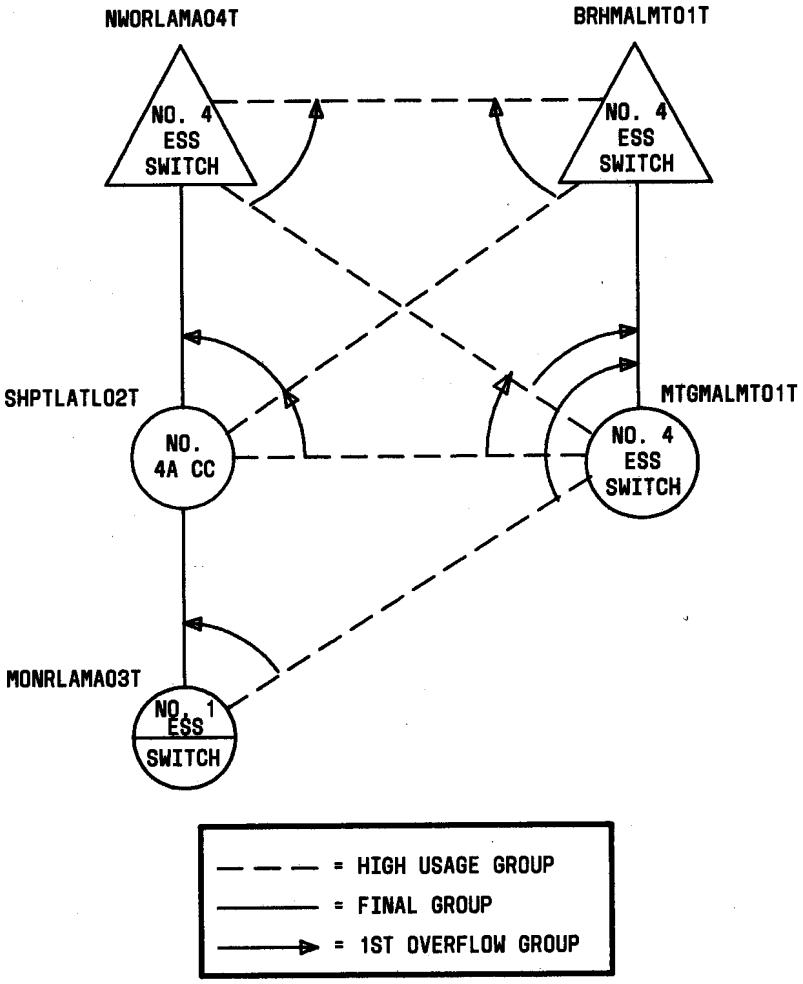


**Fig. 1—HTR Reroute Illustration (2.08)**

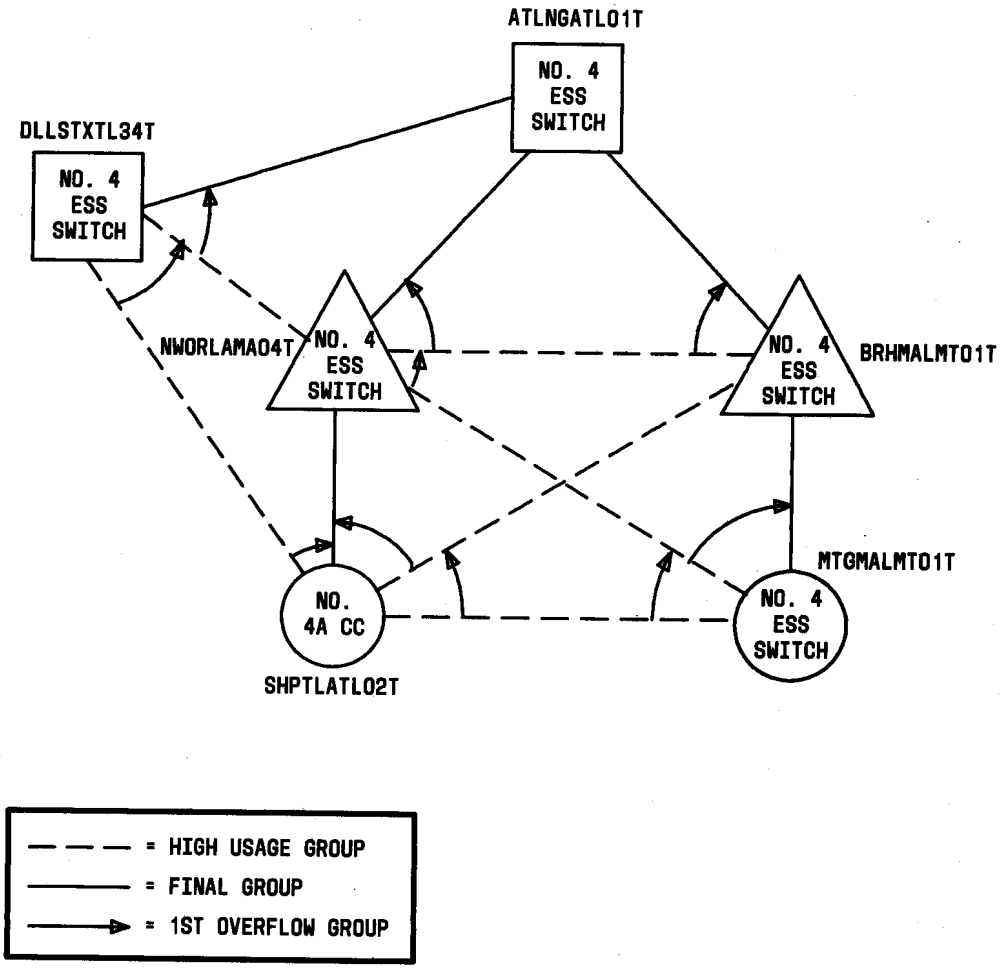


Fig. 2—ALT-DAR Reroute Illustration (2.15)

APPLICABLE ONLY TO PG-68101 NET-18

1. INPUT MESSAGE FORMAT

```
NET-18-a SPbb ccc% dd eTR ffff g
hh/RPI:iiii,iiii,iiii,iiii,iiii,iiii,iiii,.....
```

Identification, Action, and Data Fields

2. EXPLANATION OF MESSAGE

This message is used to enter a Spray Reroute (SPRT) network control request.

3. EXPLANATION OF VARIABLE FIELDS

Function Request

a = S - Start
R - Release

Spray Reroute Type

SPbb = SPIR - Spray Reroute Immediate (reroute offered traffic)
SPOR - Spray Reroute Overflow (reroute overflow traffic)

Percentage Rerouted

ccc% = 100/087/075/062/050/037/025/012%

Traffic Type Affected

dd = AR - Alternate Routed
DA - Direct and Alternate Routed

Code Type Affected

eTR = ETR - Easy-to-Reach (includes all codes; ETR and HTR)
HTR - Hard-to-Reach (only HTR codes)

Trunk Group Index - Routed From

ffff = 0001-1022 CCIS trunk groups
1024-8192 Non-CCIS trunk groups

Reroute Allowed (RRA) Option

g = Y - Yes, allow OOC traffic to reroute
N - No, OOC traffic ignores reroute

Special Study Register (SSR)

hh = 00-31 SSR number assigned
99 No SSR assigned

Spray Route Pattern Indexes (RPIs) - Routed To

RPI:iiii = 0000-4093 - RPI number, (7 RPIs maximum)
9999 - unused RPI field

Note 1: In selecting RPIs for the SPRT pattern, insure that internal or external routing loops will not result because of the SPRT control.

Note 2: All RPI fields must be completed. Use 9999 code for unused RPI fields.

**Fig. 3—NET 18 Spray RR Implementation Message Example (2.19)**

1. INPUT MESSAGE FORMAT NET-00

NET-00-EXEC.

Identification, Action, and Data Fields

2. EXPLANATION OF MESSAGE

This message is used to execute a network control function requested by a previous input message.

3. SYSTEM RESPONSES

?F - Format Error

NG - No function to be executed.

OK - Message accepted, followed by appropriate output message response: NET24, NET41, NET42, NET43, or NET45.

4. SUPPORTING INFORMATION

PR-68106 - CCIS Network Control Program

| FOR TTY CHANNEL | | | | | |
|---|---|---|---|---|---|
| 0 | 2 | 10 | | | |

| BELL TELEPHONE LABORATORIES, INCORPORATED | CCIS | ISSUE | |
|---|---|---|---|

Fig. 4—NET00 Execute Message Example (2.19)

```
CN21 PP REROUTE CONTROL                                  FROM [EHVN CT 00 CG0  ] 1FSS
TIME     -                                                TO  [NWHN CT 02 03T  ] 4ACC
-------------------------------------------------------------------------------------
PP ON  OFF  REROUTE VIA TRK GRP  %DIR  %ALT CODE TYPE EXP!NWHN CT 02 03T   OF(S)
 4 ( ) (S)  BRPT CT 02 02T   OH    0    25       RRS  ( )!NWHN CT 02 03T   OM( )
 4 ( ) (S)  HRFR CT 02 02T   OH    0    25      PRRS  ( )!NWHN CT 02 03T   OP( )
 5 ( ) (S)  BRPT CT 02 02T   OH    0    50       RRS  ( )!NWHN CT 02 03T   IN( )
 5 ( ) (S)  HRFR CT 02 02T   OH    0    50      PRRS  ( )!NWHN CT 02 03T   CK( )
 6 ( ) (S)  BRPT CT 02 02T   OH    0   100       RRS  ( )!                   ( )
 6 ( ) (S)  HRFR CT 02 02T   OH    0   100      PRRS  ( )!                   ( )
 9 ( ) (S)  NWHN CT 02 03T   OF    0    50        RR  ( )!                   ( )
13 ( ) (S)  NWHN CT 02 03T   OF    0    50        RR  ( )!                   ( )
21 ( ) (S)  HRFR CT 02 02T   OH    0   100        RR  ( )!                   ( )
-------------------------------------------------------------------------------------
CRO  ON AV( ) VB( )\EXP    EQ2WO  PC OFL OCCH %OCC CCIS CTRI  RRF RRT\DOC %DELA
CRO OFF AV( ) VB( )\    AB                                          \A
CF   ON AV( ) VB( )\    AV                                          \V
CF  OFF AV( ) VB( )\    VB                                          \B
-------------------------------------------------------------------------------------
RAM  ON AV( ) VB( )\%OFL AV[  ]\ALT AV[                ]-[                ] [  ]
RAM OFF AV( ) VB( )\     VB[  ]\LEG VB[                ]-[                ] [  ]
-------------------------------------------------------------------------------------
EXECUTE( ) BY[  ] CLEAR( ) MONITOR PRINTER ON( ) OFF( ) AB TO CN23( ) CN25[ ]
JUL  7 80 10:55:24 NWT     PRINT( )   CLR-FAIL( )   DIRECTORY[  ]   PAGE[    ]
```

```
CN32 GENERAL CONTROL                              OFFICE [EHVN CT 00 CG0  ] 1ESS CL5
-------------------------------------------------------------------------------------
DRE      ROUTE      STEP SET DPFF\  PREPROGRAM  \   DOC     \ MANUAL  \ CONTROLS
                             \      [ 4]      \ TRANSFER \ CONTROL \ IN LOCAL
A                      [ ]   \    ON  ( )     \          \ TURNOFF \ MODE:
B                      [ ]   \    OFF (S)     \ LOCAL( ) \          \  DRE
C                      [ ]   \    AUTO        \ EADAS( ) \   ( )    \  KEYS
D                      [ ]   \RRSP  25A    0D\-----------------------------
UNITS: A=0 B=0 C=0 D=0       \     NWHN CT 02 03T   OF VIA BRPT CT 02 02T     H
-------------------------------------------------------------------------------------
  MISCELLANEOUS KEY CONTROLS    ON OFF \   MISCELLANEOUS KEY CONTROLS     ON OFF
                               ( ) ( ) \                                ( ) ( )
                               ( ) ( ) \                                ( ) ( )
                               ( ) ( ) \                                ( ) ( )
                               ( ) ( ) \                                ( ) ( )
                               ( ) ( ) \                                ( ) ( )
                               ( ) ( ) \                                ( ) ( )
                               ( ) ( ) \                                ( ) ( )
                               ( ) ( ) \                                ( ) ( )
                               ( ) ( ) \                                ( ) ( )
                               ( ) ( ) \                                ( ) ( )
-------------------------------------------------------------------------------------
EXECUTE( )  BY [  ]  CLEAR( )
JUL  7 80 10:56:00 NWT     PRINT( )   CLR-FAIL( )   DIRECTORY[  ]   PAGE[    ]
```

Fig. 5—No. 1/1A ESS Spray Reroute Example (2.19)

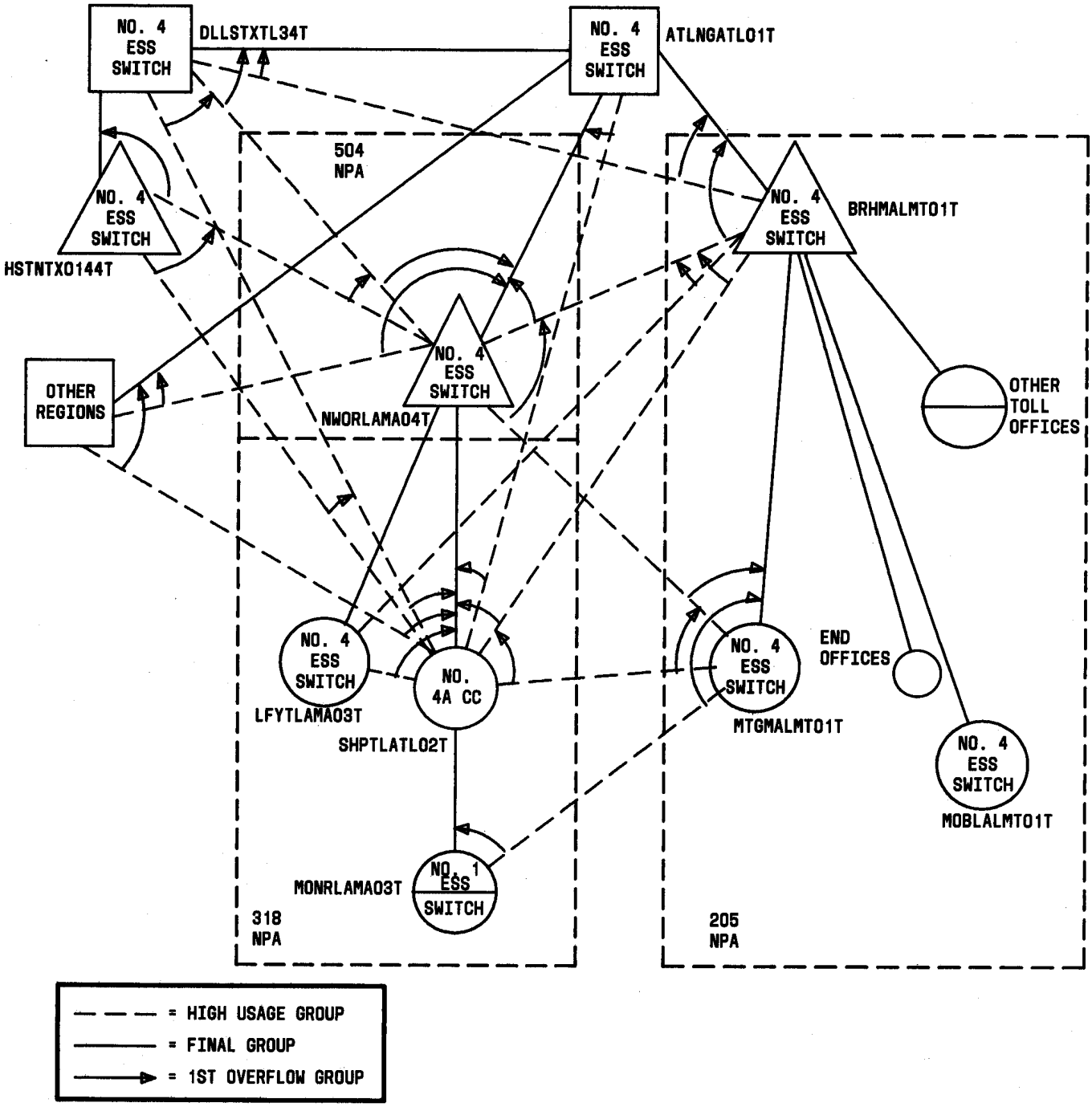


Fig. 6—Up-Chain/Down-Chain Reroute Illustration (3.12, 3.14)

```
MON AUG 11 10:00:00 1980                                        GLBR MD GL MG1L
        CALCULATION      GROUP    TYPE     RESULT

PERCENT OFFICE OVERFLOW                     7.1

                    *** TRUNK GROUP EXCEPTION ***
FAR END CLLI        %OFL     ACH     OCCH     ICCH    USAGE   GSC      T L P S D

BLTM MD WL 07TL 0G   7*       8        7        0      ----    ----     - - - - -
```

```
MON AUG 11 10:00:00 1980                                        LARL MD LR MG0L
        CALCULATION      GROUP    TYPE     RESULT

PERCENT IML                                 4.2
```

```
MON AUG 11 10:00:00 1980                                        WDLW MD WL MG1L
                    *** TRUNK GROUP EXCEPTION ***
FAR END CLLI        %OFL     ACH     OCCH     ICCH    USAGE   GSC      T L P S D

BLTM MD DT 02TT 0F   10*      13       11       0      ----    ----     - - - - -
```

```
MON AUG 11 10:00:00 1980                                        WASH DC SW 06TT
                    *** TRUNK GROUP EXCEPTION ***
FAR END CLLI        %OFL     ACH     OCCH     ICCH    USAGE   GSC      T L P S D

WASH DC MT CG0T 0F   56*      11       5        0      60      ----     - - - - -
```

```
MON AUG 11 10:05:00 1980                                        ANNP MD AN 01TT
                    *** TRUNK GROUP EXCEPTION ***
FAR END CLLI        %OFL     ACH     OCCH     ICCH    USAGE   GSC      T L P S D

PRFR MD PF MG0T 0F    8*       7        7        0      79      ----     - - - - -
BLTM MD WL 07TL 0G   28*       1        0        0      14      ----     - - - - -
MAYO MD MY MG0L 0G    6*       5        4        0      37      ----     - - - - -
ODTN MD ON MG0L 0G   25*       0        0        0      41      ----     - - - - -
SVPK MD SP MG0L 0G    5*       9        8        0      61      ----     - - - - -
```

```
MON AUG 11 10:05:00 1980                                        FLCH VA MF MG0L
                    *** TRUNK GROUP EXCEPTION ***
FAR END CLLI        %OFL     ACH     OCCH     ICCH    USAGE   GSC      T L P S D

ARTN VA AR 01TL 0E   28*      21       15       0      50      ----     - - - - -
ARTN VA CK 03TT BS    3*       5        5       0      56      ----     - - - - -
FLCH VA MF MG0L 0D   90*       4        0       0      98*     ----     - - - - -
MCLN VA LV MG0L 0G    6*       7        6       0      55      ----     - - - - -
```

```
MON AUG 11 10:05:00 1980                                        HYVL MD HY 10TL
                    *** TRUNK GROUP EXCEPTION ***
FAR END CLLI        %OFL     ACH     OCCH     ICCH    USAGE   GSC      T L P S D

WDRF MD WD MG0L 0G    0       8        8       0      97*     ----     - - - - -
```

Fig. 7—Exception Printout Example (3.21, 7.11)

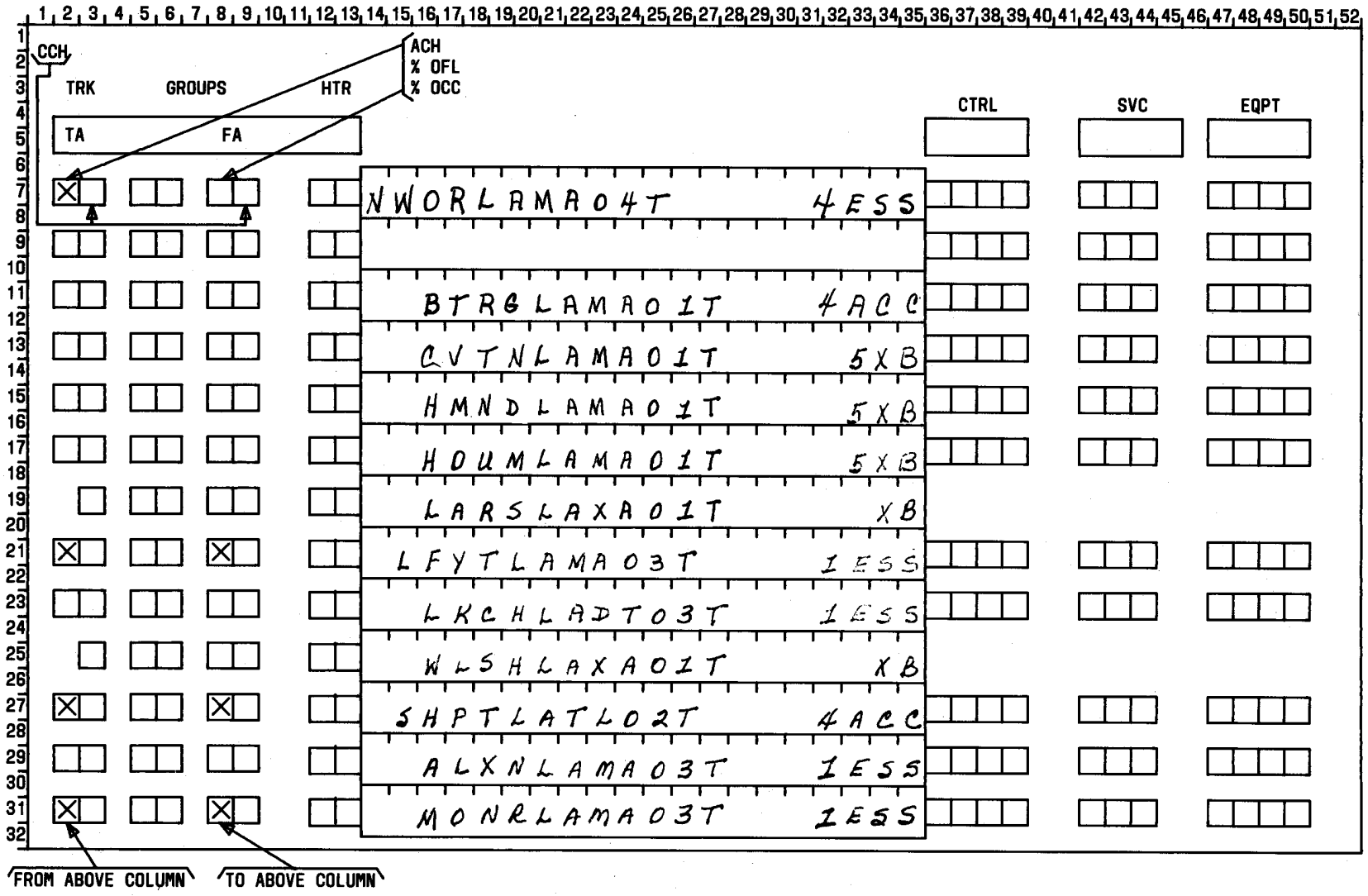


Fig. 8—Typical Office Panel Example 3.23, 3.25—3.27, 3.29, 3.30)

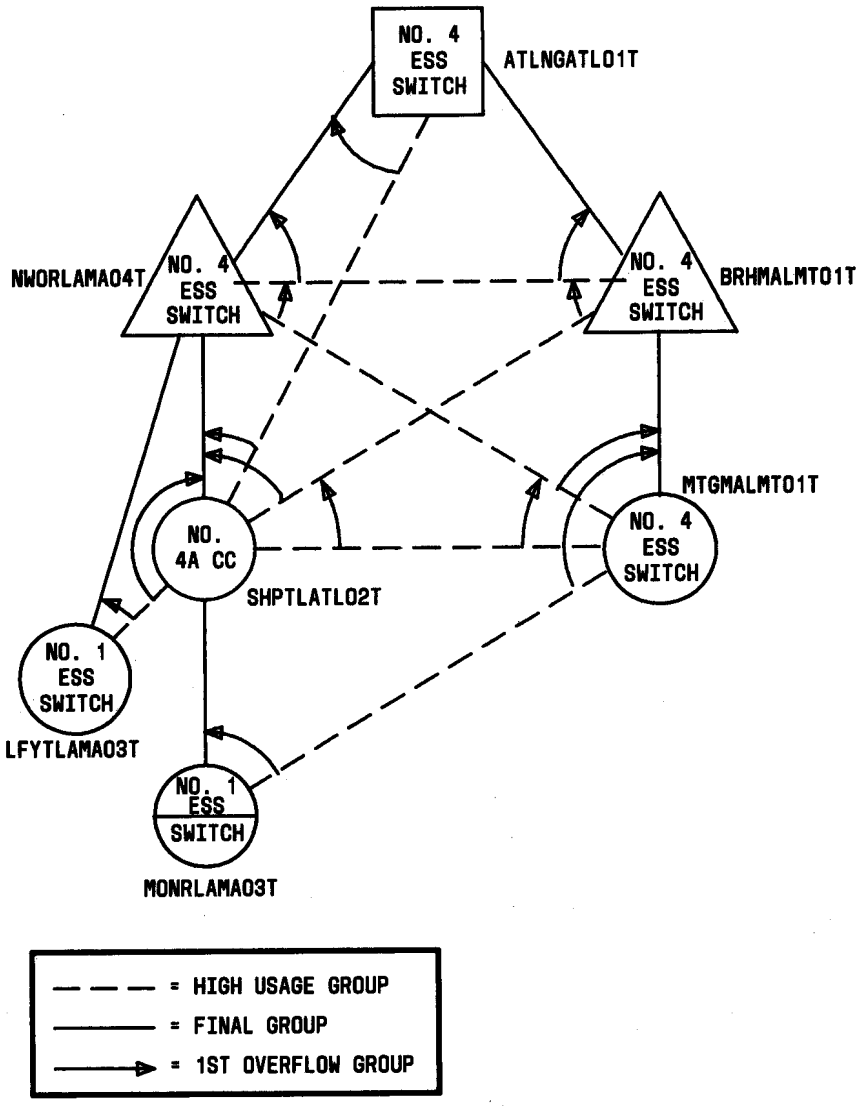


Fig. 9—TA-FA Trunk Group Illustration (3.26, 3.27, 3.29)

```
ETS6:      [Ø4]
ETS2:    ØØ TTYØØ Ø7-1Ø 23ØØ-ØØ
ETS2:      [Ø5]
THU JUL 1Ø 21:13:Ø6 198Ø  *** TRUNK GROUP MONITOR ***
MIN     TRUNK GROUP      PC    OFL  %OFL   ACH  OCCH  ICCH   IPC  %OCC      HT

 5 BLTM MD DTØ2TT TO  163    16A    9     8     7     5    7Ø    66
   WAYN PA LA42TT-3F
 5 ARTN VA CKØ3TT TO   81    19A   23     3     2                81      7.Ø
   SPFD VA SPMGØT-ØF
ETSØ: NET-Ø3-SR:1-PP:Ø4.
ETSØ:    OK
ETSØ:      16 NETØ8  PP:Ø4  VFY   7-1Ø  23:16
ETSØ:      [14]
ETSØ:      16 NETØ3  RR  TGI:21Ø8  TRI:Ø437 RPI:2652 DAR 1ØØ%  RDY:Ø
ETSØ:      [15]
ETSØ:      16 NETØ4  PP EOC
ETSØ:      [16]
ETSØ: NET-ØØ-EXEC.
ETSØ:    OK
ETSØ:      16 NETØ8  PP:Ø4  EXC   7-1Ø  23:16
ETSØ:      [17]
```

```
THU JUL 1Ø 21:18:Ø6 198Ø  *** TRUNK GROUP MONITOR ***
MIN     TRUNK GROUP      PC    OFL  %OFL   ACH  OCCH  ICCH   IPC  %OCC      HT

 5 BLTM MD DTØ2TT TO  171    64A   37     8     5     3    53    93
   WAYN PA LA42TT-3F
 5 ARTN VA CKØ3TT TO   66     3A    4     3     2                88      9.3
   SPFD VA SPMGØT-ØF
THU JUL 1Ø 21:23:Ø6 198Ø  *** TRUNK GROUP MONITOR ***
MIN     TRUNK GROUP      PC    OFL  %OFL   ACH  OCCH  ICCH   IPC  %OCC      HT

 5 BLTM MD DTØ2TT TO   57     7A   12     2     2     1    18    97
   WAYN PA LA42TT-3F
ETSØ: NET-Ø3-SR:Ø-PP:Ø4.
ETSØ:    OK
ETSØ:      27 NETØ8  PP:Ø4  RES   7-1Ø  23:27
ETSØ:      [18]
ETS6: NET-Ø6-CLEAR.
ETS6:    OK
ETS5:    28 NET24 CLEAR RDY 7-1Ø 23:28
```

**Fig. 10—Monitor Printout Example (3.31)**

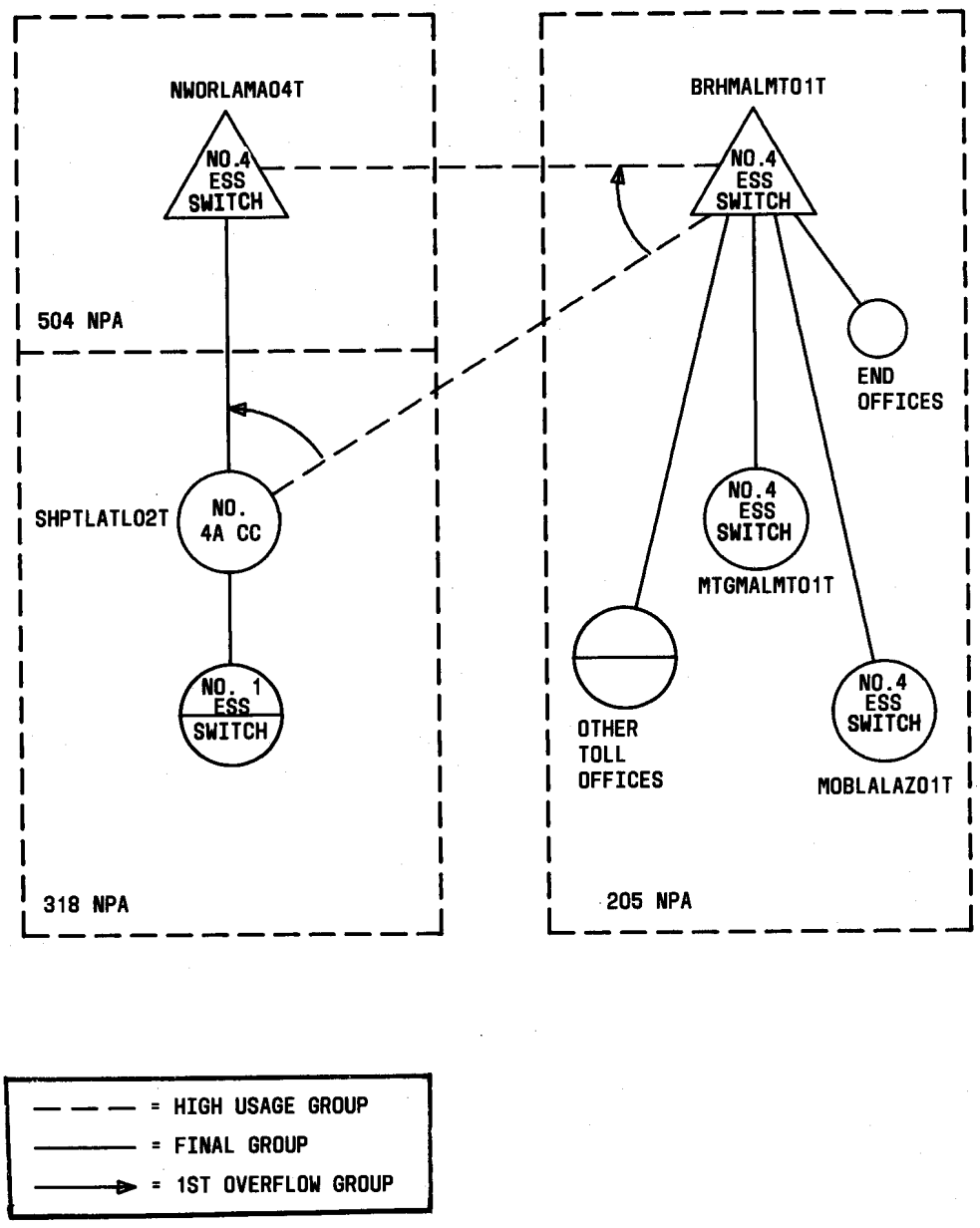


Fig. 11—Screening Illustration 4.05)

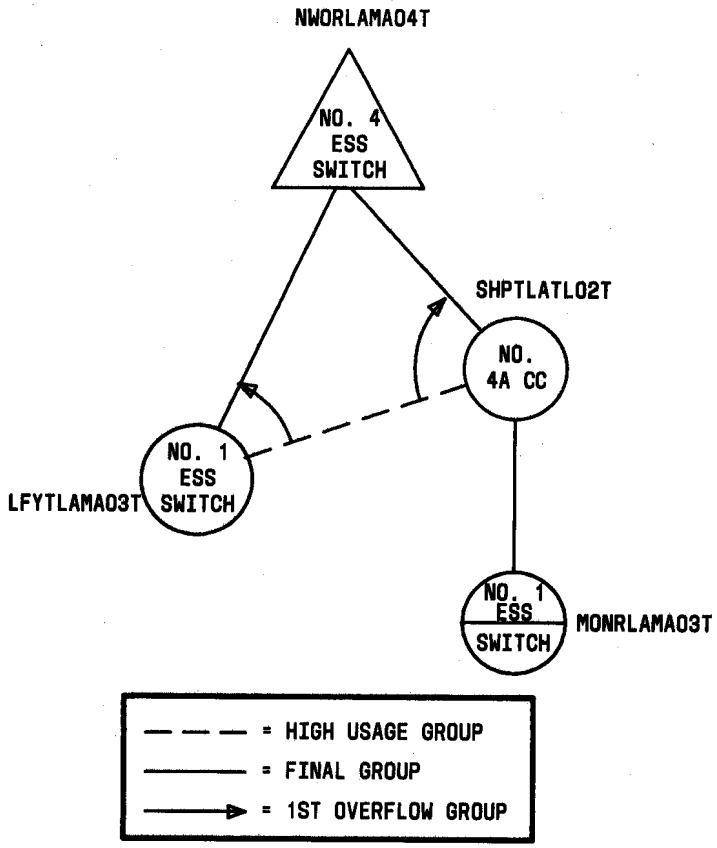


**Fig. 12—Internal Machine Loop Illustration (4.07)**

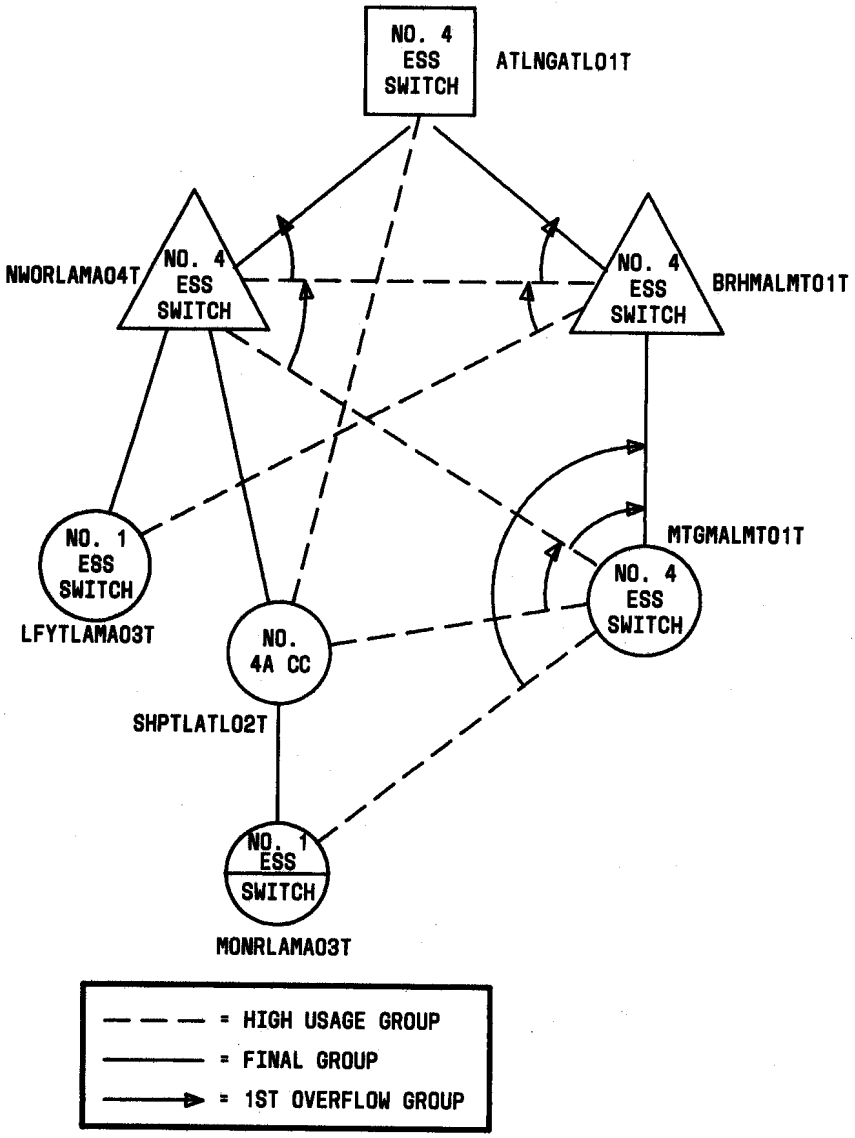


**Fig. 13—Round Robin Reroute Illustration (4.13, 4.16—4.20)**

## TABLE B

## WINDOW EXPLANATION—PAGE AN21

**INPUT WINDOWS**

| WINDOW | EXPLANATION | WINDOW | EXPLANATION |
|---|---|---|---|
| 1 | Office A CLLI (always required). | 20 | Designate to expand the data for a particular AV, VB, or BV trunk group combination. |
| 3 | Office B CLLI (usually required). | 30 | Designate to transfer to Page CN13, single trunk group control page, with the proper AB, AV, VB, or BV trunk group. |
| 5 | Designate to limit via search to internal offices only (default). | 48 | Designate to scroll forward. |
| 6 | Designate to limit via search to external offices only. | 49 | Designate to scroll backward. |
| 7 | Designate for INTER-EADAS search. | 50 | Designate to transfer to Page CN21 with the AB trunk group. |
| 8 | Apex office CLLI to limit search to offices subtending it. | 51 | Designate to transfer to Page CN23 with the AB trunk group. |
| 9 | Rank selection to limit search to offices of rank equal to or higher than the one entered. From offices of 1, 2, and 3, default is 3; offices 4 or 5, default is 5. | | |
| 10 | Enter EQIC threshold. | | |

**OUTPUT WINDOWS**

| WINDOW | EXPLANATION | WINDOW | EXPLANATION |
|---|---|---|---|
| 0 | Warning, error, processing window. | 26 | An * if a PP reroute is active on the AB trunk group for this V. |
| 1 | Complete Office A CLLI. | 27 | An * if a flexible RR is active on the AB trunk group for this V. |
| 2 | Office A type. | 28 | The 5-minute interval for which data are displayed. |
| 3 | Complete Office B CLLI. | 29 | |
| 4 | Office B type when internal. | 31 thru 45 | These windows are for expansion purposes. In order, AB first, VB second, VB or BV last. |
| 5 | An s if internal has been selected. | 31 | AB, AV, VB, or BV headers. |
| 6 | An s if external has been selected. | 32 | The individual numbers of equivalent 2-way outgoing circuits. |
| 7 | An s if INTER-EADAS has been selected. | 33 | Individual peg counts. |
| 8 | Complete V apex office CLLI. | 34 | Individual overflow counts. |
| 9 | Rank selected. | 35 | Individual percent overflow. |
| 10 | EQIC Threshold. | 36 | Individual ACH. |
| 11 | AV group. | 37 | Individual outgoing CCH. |
| 12 | The 5 minutes for which data are displayed. | 38 | Individual incoming CCH. |
| 13 | | 39 | Individual percent OCC. |
| 14 | VB if V is internal, BV if V is external. | 40 | Holding time, when available. |
| 15 | Equivalent idle circuits for AV per formula (1 — % OCC) = EQ2WO. | 41 | String window for different types of controls (eg, TORC, CANF, CANT, etc). |
| 16 | Percent OCC for AV. | 42 | An m indication if more than one control is active on the trunk group. |
| 17 | OCCH for AV. | 43 | Individual percent of traffic controlled. |
| 18 | An * is shown if any CCIS trunk group flag, DOC, STR exists on AV. | 44 | Type of traffic (DAR, AR, — — — —). |
| 19 | Trunk group name: CLLI and suffix. | 45 | Individual trunk group suffixes. |
| 21 | Equivalent idle circuits BV or VB. | 46 | Segment displayed and the number of segments available. |
| 22 | Percent OCC BV or VB. | 47 | |
| 23 | OCCH BV or VB. | | |
| 24 | An * if any CCIS trunk group flag or DOC and STR exists on BV or VB. | | |
| 25 | An a if a PP reroute is available on the AB trunk group for this V. | | |

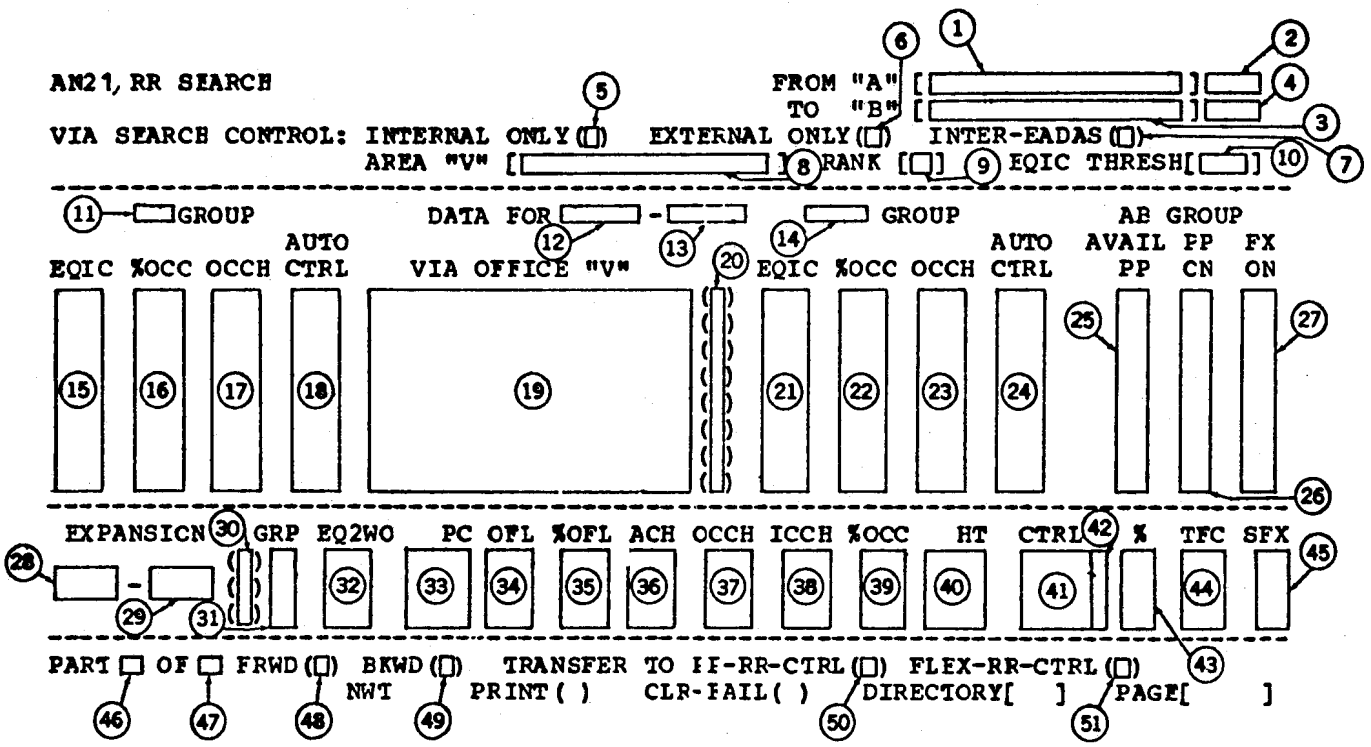


Fig. 14—Page AN21—Input and Output Window Layout (5.03)

```
MON AUG 11 19:53:24 1980  *** REROUTE MONITOR ***

(1)      TRUNK GROUP                    PC   OFL  %OFL   ACH  OCCH   ICCH   IPC  %OCC
 5 RCMD VA GR01-SMFD VA XA01TT-2H       12     2    16     6     5      2     4   100
 5 NRFL VA BS02-RCMD VA GR01TT-2F       87     6     6     5     4      7   128    96
MON AUG 11 19:53:38 1980  *** TRUNK GROUP MONITOR ***
MIN    TRUNK GROUP      PC   OFL  %OFL   ACH  OCCH  ICCH   IPC  %OCC      HT

 5 RCMD VA GR01TT TO   130     1A    0     7     7     4    78    96      5.3
   NRFL VA BS02TT-2F
 5 NRFL VA BS02TT TO    87     6A    6     5     4     7   128    96      5.2
   RCMD VA GR01TT-2F
ETS5: NET-03-SR:1-PP:97.
ETS5:   OK
ETS5:     54 NET08  PP:97  VFY   8-11  21:54
ETS5:     [20]
ETS5:     54 NET03  RR  TGI:1616  TRI:0215 RPI:0897 DAR 50%  RDY:0
ETS5:     [21]
ETS5:     54 NET01  CANF TGI:1310 TRI:0194 DAR 100% NCA     RDY:0
ETS5:     [22]
ETS5:     54 NET04  PP EOC
ETS5:     [23]
ETS5: NET-00-EXEC.
ETS5:   OK
ETS5:     55 NET08  PP:97  EXC   8-11  21:55
ETS5:     [24]

MON AUG 11 19:57:35 1980  *** REROUTE MONITOR ***

(2)      TRUNK GROUP                    PC   OFL  %OFL   ACH  OCCH   ICCH   IPC  %OOC

 5 NRFL VA BS02-RCMD VA GR01TT-2F       67     2     2     3     3      2    44    93
MON AUG 11 19:57:38 1980  *** TRUNK GROUP MONITOR ***
MIN    TRUNK GROUP      PC   OFL  %OFL   ACH  OCCH  ICCH   IPC  %OCC      HT

 5 RCMD VA GR01TT TO    45     1A    2     2     2     3    63    92      5.9
   NRFL VA BS02TT-2F
 5 NRFL VA BS02TT TO    67     2A    2     3     3     2    44    93      5.9
   RCMD VA GR01TT-2F
ETS4:   00 TTY00 08-11 2200-01
ETS4:     [39]
ETS0:   00 TTY00 08-11 2200-00
ETS0:     [48]
ETS1:   00 TTY00 08-11 2200-00
ETS1:     [05]
```

**Fig. 15—Reroute Monitor Printout Example (6.12)**

## D. CN21 User Flow Diagram

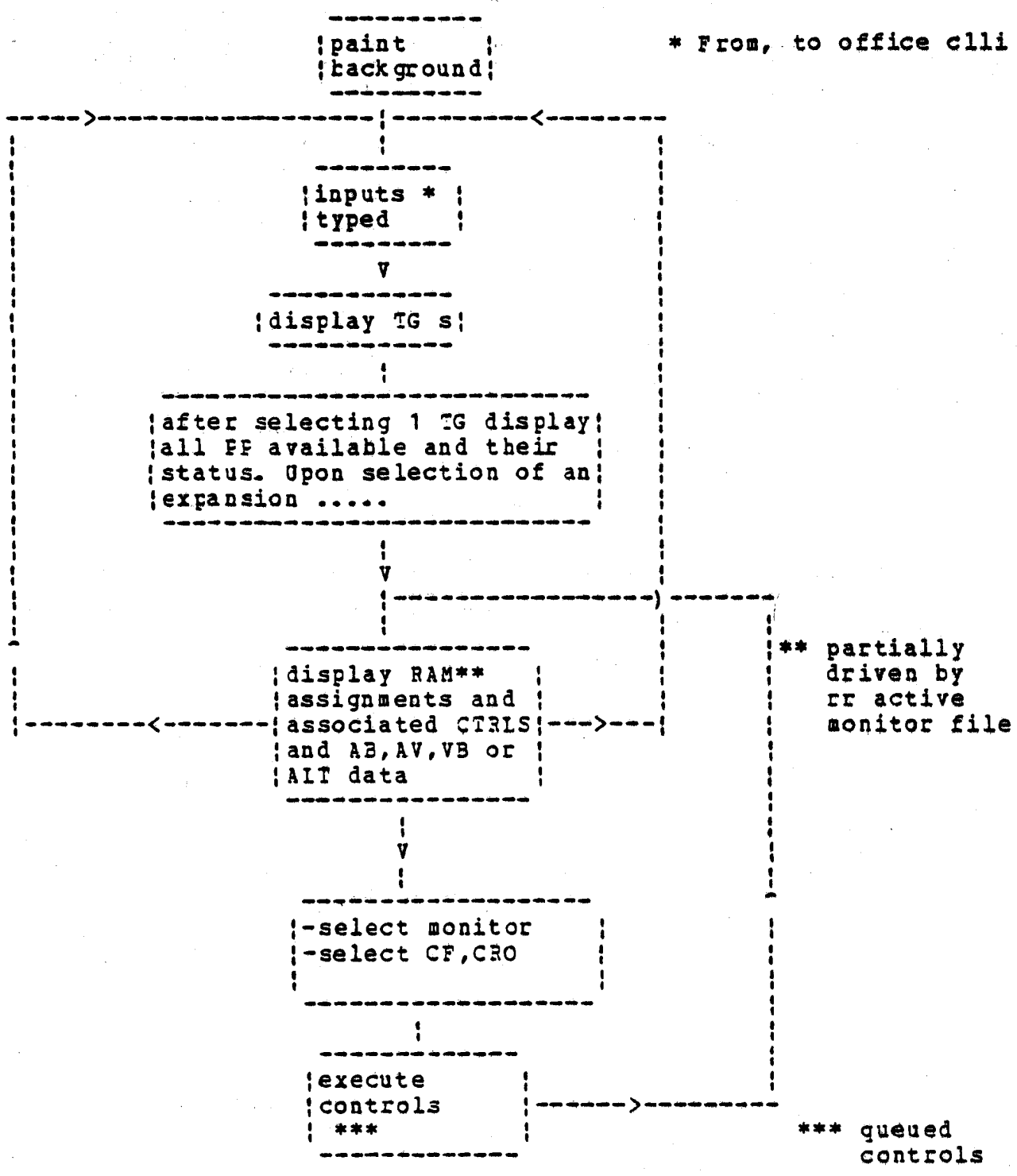


Fig. 16—Page CN21—User Flow Diagram (7.08)

## ♦ TABLE C ♦

## WINDOW EXPLANATION—PAGE CN21

| INPUT WINDOWS | | | |
|---|---|---|---|
| WINDOW | EXPLANATION | WINDOW | EXPLANATION |
| 1 | FROM office CLLI (always required). | 34 | ALT AV monitor trunk group FROM CLLI. |
| 5 | TO office CLLI (always required). | 35 | ALT AV monitor trunk group TO CLLI. |
| 8 | Designate to activate a PP reroute. | 36 | ALT AV monitor trunk group suffix. |
| 9 | Designate to deactivate a PP reroute. | 37 | ALT VB monitor trunk group FROM CLLI. |
| 15 | Designate to expand data for a set; AVB for a particular PP reroute. | 38 | ALT VB monitor trunk group TO CLLI. |
| | | 39 | ALT VB monitor trunk group suffix. |
| 17 | Designate to select a specific AB trunk group. | 40 | Execution designate. |
| 18 | Designate to activate or remove CRO or CANF for AV or ALT AV trunk group. | 41 | Initials. |
| | | 42 | Designate to clear page input CTRLS. |
| 19 | Designate to activate or remove CRO or CANF for VB or ALT VB trunk group. | 43 | Designate to put the monitor trunk group on the monitor printer. |
| 31<br>32 | Must expand (Window 15) or enter alternate AV (Windows 34, 35) and/or VB (Windows 37, 38) before using. | 44 | Designate to remove the monitor trunk group from the monitor printer. |
| 31 | Designate to assign to or remove a monitored trunk group from the RAM file for AV or alternate AV trunk group. | 45 | Designate to transfer to Page CN23 with the AB trunk group. |
| 32 | Designate to assign to or remove a monitored trunk group from the RAM file for VB or alternate VB trunk group. | 46 | Designate to transfer to Page CN25. Acceptable designates are A, B, or V office. Prerequisite for V is an indication in Window 39 — SFX to identify group. |
| 33 | Percent OFL threshold for AV or alternate AV, or VB or alternate VB. | | |

| OUTPUT WINDOWS | | | |
|---|---|---|---|
| WINDOW | EXPLANATION | WINDOW | EXPLANATION |
| 0 | Warning, error, and processing window. | 20 | EQ2W0. |
| 1 | Complete FROM office CLLI. | 21 | Peg count. |
| 2 | FROM office type. | 22 | Overflow. |
| 3<br>4 | Windows 3 and 4 do not work. | 23 | OCCH. |
| | | 24 | Percent OCC. |
| 5 | Complete TO office CLLI. | 25 | CCIS (asterisk if there are CCIS flags or GSC count). |
| 6 | TO office type. | 26 | Other controls (CANF, CANT, etc — — — —). |
| 7 | List of PP numbers. | 27 | Reroute from. |
| 8 | An s for PP activated. | 28 | Reroute to. |
| 9 | An s for PP deactivated. | 29 | Asterisk if A, B, or V offices have a DOC control in effect. |
| 10 | AV trunk group. | | |
| 11 | Percent of direct routed traffic. | 30 | Percent delay for A, B, or V offices. |
| 12 | Percent of alternate routed traffic. | 31 | Status of RAM file for AV group. |
| 13 | This window does not work. | 32 | Status of RAM file for VB group. |
| 14 | Type of reroute: RR, IRR, RRS, IRRS. | 33 | Percent OFL threshold. |
| 15 | An s for PP expanded data. | 34<br>35<br>36 | Complete alternate AV trunk group CLLIs. |
| 16 | TO trunk groups from A office. | | |
| 17 | An s indicates the selected TO group. | 37<br>38<br>39 | Complete alternate VB trunk group CLLIs. |
| 18 | An s for CTRL status on AV or ALT AV. | | |
| 19 | An s for CTRL status on VB or ALT VB. | | |
| 20<br>30 | For expansion of AB, AV, and VB (or alternate) data. | | |

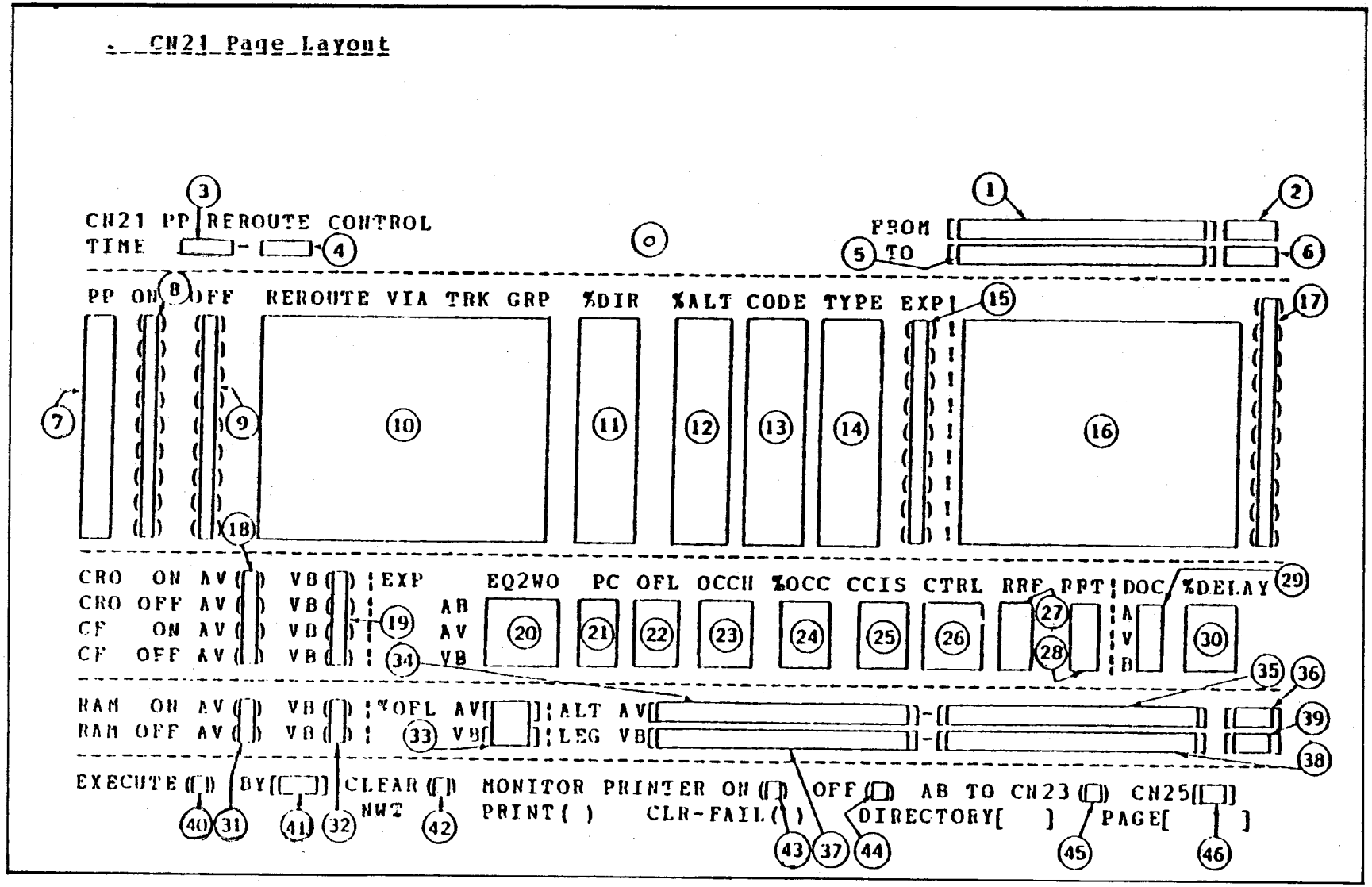


Fig. 17—Page CN21—Input and Output Window Layout (7.09—7.11)

PART A

```
CN21 EE REROUTE CONTROL                                    FROM [stls          ]
TIME      -                                                 TO  [hnbl          ]
-------------------------------------------------------------------------------
PP ON  OFF  REROUTE VIA TRK GRP  %DIR  %ALT CODE TYPE EXP!                  ( )
   ( ) ( )                                              ( )!                  ( )
   ( ) ( )                                              ( )!                  ( )
   ( ) ( )                                              ( )!                  ( )
   ( ) ( )                                              ( )!                  ( )
   ( ) ( )                                              ( )!                  ( )
   ( ) ( )                                              ( )!                  ( )
   ( ) ( )                                              ( )!                  ( )
   ( ) ( )                                              ( )!                  ( )
   ( ) ( )                                              ( )!                  ( )
-------------------------------------------------------------------------------
CRO  ON AV( ) VB( )!EXP    EQ2WO  PC OFL OCCH %OCC CCIS CTRL RRF RRT!DOC %DELAY
CRO OFF AV( ) VB( )!    AB                                        !A
CF   ON AV( ) VB( )!    AV                                        !V
CF  OFF AV( ) VB( )!    VB                                        !B
-------------------------------------------------------------------------------
RAM  ON AV( ) VB( )!%OFL AV[   ]!ALT AV[                ]-[                ] [   ]
RAM OFF AV( ) VB( )!     VB[   ]!LEG VB[                ]-[                ] [   ]
-------------------------------------------------------------------------------
EXECUTE( ) BY[   ] CLEAR( ) MONITOR PRINTER ON( ) OFF( ) AB TO CN23( ) CN25( )
Nov  5 79 15:39:10 NWT      PRINT( )   CLR-FAIL( )   DIRECTORY[   ]  PAGE[     ]
```

PART B

```
CN21 PP REROUTE CONTROL       warning  1          FROM [STLS MO 09 24T  ] 4ETS
TIME      -                                       TO  [HNBL MO AC 05T  ]
-------------------------------------------------------------------------------
PP ON  OFF  REROUTE VIA TRK GRP  %DIR  %ALT CODE TYPE EXP!HNBL MO AC 05T   2F(s)
56 ( ) (s)  STLS MO 09 14T   2F  100   100        RR  ( )!                    ( )
66 ( ) (s)  JEF1 RE RO UTE   2H  100   100        RR  ( )!                    ( )
   ( ) ( )                                          ( )!                    ( )
   ( ) ( )                                          ( )!                    ( )
   ( ) ( )                                          ( )!                    ( )
   ( ) ( )                                          ( )!                    ( )
   ( ) ( )                                          ( )!                    ( )
   ( ) ( )                                          ( )!                    ( )
   ( ) ( )                                          ( )!                    ( )
-------------------------------------------------------------------------------
CRO  ON AV( ) VB( )!EXP    EQ2WO  PC OFL OCCH %OCC CCIS CTRL RRF RRT!DOC %DELAY
CRO OFF AV( ) VB( )!    AB                                        !A
CF   ON AV( ) VB( )!    AV                                        !V
CF  OFF AV( ) VB( )!    VB                                        !B
-------------------------------------------------------------------------------
RAM  ON AV( ) VB( )!%OFL AV[   ]!ALT AV[                ]-[                ] [   ]
RAM OFF AV( ) VB( )!     VB[   ]!LEG VB[                ]-[                ] [   ]
-------------------------------------------------------------------------------
EXECUTE( ) BY[   ] CLEAR( ) MONITOR PRINTER ON( ) OFF( ) AB TO CN23( ) CN25( )
Nov  5 79 15:44:54 NWT      PRINT( )   CLR-FAIL( )   DIRECTORY[   ]  PAGE[     ]
```

Fig. 18—Page CN21—Example (Sheet 1 of 5) (7.12)

PART C

```
CN21 PP REROUTE CONTROL                                  FROM [STLS MO 09 24T  ] 4ETS
TIME      -                                               TO [HNBL MO AC 05T  ]
-------------------------------------------------------------------------------
PP ON  OFF  REROUTE VIA TRK GRP  %DIR  %ALT CODE TYPE EXP!HNBL MO AC 05T   2F(s)
56 ( ) (s)  STLS MO 09 14T   2F  100   100        RR   (+)!                   ( )
66 ( ) (s)  JEF1 RE RO UTE   2H  100   100        RR   ( )!                   ( )
   ( ) ( )                                             ( )!                   ( )
   ( ) ( )                                             ( )!                   ( )
   ( ) ( )                                             ( )!                   ( )
   ( ) ( )                                             ( )!                   ( )
   ( ) ( )                                             ( )!                   ( )
   ( ) ( )                                             ( )!                   ( )
   ( ) ( )                                             ( )!                   ( )
-------------------------------------------------------------------------------
CRO  ON AV( ) VB( )!EXP    EQ2WO  PC OFL OCCH %OCC CCIS CTRL RRF RRT!DOC %DELAY
CRO OFF AV( ) VB( )!    AB                                        !A
CF   ON AV( ) VB( )!    AV                                        !V
CF  OFF AV( ) VB( )!    VB                                        !B
-------------------------------------------------------------------------------
RAM  ON AV( ) VB( )!%OFL AV[   ]!ALT AV[                ]-[                ] [   ]
RAM OFF AV( ) VB( )!     VB[   ]!LEG VB[                ]-[                ] [   ]
-------------------------------------------------------------------------------
EXECUTE( ) BY[   ] CLEAR( ) MONITOR PRINTER ON( ) OFF( ) AB TO CN23( ) CN25( )
Nov  5 79 15:44:54 NWT      PRINT( )   CLR-FAIL( )   DIRECTORY[   ]  PAGE[     ]
```

PART D

```
CN21 PP REROUTE CONTROL                                  FROM [STLS MO 09 24T  ] 4ETS
TIME      -                                               TO [HNBL MO AC 05T  ]
-------------------------------------------------------------------------------
PP ON  OFF  REROUTE VIA TRK GRP  %DIR  %ALT CODE TYPE EXP!HNBL MO AC 05T   2F(s)
56 ( ) (s)  STLS MO 09 14T   2F  100   100        RR   (s)!                   ( )
66 ( ) (s)  JEF1 RE RO UTE   2H  100   100        RR   ( )!                   ( )
   ( ) ( )                                             ( )!                   ( )
   ( ) ( )                                             ( )!                   ( )
   ( ) ( )                                             ( )!                   ( )
   ( ) ( )                                             ( )!                   ( )
   ( ) ( )                                             ( )!                   ( )
   ( ) ( )                                             ( )!                   ( )
   ( ) ( )                                             ( )!                   ( )
-------------------------------------------------------------------------------
CRO  ON AV( ) VB( )!EXP    EQ2WO  PC OFL OCCH %OCC CCIS CTRL RRF RRT!DOC %DELAY
CRO OFF AV(s) VB(s)!    AB  120  158  20    5   98                   !A      .0
CF   ON AV( ) VB( )!    AV  300   71   0    2   20                   !V      .0
CF  OFF AV(s) VB(s)!    VB   52   25   0    5   41                   !B
-------------------------------------------------------------------------------
RAM  ON AV( ) VB( )!%OFL AV[   ]!ALT AV[                ]-[                ] [   ]
RAM OFF AV(s) VB(s)!     VB[   ]!LEG VB[                ]-[                ] [   ]
-------------------------------------------------------------------------------
EXECUTE( ) BY[   ] CLEAR( ) MONITOR PRINTER ON( ) OFF(s) AB TO CN23( ) CN25( )
Nov  5 79 15:46:02 NWT      PRINT( )   CLR-FAIL( )   DIRECTORY[   ]  PAGE[     ]
```

**Fig. 18—Page CN21—Example (Sheet 2 of 5) (7.12)**

PART E

```
CN21 PP REROUTE CONTROL                                  FROM [STLS MO 09 24T  ] 4ETS
TIME      -                                               TO [HNBL MO AC 05T  ]
-------------------------------------------------------------------------------
PP CN  OFF  REROUTE VIA TRK GRP  %DIR  %ALT CODE TYPE EXP!HNBL MO AC 05T   2F(s)
56 (+) (s)  STLS MO 09 14T   2F  100   100        RR  (s)!                    ( )
66 ( ) (s)  JEF1 RE RO UTE   2H  100   100        RR  ( )!                    ( )
   ( ) ( )                                            ( )!                    ( )
   ( ) ( )                                            ( )!                    ( )
   ( ) ( )                                            ( )!                    ( )
   ( ) ( )                                            ( )!                    ( )
   ( ) ( )                                            ( )!                    ( )
   ( ) ( )                                            ( )!                    ( )
   ( ) ( )                                            ( )!                    ( )
-------------------------------------------------------------------------------
CRO  ON AV( ) VB( )!EXP    EQ2WO  PC OFL OCCH %OCC CCIS CTRL RRF RRT!DOC %DELAY
CRO OFF AV(s) VB(s)!    AB  120  158  20    5   98                  !A      .0
CF   ON AV(+) VB(+)!    AV  300   71   0    2   20                  !V      .0
CF  OFF AV(s) VB(s)!    VB   52   25   0    5   41                  !B
-------------------------------------------------------------------------------
RAM  ON AV(+) VB(+)!%OFL AV[1 ]!ALT AV[                ]-[                ] [   ]
RAM OFF AV(s) VB(s)!     VB[1 ]!LEG VB[                ]-[                ] [   ]
-------------------------------------------------------------------------------
EXECUTE( ) BY[   ] CLEAR( ) MONITOR PRINTER ON(+) OFF(s) AB TO CN23( ) CN25( )
Nov  5 79 15:46:10 NWT      PRINT( )   CLR-FAIL( )   DIRECTORY[   ]  PAGE[    ]
```

PART F

```
CN21 PP REROUTE CONTROL                                  FROM [STLS MO 09 24T  ] 4ETS
TIME      -                                               TO [HNBL MO AC 05T  ]
-------------------------------------------------------------------------------
PP ON  OFF  REROUTE VIA TRK GRP  %DIR  %ALT CODE TYPE EXP!HNBL MO AC 05T   2F(s)
56 (p) (s)  STLS MO 09 14T   2F  100   100        RR  (s)!                    ( )
66 ( ) (s)  JEF1 RE RO UTE   2H  100   100        RR  ( )!                    ( )
   ( ) ( )                                            ( )!                    ( )
   ( ) ( )                                            ( )!                    ( )
   ( ) ( )                                            ( )!                    ( )
   ( ) ( )                                            ( )!                    ( )
   ( ) ( )                                            ( )!                    ( )
   ( ) ( )                                            ( )!                    ( )
   ( ) ( )                                            ( )!                    ( )
-------------------------------------------------------------------------------
CRO  ON AV( ) VB( )!EXP    EQ2WO  PC OFL OCCH %OCC CCIS CTRL RRF RRT!DOC %DELAY
CRO OFF AV(s) VB(s)!    AB  120  158  20    5   98                  !A      .0
CF   ON AV(p) VB(p)!    AV  300   71   0    2   20                  !V      .0
CF  OFF AV(s) VB(s)!    VB   52   25   0    5   41                  !B
-------------------------------------------------------------------------------
RAM  ON AV(s) VB(s)!%OFL AV[ 1]!ALT AV[STLS MO 09 24T  ]-[STLS MO 09 14T  ] [2F]
RAM OFF AV( ) VB( )!     VB[ 0]!LEG VB[STLS MO 09 14T  ]-[HNBL MO AC 05T  ] [2H]
-------------------------------------------------------------------------------
EXECUTE( ) BY[   ] CLEAR( ) MONITOR PRINTER ON(s) OFF( ) AB TO CN23( ) CN25( )
Nov  5 79 15:49:35 NWT      PRINT( )   CLR-FAIL( )   DIRECTORY[   ]  PAGE[    ]
```

Fig. 18—Page CN21—Example (Sheet 3 of 5) (7.12)

PART G

```
CN21 PP REROUTE CONTROL                                  FROM [STLS MO 09 24T  ] 4ETS
TIME      -                                               TO [HNBL MO AC 05T  ]
-------------------------------------------------------------------------------
PP CN  OFF  REROUTE VIA TRK GRP  %DIR  %ALT CODE TYPE EXP!HNBL MO AC 05T   2F(s)
56 (q) (s)  STLS MO 09 14T   2F  100   100        RR  (s)!                    ( )
66 ( ) (s)  JEF1 RE RO UTE   2H  100   100        RR  ( )!                    ( )
   ( ) ( )                                           ( )!                    ( )
   ( ) ( )                                           ( )!                    ( )
   ( ) ( )                                           ( )!                    ( )
   ( ) ( )                                           ( )!                    ( )
   ( ) ( )                                           ( )!                    ( )
   ( ) ( )                                           ( )!                    ( )
   ( ) ( )                                           ( )!                    ( )
-------------------------------------------------------------------------------
CRO  ON AV( ) VB( )!EXP    EQ2WO  PC OFL OCCH %OCC CCIS CTRL RRF RRT!DOC %DELAY
CRO OFF AV(s) VB(s)!    AB  120  158  20    5   98                  !A      .0
CF   ON AV(s) VB(s)!    AV  300   71   0    2   20                  !V      .0
CF  OFF AV( ) VB( )!    VB   52   25   0    5   41                  !B
-------------------------------------------------------------------------------
RAM  ON AV(s) VB(s)!%OFL AV[ 1]!ALT AV[STLS MO 09 24T  ]-[STLS MO 09 14T  ] [2F]
RAM OFF AV( ) VB( )!     VB[ 0]!LEG VB[STLS MO 09 14T  ]-[HNBL MO AC 05T  ] [2H]
-------------------------------------------------------------------------------
EXECUTE( ) BY[ja] CLEAR( ) MONITOR PRINTER ON(S) OFF( ) AB TO CN23( ) CN25( ).
Nov  5 79 15:50:45 NWT     PRINT( )   CLR-FAIL( )   DIRECTORY[   ]  PAGE[    ]
```

PART H

```
CN21 PP REROUTE CONTROL                                  FROM [STLS MO 09 24T  ] 4ETS
TIME                                                      TO [HNBL MO AC 05T  ]
-------------------------------------------------------------------------------
PP CN  OFF  REROUTE VIA TRK GRP  %DIR  %ALT CODE TYPE EXP!HNBL MO AC 05T   2F(s)
56 (s) ( )  STLS MO 09 14T   2F  100   100        RR  (s)!                    ( )
66 ( ) (s)  JEF1 RE RO UTE   2H  100   100        RR  ( )!                    ( )
   ( ) ( )                                           ( )!                    ( )
   ( ) ( )                                           ( )!                    ( )
   ( ) ( )                                           ( )!                    ( )
   ( ) ( )                                           ( )!                    ( )
   ( ) ( )                                           ( )!                    ( )
   ( ) ( )                                           ( )!                    ( )
   ( ) ( )                                           ( )!                    ( )
-------------------------------------------------------------------------------
CRO  ON AV( ) VB( )!EXP    EQ2WO  PC OFL OCCH %OCC CCIS CTRL RRF RRT!DOC %DELAY
CRO OFF AV(s) VB(s)!    AB  120  158  20    5   98       PP56       !A      .0
CF   ON AV(s) VB(s)!    AV  300   71   0    2   20       CANF       !V      .0
CF  OFF AV( ) VB( )!    VB   52   25   0    5   41       CANF       !B
-------------------------------------------------------------------------------
RAM  ON AV(s) VB(s)!%OFL AV[ 1]!ALT AV[STLS MO 09 24T  ]-[STLS MO 09 14T  ] [2F]
RAM OFF AV( ) VB( )!     VB[ 0]!LEG VB[STLS MO 09 14T  ]-[HNBL MO AC 05T  ] [2H]
-------------------------------------------------------------------------------
EXECUTE( ) BY[   ] CLEAR( ) MONITOR PRINTER ON(S) OFF( ) AB TO CN23( ) CN25( )
Nov  5 79 15:58:21 NWT     PRINT( )   CLR-FAIL( )   DIRECTORY[   ]  PAGE[    ]
```

Fig. 18—Page CN21—Example (Sheet 4 of 5) (7.12)

PART I

```
THIS IS A RAM CALL TO SEE WHAT THE RAM HAS ON IT!



Mon tg alt AV leg : STLS MO 09 24T     STLS MO 09 14T    2F
Mon tg alt VB leg : STLS MO 09 14T     HNBL MO AC 05T    2H
Reroute AB : STLS MO 09 24T     HNBL MO AC 05T   2F  via STLS MO 09 14T    2F
oflav =1 oflvb =1
PTRcnav =1 PTRonvb =1 PPNO =56 RREF =0
```

Fig. 18—Page CN21—Example (Sheet 5 of 5) (7.12)

```
CN32 GENERAL CONTROL                              OFFICE [                ]      CL
-------------------------------------------------------------------------------------
DRE      ROUTE      STEP SET DREF| PREPROGRAM | DOC      |CTRL OFF:ALL( )|CONTROLS
                                 |   [  ]     |TRANSFER  |     ( )    ( )|IN LOCAL
A                          [ ]   |ON( ) OFF( )|          |     ( )    ( )|MODE:
B                          [ ]   | PPEXC( )   |LOCAL( )  |     ( )    ( )| DRE
C                          [ ]   |  AUTO      |EADAS( )  |     ( )    ( )| KEYS
D                          [ ]   |            |          |     ( )           |
                                 |            |          |-------------------
UNITS: A=   B=   C=   D=         |
-------------------------------------------------------------------------------------
  MISCELLANEOUS KEY CONTROLS     ON OFF |  MISCELLANEOUS KEY CONTROLS     ON OFF
                                 ( ) ( ) |                                 ( ) ( )
                                 ( ) ( ) |                                 ( ) ( )
                                 ( ) ( ) |                                 ( ) ( )
                                 ( ) ( ) |                                 ( ) ( )
                                 ( ) ( ) |                                 ( ) ( )
                                 ( ) ( ) |                                 ( ) ( )
                                 ( ) ( ) |                                 ( ) ( )
                                 ( ) ( ) |                                 ( ) ( )
                                 ( ) ( ) |                                 ( ) ( )
-------------------------------------------------------------------------------------
EXECUTE( )  BY [  ]  CLEAR( )
                     NWT     PRINT( )   CLR-FAIL( )   DIRECTORY[  ]   PAGE[    ]
```

Fig. 19—Page CN32—Page Layout (7.14, 7.17)

## CN23 User Flow Diagram

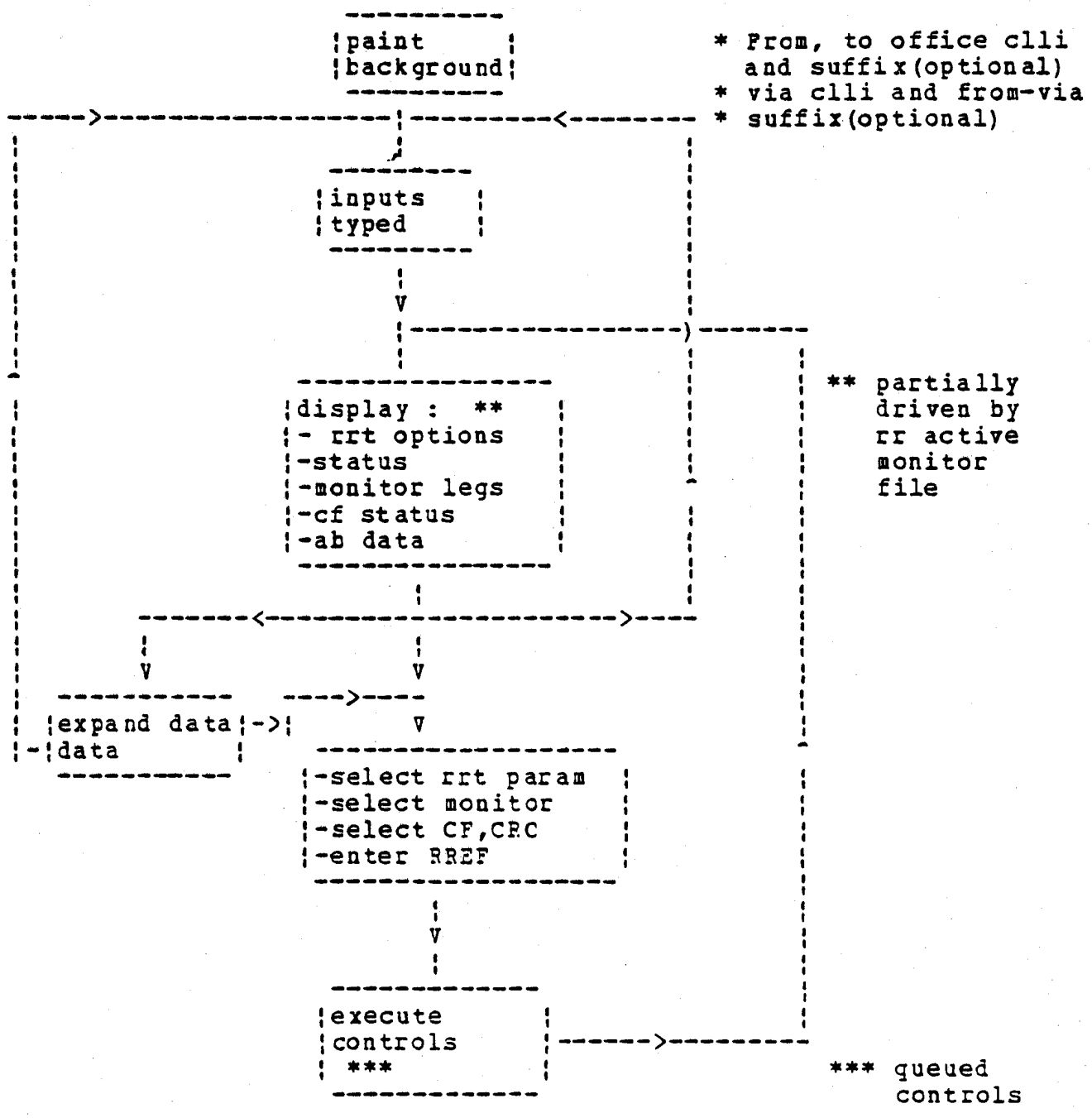


Fig. 20—Page CN23—User Flow Diagram (8.08)

## ◗TABLE D◖

## WINDOW EXPLANATION—PAGE CN23

| INPUT WINDOWS | | | |
|---|---|---|---|
| WINDOW | EXPLANATION | WINDOW | EXPLANATION |
| 1 | Office A CLLI (always required). | 25 | Monitor selection for AV or ALT AV. |
| 3 | Office B CLLI (always required). | 26 | Designate to put trunk group on monitor printer. |
| 4 | AB suffix (optional). | 27 | Monitor selection for VB or ALT VB. |
| 7 | Via office CLLI (always required). | 28 | Overflow threshold for AV or ALT AV, VB, or ALT VB. |
| 8 | AV suffix (optional). | 29 | ALT AV monitor trunk group FROM CLLI. |
| 9 | No longer functional. | 30 | ALT AV monitor trunk group TO CLLI. |
| 11 | Traffic type selection ( H_U , HTR/NHR, APR/ISC)*. | 31 | ALT AV monitor trunk group suffix (optional). |
| 13 | RR type selection (RR, IRR — — — —). | 32 | Designate to remove trunk group from monitor printer. |
| 15<br>16 | Percent selection for ALT, DIR or DAR. | 33 | ALT VB monitor trunk group FROM CLLI. |
| | | 34 | ALT VB monitor trunk group TO CLLI. |
| 17 | Designate to activate RR. | 35 | ALT VB monitor trunk group suffix (optional). |
| 18 | Designate to deactivate RR. | 50 | Execution designate. |
| 19 | Finalization controls selection for AV or ALT AV. | 51 | Initials. |
| 21 | Finalization controls selection for VB or ALT VB. | 52 | Clear page input controls designate. |
| 24 | RREF (or T801) assignment. | | |

*Note:* When Office A is a No. 4 ETS, acceptable designates in this window can also include the combinations of: ALL and NPR; and HTR and NPR.

| OUTPUT WINDOWS | | | |
|---|---|---|---|
| WINDOW | EXPLANATION | WINDOW | EXPLANATION |
| 0 | Warning, error, and processing window. | 25 | MONITOR ON AV status. An s indicates off/on. |
| 1 | Complete Office A CLLI. | 27 | MONITOR ON VB status. An s indicates off/on. |
| 2 | Office A type. | 28 | Percent OFL threshold if available or input. |
| 3 | Complete Office B CLLI. | 29 | Complete monitor trunk group FROM CLLI for ALT AV. |
| 4 | AB suffix (last choice or input). | 30 | Complete monitor trunk group TO CLLI for ALT AV. |
| 5<br>6 | DIR, ALT, or DAR headings. | 31 | Monitor trunk group suffix for ALT AV. |
| | | 33 | Complete monitor trunk group FROM CLLI for ALT VB |
| 7 | Complete V office CLLI. | 34 | Complete monitor trunk group TO CLLI for ALT VB. |
| 8 | AV suffixes (last choice or input). | 35 | Monitor trunk group suffix for ALT VB. |
| 10 | H_U, HTR/NHR, APR, ISC according to office. | 36 | The 5-minute interval for which data are displayed. |
| 11 | An s once one code is selected | 37 | |
| 12 | RR, IRR according to office. | 38 | |
| 13 | An s once type RR is selected. | thru<br>50 | For expansion of AB, AV, and VB data. |
| 14 | Percent available according to office. | 38 | EQ2W0. |
| 15<br>16 | An s once percent is selected. | 39 | PC. |
| | | 40 | OFL. |
| 17 | RR ON status. P, S, Q for pending, on or queued. | 41 | Percent OFL. |
| 18 | RR OFF status P, S, Q for pending, off, or queued. | 42 | ACH. |
| 19 | AV CRO/CF ON/OFF status P, S, Q for pending, off, or queued. | 43 | OCCH. |
| 20 | This window no longer exists. | 44 | ICCH. |
| 21 | VB CRO/CF on/off status. P, S, Q for pending or on/off or queued. | 45 | Percent OCC. |
| | | 46 | Automatic controls. |
| 22 | Asterisk if A, B, or V office(s) have a DOC control (transmit). | 47 | Other controls (CANF, CANT, etc). |
| 23 | Percent delay for A, B, or V office(s). | 48 | RRF (reroute from) AV, VB only. |
| 24 | RREF if available or input. | 49 | RRT (reroute to) AB only. |

* When Office A is a No. 4 ETS, acceptable designates in this window can also include the combinations of: H_U and APR; and HTR and APR. For No. 4 ESS switch, combinations can include: H_U and ISC; HTR and ISC; and NHR and ISC.

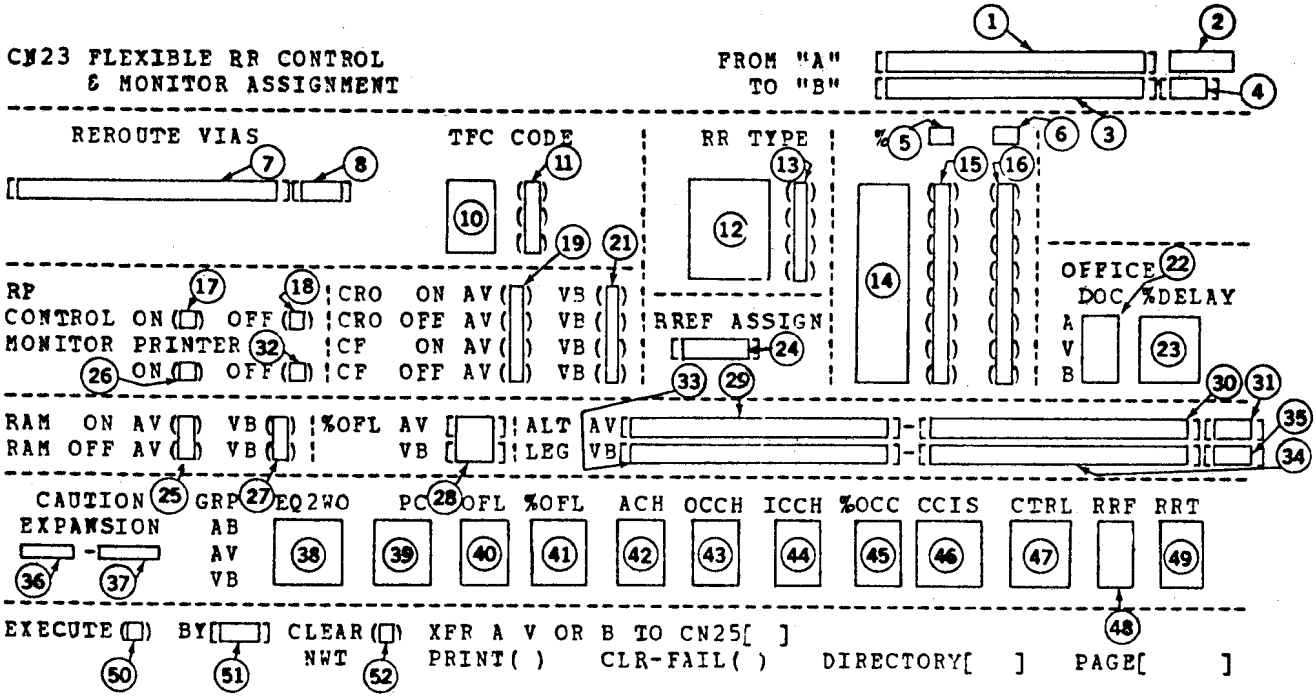


Fig. 21—Page CN23—Input and Output Window Layout (8.09)

PART A

```
AN21 RR SEARCH                    warning  2      FROM "A" [SPFD IL SF 41T  ] 4ACC
                                                   TO  "B" [NRWY IL NO 41T  ] 4ACC
VIA SEARCH CONTROL: INTERNAL ONLY(s)  EXTERNAL ONLY( )  INTER-EADAS( )
                    AREA "V" [                ]  RANK [3]    EQIC THRESH[   ]
-------------------------------------------------------------------------------
     AV GROUP              DATA FOR 13:10-13:15        VB GROUP          AB GROUP
                    AUTO                                          AUTO  AVAIL PP  FX
EQIC %OCC OCCH CTRL    VIA OFFICE "V"                 EQIC %OCC OCCH CTRL   PP  ON  ON
 256   23    2        CHMP IL RA 41T   FC ( )         22   34    2
 124   52    5        PEOR IL PJ 41T   FC ( )          2   80    5
  65   79    6        CHCG IL CL 57T   FC (+)        253   31    1            a
       78    7        RCFR IL RT 51T   HC ( )         76   12    0
                                       ( )
                                       ( )
                                       ( )
                                       ( )
-------------------------------------------------------------------------------
 EXPANSION   GRP EQ2WO   PC OFL %OFL ACH OCCH ICCH %OCC   HT   CTRL   %  TFC SFX
           ( )AB  162    59   0    0   4    4   11   52                        FC
     -     ( )
           ( )
-------------------------------------------------------------------------------
PART 1 OF 1 FRWD( ) BKWD( )  TRANSFER TO PP-RR-CTRL( ) FLEX-RR-CTRL( )
                  NWT     PRINT( )   CLR-FAIL( )   DIRECTORY[  ]   PAGE[    ]
```

PART B

```
AN21 RR SEARCH                                    FROM "A" [SPFD IL SF 41T  ] 4ACC
                                                   TO  "B" [NRWY IL NO 41T  ] 4ACC
VIA SEARCH CONTROL: INTERNAL ONLY(s)  EXTERNAL ONLY( )  INTER-EADAS( )
                    AREA "V" [                ]  RANK [3]    EQIC THRESH[   ]
-------------------------------------------------------------------------------
     AV GROUP              DATA FOR 13:10-13:15        VB GROUP          AB GROUP
                    AUTO                                          AUTO  AVAIL PP  FX
EQIC %OCC OCCH CTRL    VIA OFFICE "V"                 EQIC %OCC OCCH CTRL   PP  ON  ON
 256   23    2        CHMP IL RA 41T   FC ( )         22   34    2
 124   52    5        PEOR IL PJ 41T   FC ( )          2   80    5
  65   79    6        CHCG IL CL 57T   FC (s)        253   31    1            a
       78    7        RCFR IL RT 51T   HC ( )         76   12    0
                                       ( )
                                       ( )
                                       ( )
                                       ( )
-------------------------------------------------------------------------------
 EXPANSION   GRP EQ2WO   PC OFL %OFL ACH OCCH ICCH %OCC   HT   CTRL   %  TFC SFX
           ( )AB  162    59   0    0   4    4   11   52                        FC
13:10-13:15( )AV  366   207   0    0   6    6   15   79                        FC
           ( )VB  384    60   0    0   1    1    9   31  1.6                   FC
-------------------------------------------------------------------------------
PART 1 OF 1 FRWD( ) BKWD( )  TRANSFER TO PP-RR-CTRL( ) FLEX-RR-CTRL( )
                  NWT     PRINT( )   CLR-FAIL( )   DIRECTORY[  ]   PAGE[    ]
```

Fig. 22—Page CN23—Examples (Sheet 1 of 6) (8.20, 8.21, 10.14)

PART C

```
AN21 RR SEARCH                                        FROM "A" [SPFD IL SF 41T  ] 4ACC
                                                        TO "B" [NRWY IL NO 41T  ] 4ACC
VIA SEARCH CONTROL: INTERNAL ONLY(s)  EXTERNAL ONLY( )  INTER-EADAS( )
                    AREA "V" [                ]  RANK [3]    EQIC THRESH[   ]
```

| AV GROUP EQIC | %OCC | OCCH | AUTO CTRL | DATA FOR 13:10-13:15 VIA OFFICE "V" | | VB GROUP EQIC | %OCC | OCCH | AUTO CTRL | AB GROUP AVAIL PP | PP ON | FX ON |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 256 | 23 | 2 | | CHMP IL RA 41T | FC ( ) | 22 | 34 | 2 | | | | |
| 124 | 52 | 5 | | PFOR IL PJ 41T | FC ( ) | 2 | 80 | 5 | | | | |
| 65 | 79 | 6 | | CHCG IL CL 57T | FC (s) | 253 | 31 | 1 | | a | | |
| | 78 | 7 | | RCFR IL RT 51T | HC ( ) | 76 | 12 | 0 | | | | |
| | | | | | ( ) | | | | | | | |
| | | | | | ( ) | | | | | | | |
| | | | | | ( ) | | | | | | | |
| | | | | | ( ) | | | | | | | |

| EXPANSION | GRP | EQ2WO | PC | OFL | %OFL | ACH | OCCH | ICCH | %OCC | HT | CTRL | % | TFC SFX |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ( )AB | 162 | 59 | 0 | 0 | 4 | 4 | 11 | 52 | | | | FC |
| 13:10-13:15 | ( )AV | 366 | 207 | 0 | 0 | 6 | 6 | 15 | 79 | | | | FC |
| | ( )VB | 384 | 60 | 0 | 0 | 1 | 1 | 9 | 31 | 1.6 | | | FC |

```
PART 1 OF 1 FRWD( ) BKWD( )  TRANSFER TO PP-RR-CTRL( ) FLEX-RR-CTRL(+)
                NWT     PRINT( )  CLR-FAIL( )  DIRECTORY[  ]  PAGE[    ]
```

PART D

```
CN23 FLEXIBLE RR CONTROL                              FROM "A" [SPFD IL SF 41T  ] 4ACC
     & MONITOR ASSIGNMENT                               TO "B" [NRWY IL NO 41T  ][FC]
```

| REROUTE VIAS | TFC CODE | RR TYPE | % ALT DAR |
|---|---|---|---|
| [CH G IL CL 57T ][FC] | H_U ( ) | RR ( ) | 12 ( ) ( ) |
| | HTR ( ) | IRR ( ) | 25 ( ) ( ) |
| | APR ( ) | ( ) | 37 ( ) ( ) |
| | | ( ) | 50 ( ) ( ) |
| | | | 62 ( ) ( ) |
| | | | 75 ( ) ( ) |
| | | | 87 ( ) ( ) |
| | | | 100 ( ) ( ) |

| RR CONTROL ON( ) OFF(s) | CRO ON AV( ) VB( ) | RREF ASSIGN |
|---|---|---|
| | CRO OFF AV(s) VB(s) | [ ] |
| MONITOR PRINTER ON( ) OFF(s) | CF ON AV( ) VB( ) | |
| | CF OFF AV(s) VB(s) | |

| OFFICE DOC | %DELAY |
|---|---|
| A | .0 |
| V | |
| B | .0 |

```
RAM  ON AV( ) VB( )|%OFL AV [  ]|ALT AV[                ]-[                ][  ]
RAM OFF AV(s) VB(s)|     VB [  ]|LEG VB[                ]-[                ][  ]
```

| CAUTION EXPANSION | GRP | EQ2WO | PC | OFL | %OFL | ACH | OCCH | ICCH | %OCC | CCIS | CTRL | RRF | RRT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | AB | 162 | 59 | 0 | 0 | 4 | 4 | 11 | 52 | | | | |
| 13:10-13:15 | AV | 366 | 207 | 0 | 0 | 6 | 6 | 15 | 79 | | | | |
| | VB | 384 | 60 | 0 | 0 | 1 | 1 | 9 | 31 | | | | |

```
EXECUTE( ) BY[  ] CLEAR( ) XFR A V OR B TO CN25[ ]
                NWT     PRINT( )  CLR-FAIL( )  DIRECTORY[  ]  PAGE[    ]
```

Fig. 22—Page CN23—Examples (Sheet 2 of 6) (8.20, 8.21, 10.14)

PART E

```
CN23 FLEXIBLE RR CONTROL                          FROM "A"  [SPFD IL SF 41T  ] 4ACC
     & MONITOR ASSIGNMENT                           TO "B"  [NRWY IL NO 41T  ][FC]
-------------------------------------------------------------------------------
    REROUTE VIAS              TFC CODE      |  RR TYPE  |  %  ALT DAR|
                                            |           |            |
[CH G IL CL 57T  ][FC]        H U (+)       |    RR (+) | 12 ( ) ( ) |
                              HTR ( )       |   IRR ( ) | 25 ( ) ( ) |
                              APR ( )       |       ( ) | 37 ( ) ( )|-------------
-------------------------------------------|       ( ) | 50 ( ) ( ) | OFFICE
RR                          |CRO  ON AV( ) VB( )|-------| 62 ( ) ( ) |  DOC %DELAY
CONTROL ON(+) OFF(s)        |CRO OFF AV(s) VB(s)|RREF ASSIGN| 75 ( ) (+)| A      .0
MONITOR PRINTER             |CF   ON AV(+) VB(+)| [69  ]    | 87 ( ) ( ) | V
        ON(+) OFF(s)        |CF  OFF AV(s) VB(s)|           |100 ( ) ( ) | B      .0
-------------------------------------------------------------------------------
RAM  ON AV(+) VB(+)|%OFL AV [  ]|ALT AV[                ]-[                ][  ]
RAM OFF AV(s) VB(s)|     VB [  ]|LEG VB[                ]-[                ][  ]
-------------------------------------------------------------------------------
  CAUTION   GRP  EQ2WO   PC  OFL %OFL  ACH OCCH ICCH %OCC CCIS  CTRL RRF RRT
 EXPANSION   AB   162    59    0    0    4    4   11   52
13:10-13:15  AV   366   207    0    0    6    6   15   79
             VB   384    60    0    0    1    1    9   31
-------------------------------------------------------------------------------
EXECUTE( ) BY[  ] CLEAR( ) XFR A V OR B TO CN25[ ]
                  NWT      PRINT( )   CLR-FAIL( )   DIRECTORY[  ]   PAGE[    ]
```

PART F

```
CN23 FLEXIBLE RR CONTROL                          FROM "A"  [SPFD IL SF 41T  ] 4ACC
     & MONITOR ASSIGNMENT                           TO "B"  [NRWY IL NO 41T  ][FC]
-------------------------------------------------------------------------------
    REROUTE VIAS              TFC CODE      |  RR TYPE  |  %  ALT DAR|
                                            |           |            |
[CHCG IL CL 57T  ][FC]        H U (s)       |    RR (s) | 12 ( ) ( ) |
                              HTR ( )       |   IRR ( ) | 25 ( ) ( ) |
                              APR ( )       |       ( ) | 37 ( ) ( )|-------------
-------------------------------------------|       ( ) | 50 ( ) ( ) | OFFICE
RR                          |CRO  ON AV( ) VB( )|-------| 62 ( ) ( ) |  DOC %DELAY
CONTROL ON(p) OFF(s)        |CRO OFF AV(s) VB(s)|RREF ASSIGN| 75 ( ) (s)| A      .0
MONITOR PRINTER             |CF   ON AV(p) VB(p)| [  69]    | 87 ( ) ( ) | V
        ON(s) OFF( )        |CF  OFF AV(s) VB(s)|           |100 ( ) ( ) | B      .0
-------------------------------------------------------------------------------
RAM  ON AV(s) VB(s)|%OFL AV [ 1]|ALT AV[SPFD IL SF 41T  ]-[CHCG IL CL 57T  ][FC]
RAM OFF AV( ) VB( )|     VB [ 1]|LEG VB[CHCG IL CL 57T  ]-[NRWY IL NO 41T  ][FC]
-------------------------------------------------------------------------------
  CAUTION   GRP  EQ2WO   PC  OFL %OFL  ACH OCCH ICCH %OCC CCIS  CTRL RRF RRT
 EXPANSION   AB   162    43    0    0    3    3   10   48
13:15-13:20  AV   366   213    0    0    6    6   15   73
             VB   384    62    0    0    1    1   11   33
-------------------------------------------------------------------------------
EXECUTE(+) BY[  ] CLEAR( ) XFR A V OR B TO CN25[ ]
                  NWT      PRINT( )   CLR-FAIL( )   DIRECTORY[  ]   PAGE[    ]
```

Fig. 22—Page CN23—Examples (Sheet 3 of 6) (8.20, 8.21, 10.14)

PART G

```
CN23 FLEXIBLE RR CONTROL                          FROM "A"  [SPFD IL SF 41T  ] 4ACC
     & MONITOR ASSIGNMENT                           TO "B"  [NRWY IL NO 41T  ][FC]
--- ------------------------------------------------------------------------------
    REROUTE VIAS              TFC CODE      |   RR TYPE  |  %  ALT DAR|
                                            |            |            |
[CH G IL CL 57T  ][FC]        H_U (s)       |     RR (s) |  12 (  ) (  )|
                              HTR (  )      |    IRR (  ) |  25 (  ) (  )|
                              APR (  )      |        (  ) |  37 (  ) (  )|-------------
-------------------------------------------|        (  ) |  50 (  ) (  )| OFFICE
RR                          |CRO  ON AV(  ) VB(  )|------------|  62 (  ) (  )|  DOC %DELAY
CONTROL ON(q) OFF(s)        |CRO OFF AV(s) VB(s)|RREF ASSIGN|  75 (  ) (s)| A      .0
MONITOR PRINTER             |CF   ON AV(s) VB(s)|  [  69]   |  87 (  ) (  )| V
        ON(s) OFF(  )       |CF  OFF AV(  ) VB(  )|           | 100 (  ) (  )| B      .0
------------------------------------------------------------------------------
RAM  ON AV(s) VB(s)|%OFL AV [ 1]|ALT AV[SPFD IL SF 41T  ]-[CHCG IL CL 57T  ][FC]
RAM OFF AV(  ) VB(  )|     VB [ 1]|LEG VB[CHCG IL CL 57T  ]-[NRWY IL NO 41T  ][FC]
------------------------------------------------------------------------------
  CAUTION   GRP  EQ2WO   PC  OFL %OFL  ACH OCCH ICCH %OCC CCIS  CTRL RRF RRT
 EXPANSION   AB   162    35    0    0    2    2    9   39
13:25-13:30  AV   366   210    0    0    6    6   18   75
             VB   384    81    0    0    2    2   11   31
------------------------------------------------------------------------------
EXECUTE(  ) BY[  ] CLEAR(  ) XFR A V OR B TO CN25[  ]
                    NWT     PRINT(  )  CLR-FAIL(  )  DIRECTORY[  ]  PAGE[    ]
```

PART H

```
CN23 FLEXIBLE RR CONTROL                          FROM "A"  [SPFD IL SF 41T  ] 4ACC
     & MONITOR ASSIGNMENT                           TO "B"  [NRWY IL NO 41T  ][FC]
------------------------------------------------------------------------------
    REROUTE VIAS              TFC CODE      |   RR TYPE  |  %  ALT DAR|
                                            |            |            |
[CH G IL CL 57T  ][FC]        H_U (s)       |     RR (s) |  12 (  ) (  )|
                              HTR (  )      |    IRR (  ) |  25 (  ) (  )|
                              APR (  )      |        (  ) |  37 (  ) (  )|-------------
-------------------------------------------|        (  ) |  50 (  ) (  )| OFFICE
RR                          |CRO  ON AV(  ) VB(  )|------------|  62 (  ) (  )|  DOC %DELAY
CONTROL ON(s) OFF(  )       |CRO OFF AV(s) VB(s)|RREF ASSIGN|  75 (  ) (s)| A      .0
MONITOR PRINTER             |CF   ON AV(s) VB(s)|  [  69]   |  87 (  ) (  )| V
        ON(s) OFF(  )       |CF  OFF AV(  ) VB(  )|           | 100 (  ) (  )| B      .0
------------------------------------------------------------------------------
RAM  ON AV(s) VB(s)|%OFL AV [ 1]|ALT AV[SPFD IL SF 41T  ]-[CHCG IL CL 57T  ][FC]
RAM OFF AV(  ) VB(  )|     VB [ 1]|LEG VB[CHCG IL CL 57T  ]-[NRWY IL NO 41T  ][FC]
------------------------------------------------------------------------------
  CAUTION   GRP  EQ2WO   PC  OFL %OFL  ACH OCCH ICCH %OCC CCIS  CTRL RRF RRT
 EXPANSION   AB   162    35    0    0    2    2    9   39        RR   *
13:25-13:30  AV   366   210    0    0    6    6   18   75       CANF
             VB   384    81    0    0    2    2   11   31       CANF
------------------------------------------------------------------------------
EXECUTE(  ) BY[  ] CLEAR(  ) XFR A V OR B TO CN25[  ]
                    NWT     PRINT(  )  CLR-FAIL(  )  DIRECTORY[  ]  PAGE[    ]
```

Fig. 22—Page CN23—Examples (Sheet 4 of 6) (8.20, 8.21, 10.14)

PART I

```
CN23 FLEXIBLE RR CONTROL                          FROM "A"  [SPFD IL SF 41T  ] 4ACC
     & MONITOR ASSIGNMENT                          TO "B"  [NRWY IL NO 41T  ][FC]
-------------------------------------------------------------------------------
    REROUTE VIAS              TFC CODE      |  RR TYPE  |  %  ALT DAR|
                                            |           |            |
[CHCG IL CL 57T  ][FC]        H_U (s)       |    RR (s) | 12 ( ) ( ) |
                              HTR ( )       |   IRR ( ) | 25 ( ) ( ) |
                              APR ( )       |     ( )   | 37 ( ) ( ) |-------------
-------------------------------------------|     ( )   | 50 ( ) ( ) | OFFICE
RR                          |CRO  ON AV( ) VB( )|-----------| 62 ( ) ( ) |  DOC %DELAY
CONTROL ON(s) OFF( )        |CRO OFF AV(s) VB(s)|RREF ASSIGN| 75 ( ) (s) | A      .0
MONITOR PRINTER             |CF   ON AV(s) VB(s)| [  69]    | 87 ( ) ( ) | V
        ON(s) OFF( )        |CF  OFF AV( ) VB( )|           |100 ( ) ( ) | B      .0
-------------------------------------------------------------------------------
RAM  ON AV(s) VB(s)|%OFL AV [ 1]|ALT AV[SPFD IL SF 41T  ]-[CHCG IL CL 57T  ][FC]
RAM OFF AV( ) VB( )|     VB [ 1]|LEG VB[CHCG IL CL 57T  ]-[NRWY IL NO 41T  ][FC]
-------------------------------------------------------------------------------
  CAUTION   GRP  EQ2WO   PC  OFL %OFL  ACH OCCH ICCH %OCC CCIS  CTRL RRF RRT
 EXPANSION   AB   162    35    0    0    2    2    9   39        RR   *
13:25-13:30  AV   366   210    0    0    6    6   18   75        CANF
             VB   384    81    0    0    2    2   11   31        CANF
-------------------------------------------------------------------------------
EXECUTE( ) BY[  ] CLEAR( ) XFR A V OR B TO CN25[v]
                  NWT      PRINT( )   CLR-FAIL( )   DIRECTORY[  ]   PAGE[    ]
```

PART J

```
CN25 MONITOR RR ANALYSIS      warning  1  OFFICE [V] [CHCG IL CL 57T  ]      CL2
TIME      -      MON TG FROM[                ] TO[                ][  ] ROFL[VB]
-------------------------------------------------------------------------------
  OFFICE "A"        OFFICE "B"      OFFICE "V"     AV  VB  AB EXP RR          ON
                                                   OFL OFL OFL    TYP  %  RREF
WHPL NY 05 04T  SYRC NY SU 04T  CHCG IL CL 57T        0     ( )                2  *
SPFD IL SF 41T  NRWY IL NO 41T  CHCG IL CL 57T     0   0   0(+) RR  75   59   *
SPFD IL SF 41T  NRWY IL NO 41T  CHCG IL CL 57T     0   0   0( ) RR  75   59   *
NBRK IL NT 41T  GLVW IL GV CG0  CHCG IL CL 57T     0       0( ) RR 100        *
                                                          ( )
                                                          ( )
                                                          ( )
                                                          ( )
-------------------------------------------------------------------------------
EXPANSION                                                  PARAM          OFFICE
GRP EQ2WO   PC  OFL %OFL ACH OCCH ICCH %OCC CCIS CTRL DIR ALT RRF RRT | DOC %DLY
                                                                     |A
                                                                     |V
                                                                     |B
MON                                                                  --------- -------
TG                                                                   |MON DELETE( )
-------------------------------------------------------------------------------
PART 1 OF 1 FRWD( ) BKWD( ) EXECUTE( ) BY[  ] CLEAR( )  CN21 ( )  CN23( )
                    NWT     PRINT( )   CLR-FAIL( )   DIRECTORY[  ]   PAGE[    ]
```

Fig. 22—Page CN23—Examples (Sheet 5 of 6) (8.20, 8.21, 10.14)

```
                                    PART K

CN25 MONITOR RR ANALYSIS                        OFFICE [V] [CHCG IL CL 57T  ]      CL2
TIME 13:25-13:30 MON TG FROM[SPFD IL SF 41T  ] TO[CHCG IL CL 57T  ][FC] ROFL[VB]
-------------------------------------------------------------------------------
  OFFICE "A"        OFFICE "B"      OFFICE "V"     AV  VB  AB EXP RR          ON
                                                   OFL OFL OFL   TYP  %  RREF
WHPL NY 05 04T  SYRC NY SU 04T  CHCG IL CL 57T        0     ( )              2   *
SPFD IL SF 41T  NRWY IL NO 41T  CHCG IL CL 57T     0  0     0(s) RR  75   59   *
SPFD IL SF 41T  NRWY IL NO 41T  CHCG IL CL 57T     0  0     0( ) RR  75   69   *
NBRK IL NT 41T  GLVW IL GV CG0  CHCG IL CL 57T     0        0( ) RR 100        *
                                                          ( )
                                                          ( )
                                                          ( )
                                                          ( )
-------------------------------------------------------------------------------
EXPANSION                                                  PARAM          OFFICE
GRP EQ2WO   PC  OFL %OFL ACH OCCH ICCH %OCC CCIS CTRL DIR ALT RRF RRT | DOC %DLY
 AB  162    35    0    0   2    2    9   39       RR   75  75         |A      .0
 AV  366   210    0    0   6    6   18   75     CANF                 |V
 VB  384    81    0    0   2    2   11   31     CANF                 |B      .0
MON  366   210    0    0   6    6   18   75     CANF          ----------------
TG                                                          |MON DELETE( )
-------------------------------------------------------------------------------
PART 1 OF 1 FRWD( ) BKWD( ) EXECUTE( ) BY[  ] CLEAR( )  CN21 ( )  CN23( )
                    NWT     PRINT( )   CLR-FAIL( )   DIRECTORY[  ]   PAGE[    ]
```

**Fig. 22—Page CN23—Examples (Sheet 6 of 6) (8.20, 8.21, 10.14)**

## ♦TABLE E♦

### WINDOW EXPLANATION—PAGE CN24

**INPUT WINDOWS**

| WINDOW | EXPLANATION | WINDOW | EXPLANATION |
|---|---|---|---|
| 1 | Enter plan label to retrieve a plan. | 37 | Designate to scroll forward. |
| 2 | Enter reroute reference number to retrieve a specific control in a plan. | 38 | Designate to scroll backward. |
| | | 39 | Designate to activate all controls in the plan. |
| 5 | Designate to activate a control or block of controls. | 40 | Designate to remove all controls in the plan. |
| 6 | Designate to remove a control or block of controls. | 41 | Designate to execute control (for activation or removal). |
| 10 | Enter reroute reference number to add or change a reroute reference number. | 42 | Initials of person taking controls. |
| | | 43 | Designate to clear page input controls. |
| 11 | Designate to expand data for the trunk groups of the AVB reroute triangle for a particular reroute control or for the AB leg for a nonreroute control. | | |

**OUTPUT WINDOWS**

| WINDOW | EXPLANATION | WINDOW | EXPLANATION |
|---|---|---|---|
| 0 | Warning, error, and processing window. | 23 | An * if there are any CCIS flags or GSC count for AB, AV, and VB. |
| 2 | Reroute reference number (if input by network manager). | 24 — 29 | Nothing appears in these windows if no controls are presently in effect on the AB, AV, or VB trunk groups. |
| 3 | Plan label returned by system. | 24 | Controls (CANF, CANT, RR, etc) in effect on the trunk group. |
| 4 | Preprogram number of the control if applicable (this could be a flexible control). | 25 | An m if multiple controls are in effect on the trunk group. |
| 5 | An s for control activated; c if a control is active on this trunk group other than the one displayed, p for pending. | 26 | Percent of direct routed traffic affected by the control already in effect on this trunk group. |
| 6 | An s for control off. | 27 | Percent of alternate routed traffic affected by the control already in effect on this trunk group. |
| 7 | An * indicates a CANF control associated with the reroute control(s) listed directly below. Must be in same control block. | 28 | An f if a reroute is already in effect from this trunk group. |
| 8 | Type of control: RR, IRR, RRS, IRRS, CANF, CANT, SKIP, CRO, or FCNT. | 29 | A t if a reroute is in effect to this trunk group. |
| 9 | Percent DAR traffic. If control is ALT or different percentage of DIR and ALT traffic, nothing will be displayed in this window. Additional information concerning this control can be obtained by expanding (Window 11) and observing Windows 31, 32, and 33. | 30 | Trunk group suffix. |
| | | 31 | Percent of direct routed traffic to be affected by the control expanded above. This has no relation to what is displayed in Windows 24-29 if there is no s in Window 5 (ON) for the expanded control. |
| 10 | Reroute reference number if assigned in data base or assigned in a previous display of this control by Page CN24. | 32 | Percent of alternate routed traffic to be affected by the control expanded above. Relationship to Windows 24-29 is same as described for Window 31. |
| 11 | An s for expanded data. | 33 | Traffic code to be affected by the control expanded above. Relationship to Windows 24-29 is same as described for Window 31. Possible displays are: HTR, NHR, APR, H+A, ISC, H+I, N+I, and a blank field. A blank indicates H_U traffic is controlled by the control expanded above. |
| 12 | A FROM office CLLI. | | |
| 13 | B TO office CLLI and trunk group suffix. | | |
| 14 | V VIA office CLLI. | | |
| 15, 16 | The 5-minute interval for which data are displayed. | | |
| 17 | Equivalent idle circuits for AV and VB. Same formula is used as described in paragraph 5.17 in this section for Page AN21. | 34 | An * if A, B, or V offices have a DOC control. |
| | | 35, 36 | The part displayed and the number of parts available. |
| 18 | Peg counts for AB, AV, and VB (if available). | 44 | A dot (.) to indicate the first control in a block of controls. Others within the block will not have dots. Maximum of four controls in a block. |
| 19 | Overflow counts for AB, AV, and VB. | | |
| 20 | Percent overflow for AB, AV, and VB. | | |
| 21 | Outgoing connections per circuit per hour for AB, AV, and VB. | | |
| 22 | Percent occupancy for AB, AV, and VB. | | |

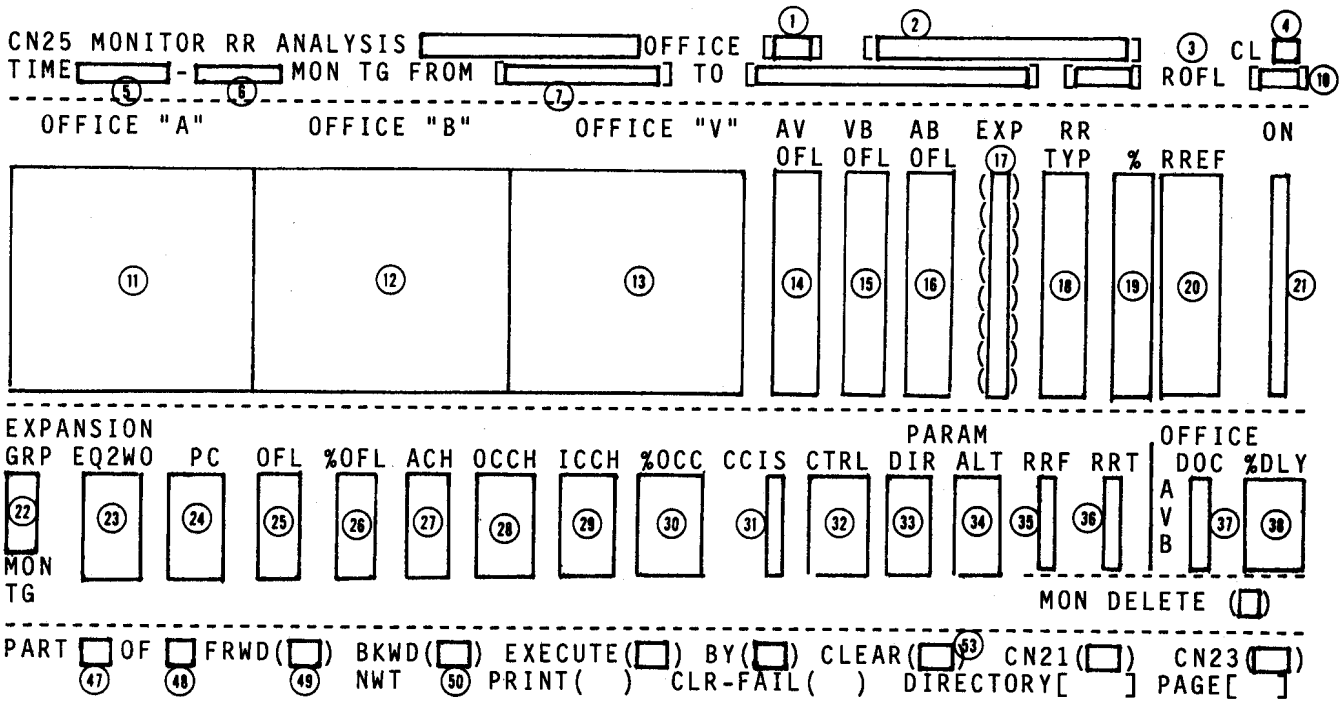


**Fig. 23—Page CN24—Input and Output Window Layout (9.14, 9.15, 9.17, 9.18, 9.31)**

PART A

```
CN24 CONTROL PLANS                                    PLAN LABEL [phla west-fla ]
RR REF [     ]
-------------------------------------------------------------------------------
PP ON OFF TYPE  %  RREF EXP     FROM "A"          TO "B"            VIA "V"
   (  )(  )          [     ](  )
   (  )(  )          [     ](  )
   (  )(  )          [     ](  )
   (  )(  )          [     ](  )
   (  )(  )          [     ](  )
   (  )(  )          [     ](  )
   (  )(  )          [     ](  )
   (  )(  )          [     ](  )
   (  )(  )          [     ](  )
   (  )(  )          [     ](  )
   (  )(  )          [     ](  )
-------------------------------------------------------------------------------
EXPAND   GRP EQIC   PC OFL %OFL OCCH %OCC CCIS CTRL  DIR ALT RR SFX|EXP  %  | DOC
          AB                                                     |        |A
  -       AV                                                     |DIR ALT |V
          VB                                                     |        |B
-------------------------------------------------------------------------------
PART   OF   FRWD(  ) BKWD(  )   COMPLETE PLAN ON(  ) OFF(  )
EXECUTE(  ) BY[   ]  CLEAR(  )
                     NWT     PRINT(  )   CLR-FAIL(  )   DIRECTORY[   ]   PAGE[     ]
```

PART B

```
CN24 CONTROL PLANS                                    PLAN LABEL [              ]
RR REF [     ]                                                 PHLA WEST-FLA
-------------------------------------------------------------------------------
PP ON OFF TYPE  %  RREF EXP     FROM "A"          TO "B"            VIA "V"
  .(  )(s)*CANF 100[     ](  )FTWS PA FW 41T   BRHM AL MT O2T   2H
08 (  )(s)  RR  100[5171](  )FTWS PA FW 41T   MIAM FL TL O2T   2F  BRHM AL MT 56T
  .(  )(s)*CANF 100[     ](  )LNCS PA LA 21T   BRHM AL MT 56T   2H
11 (  )(s)  RR  100[5172](  )LNCS PA LA 21T   MIAM FL TL O2T   2F  BRHM AL MT 56T
  .(  )(s)  RR  100[5173](  )RDNG PA RE 21T   OJUS FL TL O1T   2F  NWOR LA MA O1T
07.(  )(s)  RR  100[5174](  )FTWS PA FW 41T   OJUS FL TL O1T   2F  NWOR LA MA O1T
06.(  )(s)  RR  100[5175](  )FTWS PA FW 41T   FTLD FL MA O1T   2F  HSTN TX O1 24T
12.(  )(s)  RRS    [5176](  )RDNG PA RE 21T   MIAM FL TL O2T   2F  BRHM LA MT 56T
12 (  )(s)  RRS    [5176](  )RDNG PA RE 21T   MIAM FL TL O2T   2F  HSTN TX O1 24T
  .(  )(s)  CT     [     ](  )FTWS PA FW 41T   PHLA PA DA 21T T 2H
15.(  )(s)  CT     [     ](  )RDNG PA RE 21T   PHLA PA DA 21T T 2H
-------------------------------------------------------------------------------
EXPAND   GRP EQIC   PC OFL %OFL OCCH %OCC CCIS CTRL  DIR ALT RR SFX|EXP  %  | DOC
          AB                                                     |        |A
  -       AV                                                     |DIR ALT |V
          VB                                                     |        |B
-------------------------------------------------------------------------------
PART 1 OF 1 FRWD(  ) BKWD(  )  ALL CONTROLS ON(  ) OFF(s)
EXECUTE(  ) BY[   ] CLEAR(  )
                    NWT     PRINT(  )   CLR-FAIL(  )   DIRECTORY[   ]   PAGE[     ]
```

Fig. 24—Page CN25—Examples (9.37, 9.38)

## TABLE F

## WINDOW EXPLANATION—PAGE CN25

| INPUT WINDOWS | | | |
|---|---|---|---|
| WINDOW | EXPLANATION | WINDOW | EXPLANATION |
| 1 | A, B, or V identification for Window 2 CLLI. | 10 | Rank overflow. Acceptable inputs are AB, AV, or VB. Default is AV. The page will rank the reroutes displayed in order of the highest overflow on the type group specified. |
| 2 | Office CLLI. | | |
| 7 | Monitor trunk group FROM CLLI. | | |
| 8 | Monitor trunk group TO CLLI. | 43 | Designate to remove reroute sets not assigned to the monitor printer. |
| 9 | Monitor trunk group suffix (optional). | | |

| OUTPUT WINDOWS | | | |
|---|---|---|---|
| WINDOW | EXPLANATION | WINDOW | EXPLANATION |
| 0 | Warning, error, and processing window. | 22 | Suffixes for AB, AV, VB. |
| 2 | Complete office CLLI. | 23 | EQ2W0. |
| 3 | Office type. | 24 | PC. |
| 4 | Class of office (rank). | 25 | OFL. |
| 5, 6 | The 5-minute interval for which data are displayed. | 26 | Percent OFL. |
| 7 | Complete monitor trunk group FROM CLLI. | 27 | ACH. |
| 8 | Complete monitor trunk group TO CLLI. | 28 | OCCH. |
| 9 | Monitor trunk group suffix. | 29 | ICCH. |
| 11 | List of Office A CLLIs. | 30 | Percent OCC. |
| 12 | List of Office B CLLIs. | 31 | CCIS control. |
| 13 | List of Offices V CLLIs. | 32 | Control (CANF, CANT — — — —). |
| 14 | AV overflow. | 33 | Direct percentage. |
| 15 | VB overflow. | 34 | Alternate percentage. |
| 16 | AB overflow. | 35 | Asterisk if RRF. |
| 17 | An s for selected expansion; x if page has removed RAM assignment (Window 43) | 36 | Asterisk if RRT. |
| | | 37 | Asterisk if XMIT DOC is active (A, B, or V). |
| 18 | Type of RR. | 38 | Percent delay for A, B, or V. |
| 19 | Percentage of DAR reroutes, if any. | 39 — 42 | These windows do not exist. |
| 20 | Reroute reference number. | 44 — 46 | These windows do not exist. |
| 21 | An asterisk here indicates that the monitor trunk group leg is assigned to the monitor printer. | 47 — 48 | Parts and total. |

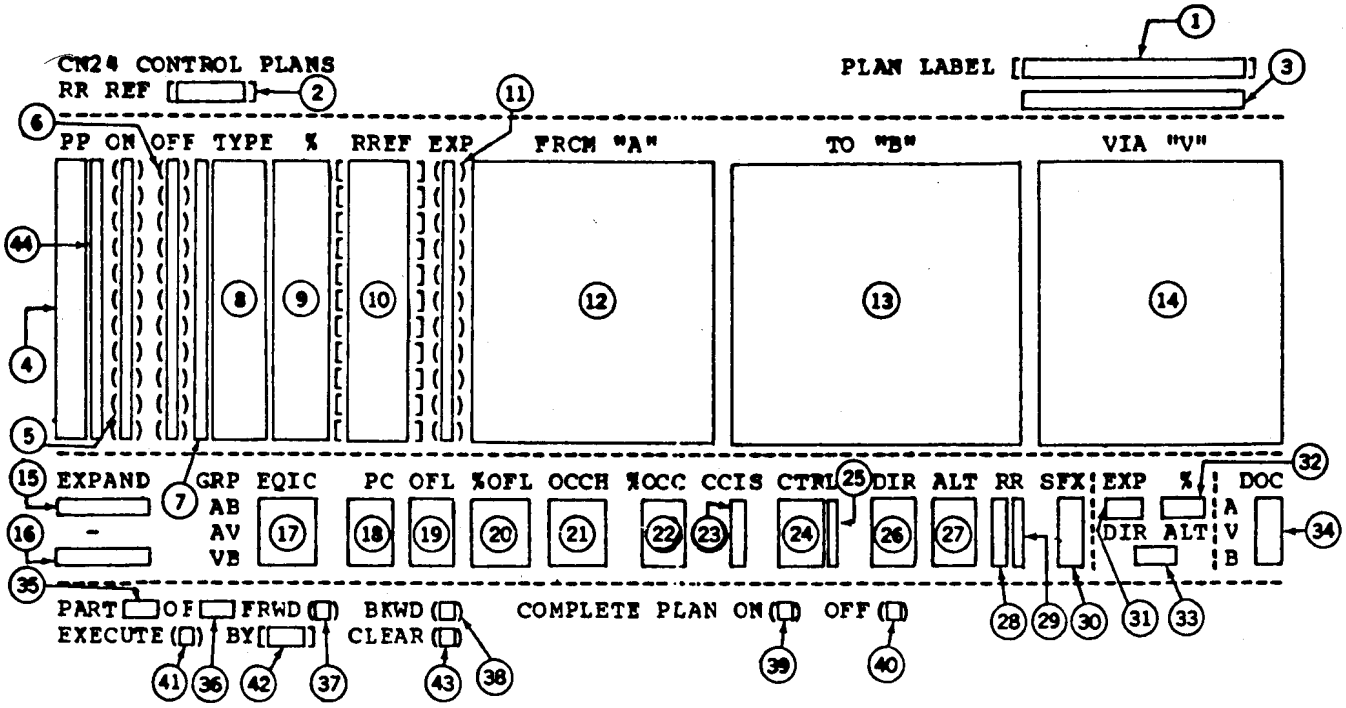


Fig. 25—Page CN25—Input and Output Window Layout (10.07)