POINT-TO-POINT DATA—ATTEMPT ANALYZER SYSTEM-CROSSBAR TANDEM TRUNK DATA NETWORK OPERATIONS METHODS

CONTENTS PAGE

1. GENERAL

1.01 This section describes the Point-to-Point Attempt Analyzer System—Crossbar Tandem (PPAA) and the application of point-to-point data provided by this system in trunk engineering operations. This application relates to the method of converting point-to-point data provided by the PPAA system to traffic item load for use in trunk forecasting and servicing. A summary description of the PPAA system is included in Part 2 of this section.

1.02 This is the initial issue of this section and is provided as part of a comprehensive restructure of the 780-401-ZZZ series. Whenever this section is reissued, the reason for reissue will be listed in this paragraph.

1.03 References in this section to methods, planning, data requirements, service levels, and equipment quantities are based on American Telephone and Telegraph Company recommendations.

1.04 For the standard meanings of terms and definitions used in this section, see Section 780-400-305, "Glossary of Trunk Facilities Terms and Definitions."

1.05 The definition of point-to-point data and the requirements for these data in trunk forecasting and servicing are covered in Section 780-401-300. The PPAA system is a standard source of point-to-point data in networks in which crossbar tandems switch substantial volumes of local traffic. It is particularly applicable in multitandem metropolitan networks.

1.06 The PPAA system provides point-to-point data for all local and/or toll traffic items switched through a crossbar tandem. Each traffic item is identified by origin (incoming trunk group) and terminus (destination code). Outputs of the PPAA system express the data for each traffic item in terms of sampled attempts and the percentage of the total attempts sampled on an incoming trunk group. The format of the outputs permits straightforward conversion routines for estimating point-to-point loads for all traffic items that are switched through a crossbar tandem. Attempts are sampled for traffic whether first routed or overflowed, and whether properly routed or misrouted.

1.07 The primary purpose of the PPAA system is to provide point-to-point data for local traffic, but the system samples and summarizes

any traffic routed through a crossbar tandem. This permits the system to be used to verify the proper routing of traffic routed through a tandem. The system, which includes incoming trunk assignments as part of the data base, also supports improving the accuracy of crossbar tandem incoming trunk assignment records.

1.08 Data provided by the PPAA system is also useful in other applications such as separation studies, directory studies, and marketing studies. The discussion in this section on the use of PPAA data is directed to the needs of trunk forecasting and servicing, and was not designed to serve other applications. It is the responsibility of the trunk engineer to determine the scheduling of study periods required for trunking needs and to coordinate additional studies that may be required to satisfy the needs of other users.

2. SUMMARY OF PPAA SYSTEM

HARDWARE AND APPLICATION PROGRAMS (SOFTWARE)

2.01 The PPAA system consists of three major elements:

(1) The sampling/recording hardware installed in a crossbar tandem, called the point-to-point data recorder (PPDR)

(2) The system for collection of the data from one or more tandems

(3) The application programs (software) for summarizing the sampled data into useful outputs.

Hardware

2.02 The PPDR is wired to any two markers of a crossbar tandem marker group but samples attempts in only one marker at a time based on a switch setting. Two-marker operation is provided to permit uninterrupted sampling when the marker in which the PPDR is working must be taken out of service. This arrangement also permits scheduled sampling of each marker during a study period to provide a more representative sampling of the traffic. The sampling rate is approximately one of every three attempts processed by the selected marker under normal busy-hour loads. In an 8-marker crossbar tandem, this equates to a four to five percent sample.

2.03 For each attempt sampled, the PPDR identifies the incoming trunk appearance on the trunk link frame (TLF) and the first three (NXX) or six digits (NPA-NXX) of the destination code. The PPDR is equipped with a program timer for automatic operation and a calendar clock to provide date and time. Under control of either the program timer or a minicomputer, the PPDR initiates and terminates sampling on a preestablished schedule. Sections 220-430-101 and 220-430-501 provide a detailed description of the PPDR.

Hardware/Application Programs

2.04 Use of a minicomputer, where the number of tandems served justifies this arrangement, permits real time transmission of the data collected by the PPDRs to a central data collection point for processing. The minicomputer records on magnetic tape the point-to-point data from each crossbar tandem served. These data are subsequently processed by the application programs.

Application Programs

2.05 The application programs have been designed as a stand-alone package for processing the system's output into summaries of point-to-point data. It also provides for creation and maintenance of the required data base. Since it is a stand-alone package, it is not dependent on preestablished operation of other trunk record processing programs. However, interfaces with existing Bell System or operating company mechanized systems may be provided locally.

2.06 The application programs accommodate study periods of up to 20 consecutive business days or 28 consecutive calendar days. Any number of time-consistent, nonoverlapping time intervals, each consisting of two or more consecutive half-hour segments, may be specified for a study period. Scheduling considerations are discussed in Part 4 of this section.

2.07 It is intended that study periods and time intervals be the same for all crossbar tandems to be included in a particular network study. However, record base inputs and processing are oriented to individual crossbar tandems, and summarized outputs are designed for analysis of each crossbar tandem separately. Orientation of combined hardware/application programs to individual

crossbar tandems permits maximum flexibility in implementing and expanding the system.

INPUTS

2.08 Several inputs are required by the PPAA system to create and maintain the data base necessary to allow data collected by the PPDR to be processed into meaningful summaries. Essentially these inputs consist of study period and time interval schedules, trunk assignment information to permit identification of the incoming trunk group and a cluster of terminating trunk entity office codes (NXX). The various inputs are listed and described in Fig. 1. Input requirements are described in the PPAA position practices, which can be ordered from:

AT&TCo
Manager, Trunk Network Design
Room 3455C2
295 North Maple Avenue
Basking Ridge, New Jersey 07920

OUTPUTS

2.09 There are three basic categories of outputs provided by the PPAA system. The first consists of the outputs that support the creation and maintenance of the data base. These include printouts of the various data base records and have been designed to assist crossbar tandem trunk assignment and administration activities as well as providing PPAA system support. The second consists of those outputs provided for the determination of point-to-point loads: the Standard and Custom Reports. The third category consists of edit reports that assist in identifying problems of the sampled attempt data.

2.10 Data base creation and maintenance require various input records as discussed in paragraph 2.08. As an aid to the maintenance of the data base, printouts of all input records are provided. They indicate either acceptance of a record, or that an error prevented an update. Also provided are summary printouts of each updated file as it exists in the data base. These summaries are used to verify the accuracy of the data base.

2.11 Two additional data base maintenance summaries are provided which are useful to trunk assignment and administration. These are the Incoming Trunk Link Frame Master File and the Incoming Trunk Group Assignment summaries. Both summaries identify all incoming appearances for a crossbar tandem, including those that are unassigned. For each working appearance, the trunk group identification and trunk number are provided. Fig. 2 (19 sheets) describes each of these outputs.

2.12 The Standard and Custom summaries of point-to-point data are the basic outputs used in the determination of point-to-point loads and are similar in format. Both summarize the sampled attempts for the study period within the designated time intervals. Data are listed by each incoming trunk group to each terminating location. The Standard summary lists the terminating location by the first three or six digits of the destination code, and the Custom summary lists the terminating location by a specified cluster of such codes, normally in terms of trunking entity. In addition to the total sampled attempts for each point-to-point item, each summary also lists the percentage that each such count is of the total attempts sampled over that trunk group. As well as using these summaries to develop point-to-point loads required for trunk forecasting and servicing, they may also be used to verify the accuracy of traffic routes. Fig. 2 (19 sheets) provides a more detailed description and illustrations of these summaries.

2.13 Three edit reports are provided to assist in the analysis of the PPAA system and data base errors. They are: the "PPDR Edit Report" (identifies unreadable or unscheduled PPDR records); the "Screened Edit Report" (identifies readable records that passed the PPDR edit but are not able to be summarized); and the "PPAA Trunk Discrepancy Report" (identifies impossible or unreasonable combinations of trunk assignments in the data base and point-to-point attempts recorded by the PPDR). All three reports are described in Fig. 2 (19 sheets).

3. SYSTEM APPLICATIONS

CONVERSION OF PPAA DATA TO TRAFFIC ITEM LOADS

3.01 The PPAA system was designed so that the point-to-point data on summarized outputs could be readily used to determine the study period loads required in the trunk forecasting and servicing operations. The traffic item percentages on PPAA summaries provide the basis for allocating a trunk

group's load among all traffic items actually routed on that trunk group during the study period.

3.02 The PPAA system, with its attempt recording hardware located at the tandem, samples attempts received at the tandem carried on one-way incoming or 2-way trunk groups. Each sample attempt is identified by the trunk group over which it arrived and the NPA-NXX of the destination. The sample then must be converted to offered loads for the point-to-point traffic items.

3.03 Conversion to traffic item offered loads is most readily accomplished by distributing the offered load for a trunk group in accordance with the distribution of sampled incoming attempts. In any given measurement interval, this will result in a uniform holding time for all items, equal to the average holding time of the group. The assumption of uniform holding times for the items on a group is normally satisfactory for trunk forecasting. Where it is known that abnormally short or long holding times exist, appropriate weighting factors provided external to the system may be applied to the traffic item distribution factors before load allocation. Trunk groups carrying substantial credit card checking traffic, computer data transmissions, or any other such abnormal holding time traffic, would justify application of this refinement.

3.04 The distribution of a trunk group offered load with unweighted attempt count data, not only implies that traffic item average holding times are uniform, but also that blocking (or overflow) occurs in proportion to the size of the traffic items. Since the networks in which such data will be taken generally experience very low blocking, especially on a total network basis, error related to this assumption is normally insignificant. If focused blocking is being experienced in a network, it is desirable that administrative action based on PPAA data be taken prior to a scheduled study period.

3.05 The PPAA system output is designed so that selected traffic item loads may be readily determined by manually using the output summaries. If a complete universe of traffic item loads is desired, a full distribution of trunk group loads may be done either manually or with a locally mechanized system.

3.06 Since the sampled attempt data is for traffic incoming to the tandem, it is essential that it be used to distribute one-way incoming offered loads. Where the offered loads have been derived from data for one-way incoming trunk groups, this will result naturally. But where 2-way groups are in service, it will be necessary to convert data for these groups into estimates of offered loads for the one-way incoming (to tandem) traffic only.

3.07 While it is necessary that ***all*** sampled attempts received over a group be used in the distribution process, the only ones of interest are those for first-route traffic items. Hence, it is necessary to identify those items that are first-routed over the group and those that have been alternate routed from another group.

3.08 In a network in which PPAA data is taken at all tandems, it is possible to add estimates of the carried loads on the first (tandem) route, subsequent high-usage tandem groups and the offered load on the final tandem route. This method imposes laborious and sophisticated data handling, including interchange of data where the tandems involved are administered by different organizations or companies. The method recommended in paragraphs 3.06 and 3.07 provides a degree of accuracy commensurate with the total measurement process and is recommended as the standard procedure.

VERIFICATION OF RECORDS

Traffic Routing Verification

3.09 PPAA summaries may also be used to identify misrouted traffic. Sampled attempts for destination codes that should not have been routed on a given trunk group indicate errors in route selection at the end offices. The absence of a particular destination code associated with a trunk group on the summaries, however, does not necessarily indicate an error, since attempts for a particular destination code may not have been sampled. Whenever the volume of attempts recorded differs markedly from the volume expected based on prior data or other external knowledge, the data should be regarded as suspect and the pertinent areas of the data base checked for accuracy. Misroutes may be identified in this manner for both first route and overflow traffic. Apparent misroutes may also result from errors in trunk assignment records or other data base files.

Trunk Assignment Verification

3.10 The PPAA Trunk Discrepancy Report lists those "spare" trunk link frame (TLF) appearances for which attempts were recorded by the point-to-point data recorder (PPDR) and also lists those "assigned" TLF appearances for which no attempts were recorded by the PPDR. Attempts recorded on spare TLF appearances indicate an error in trunk assignment records or office wiring arrangements. Since no trunk group identification can be associated with these attempts, they will not be reflected on any output summaries. The absence of attempts on an assigned TLF appearance does not necessarily indicate an error in trunk assignment records or office wiring arrangements. This condition may be the result of an over-trunked group or a nonworking trunk.

4. QUALITY CONSIDERATIONS

4.01 Provision of point-to-point data from the Point-to-Point Attempt Analyzer System—Crossbar Tandem (PPAA) is only one of the many elements in the complex process of producing a trunk forecast. The accuracy of all inputs to the forecast process contribute to the overall accuracy of the end product. However, the sensitivity of end-product accuracy to the accuracy of an individual input has not been determined. It is, therefore, necessary that consideration be given to errors that result from source point-to-point data and the process used for converting these data to loads. The quality of point-to-point loads developed from data provided by the PPAA system is dependent on source data sampling, scheduling, conversion, and data base accuracy.

Sampling

4.02 Any sampling process results in some error when estimating a given universe. This error is a function of the sample size and its representativeness. Error may also be introduced when subsets of the universe are estimated from the same sample, and the sampling rate and representativeness for any given subset are not known. These factors are present in the PPAA system, but are reasonably mitigated by a process that incorporates:

- A 20-day PPAA study period
- The use of time intervals longer than one hour to provide point-to-point distribution percentages (see paragraph 4.09)
- The application of these percentages to loads determined from external sources.

This process minimizes the resulting error, confining it essentially to the distribution and the assumption of uniform holding times.

4.03 The actual rate of sampling by the point-to-point data recorder (PPDR) should be determined for each study period. This may be done by recording; the marker in which it was operating, the total attempts sampled, and the individual and total marker peg-count data for all intervals scheduled during the study period. These data will permit calculating the PPDR actual sampling rate in its marker as well as the sampling rate for the total crossbar tandem.

4.04 A major consideration in obtaining a representative sample of the traffic switched through a crossbar tandem is the wiring of the sender preference circuits. The markers in which the PPDR is installed should be available for selection by all types of incoming senders (MF, DP, etc). Furthermore, under normal busy hour loads, these markers should handle traffic that is representative of the total traffic switched by the tandem.

Data Base Accuracy

4.05 The quality of outputs from the PPAA system is directly affected by the accuracy of the data base. Since rearrangements in the network are continuously taking place, all data input records should be verified and brought up-to-date for each study period. The PPAA output summaries that reflect the updating transactions and data base status were designed to aid in maintenance of the data base. In addition to normal network rearrangements, the data base should be corrected for any discrepancies in traffic routing or erroneous incoming trunk assignments that were identified from the previous study.

PPAA Study Scheduling

4.06 For the engineering of trunk groups, point-to-point data are required for the loads that occur during the busy hours of the busy seasons. Scheduling relates to the selection of

study periods and time intervals so that data collected by the PPAA system will be representative of the traffic levels and distribution during these periods.

4.07 Since the PPAA system's output provides only the distribution data to apply to loads derived from trunk group data, it is essential that the data from these two sources result from the same traffic. Generally, this is done simply by scheduling operation of the PPAA system during the same normal busy seasons and hours for which trunk group data are scheduled. Considerations in the scheduling of trunk group study periods are covered in Section 780-401-130. The PPAA system may also be scheduled during other periods for special studies, but should never be scheduled without corresponding trunk group data if it is intended to use the output to estimate point-to-point loads. Scheduling the PPAA system without corresponding trunk group data may be useful when it is intended to use the outputs only to verify routing integrity or trunk assignment records.

4.08 Another consideration in scheduling involves tandem rearrangement activity. The data base of the PPAA system is not designed to be updated during a study period. Thus, to assure proper identification of traffic items for sampled attempts, it is desirable that there be a minimum of trunk rearrangement activity during study periods.

4.09 Time intervals of PPAA data used for the distribution of trunk group loads may consist of two or more consecutive half-hourly segments. Since the conversion process for developing point-to-point loads employs the percentage each item is of the total sampled attempts for a trunk group, it is not mandatory that the PPAA data used to distribute a busy-hour trunk group load be limited to that same hour. PPAA data from an interval longer than the trunk group busy hour, but always including that busy hour, are permissible and often desirable. Intervals longer than one hour result in larger volumes of sampled attempts on which to compute the percentages. Thus, it is suggested that the time intervals selected contain the maximum number of consecutive half-hourly segments that include and are generally representative of the traffic levels and distribution of the trunk group busy hour.

4.10 The number of time intervals selected for PPAA data collection is dependent on the range of significant hours for the trunk groups involved. Since the purpose of the PPAA system is to produce a matrix of traffic item loads needed for trunk forecasting or servicing, an overall and uniform rather than a selective approach to scheduling is suggested. Normally, six to eight hours are sufficient to encompass morning, afternoon, and evening busy hours. The traffic item percentages from the different periods of the day applied to trunk group loads from the corresponding periods will provide a matrix of loads. These loads reflect the daily changes in the levels and patterns of business and residence traffic. From this total matrix, the required loads for the forecasting or servicing process can be selected.

PPAA SYSTEM INPUT REQUIREMENTS

INPUT RECORD	DESCRIPTION
The Study Period/Busy Interval Schedule	This record identifies the study period by dates and the time intervals for which data are to be processed and summarized. The study period may consist of up to 20 consecutive business days or 28 consecutive calendar days. Any number of nonoverlapping time intervals may be specified. Each time interval must consist of two or more consecutive half-hourly segments. An input record is required for each crossbar tandem.
The Crossbar Tandem Identification Table	This record provides for the translation of a 3-numeric character crossbar tandem identifier used in PPAA output header entries to a common language location identification on hard copy outputs. The 3-digit number for a particular tandem is chosen from one of two different number series, dependent on whether the tandem is capable of handling NPA codes used as NXX codes for end offices.
The Incoming Trunk Assignment Record	The PPDR identifies the source of a sampled attempt in terms of the incoming trunk appearance. This appearance is identified by four digits defining the TLF, switch, horizontal, and discriminator level. This input record provides for the translation of the incoming trunk appearance to a common language name for the trunk group. This record also provides for the grouping of individual trunks into trunk groups.
The Trunk Group Identification Table	This record provides a one for one translation capability for each incoming trunk group. This table permits the editing of entries on the Incoming Trunk Assignment Record, and the translation of these entries into common language.
The Revertive Pulse Translation Table	This record is required for each PPAA equipped crossbar tandem which terminates revertive pulse trunk groups. This table provides for the translation of the three digits seen and recorded by the PPDR (group hundred, office brush, and office group) into the corresponding called NXX code.
The Terminating Office Cluster Record	This record is optional. It provides for the clustering and sequencing of terminating NXX codes on "custom" output summaries. With clustering, attempts are accumulated and percents computed for each NXX cluster. The home NPA of the crossbar tandem and selected foreign NPAs may be specified for terminating NXX clustering.

Fig. 1—Input Records

PPAA SYSTEM OUTPUT SUMMARIES

OUTPUT SUMMARY	DESCRIPTION
DATA BASE MAINTENANCE REPORTS:	
Tandem ID — Schedule Card File Print (Sheet 4)	This report contains the information from the tandem schedule file. It includes the crossbar tandem name, its 3-digit identifier and home NPA; the study period dates and time intervals; the control dates for each of the basic data base files and the NPAs (other than home NPA) designated for detailed treatment on the Standard and/or Custom Reports.
Tandem ID — Schedule Card Error Report	This report lists the errors on the input cards required to create the crossbar tandem schedule file.
Incoming Trunk Link Frame Master File (Sheet 5)	This report reflects the information from the Incoming Trunk Assignment Record. It lists all incoming appearances (by switch, horizontal and discriminator level for each TLF) for the crossbar tandem including those that are unassigned. For each appearance having an assignment, it lists the trunk group common language name and trunk number. This report is used to verify the trunk assignments referenced by the programs.
Incoming Trunk Group Assignments (Sheet 6 and 7)	This report reflects the information from the Incoming Trunk Assignment Record, and is organized by trunk group. Incoming trunk groups are listed in alphabetical order. For each group, the total number of trunks assigned and the incoming appearance for each trunk (TLF, switch, horizontal and discriminator level) is listed with each trunk number. All unassigned appearances are listed in order at the beginning of the report as if they were a trunk group. This report is only provided when requested by the appropriate input record.
Incoming Trunk Link Frame Transaction Report (Sheet 8)	This report lists all Incoming Trunk Assignment Record cards associated with each update, and indicates for each card either a successful update or the error which prevented an update.
Trunk Group Identification Translation Master File (Sheet 9)	This report lists the information from the Trunk Group Identification Table. It is used to verify that the correct translation between the trunk group identification and its common language name has been provided.

Fig. 2—Output Summaries (Sheet 1 of 19)

PPAA SYSTEM OUTPUT SUMMARIES

OUTPUT SUMMARY	DESCRIPTION
Trunk Group Identification Transaction Report (Sheet 10)	This report lists all Trunk Group Identification Table cards associated with each update, and indicates for each card either a successful update or the error which prevented an update.
Clustered NNX (NXX) Sequencing Master File (Sheet 11)	This report reflects the information from the Terminating Office Cluster Record (NXX SEQ File). It is used to verify how the NXXs will be clustered and sequenced on the Custom summary.
Clustered NNX (NXX) Transaction Report (Sheet 12)	This report lists all Terminating Office Cluster Record cards associated with each update, and indicates for each card either a successful update or the error which prevented an update.
Revertive Pulsing Translation Master File	This report reflects the information from the Revertive Pulse Translation Table. It is used to verify the translation of the RP codes to NXX codes referenced by the programs.
Revertive Pulsing Transaction Report	This report lists all Revertive Pulse Translation Table cards associated with each update, and indicates for each card either a successful update or the error which prevented an update.
POINT-TO-POINT DATA SUMMARIES:	
PPAA Results Standard Report (Sheets 13, 14 and 15)	This summary lists, for each incoming trunk group, the sampled attempts and corresponding percentage of total attempts sampled on the trunk group for each NXX or other non-NPA 3-digit code sampled in the home NPA of the crossbar tandem. These are listed in numerical order followed by the total sampled attempts and corresponding percentage for each foreign NPA, also in numercial order. An option is provided, requiring an input record, for detailing up to five designated foreign NPAs in the same manner as the home NPA. No special input record is required to obtain the Standard Report.
PPAA Results Custom Report (Sheets 16, 17 and 18)	This summary lists, for each incoming trunk group, the sampled attempts and corresponding percentage of total attempts sampled on the trunk group for each terminating office cluster in the home NPA of the crossbar tandem. The clustering and sequencing of terminating NXX codes for this summary are specified on the Terminating Office Cluster Record input. The NXXs in each cluster are listed on the

Fig. 2—Output Summaries (Sheet 2 of 19)

PPAA SYSTEM OUTPUT SUMMARIES

OUTPUT SUMMARY	DESCRIPTION
PPAA Results Custom Report (Cont) (Sheets 16, 17 and 18)	Custom Report. Sampled attempts and corresponding percentages for those 3-digit codes not included in the NXX-SEQ File are listed in numercial order after the clustered groupings. This is followed, in numercial order, by the total sampled attempts and corresponding percentage for each foreign NPA encountered. An option is provided, via the NXX-SEQ File for detailing selected foreign NPAs in the same manner as the home NPA. The Custom Report is only provided when requested by the appropriate input records.
EDIT REPORTS:	
PPDR Edit Report	This report indicates error conditions in the PPDR Raw Data File. This edit is performed on the data before it is processed by the application programs. The report also indicates those PPDR records that are not within the selected study period or time intervals.
Screened Edit Report	This report indicates errors associated with records which cannot be summarized. There are basically three error conditions: (1) A recorded attempt received on a spare appearance. (2) The tandem identification or TLF does not exist according to the data base. (3) A revertive pulse code which cannot be translated.
PPAA Trunk Discrepancy Report (Sheet 19)	This report indicates the unassigned appearances for which attempts were recorded and the assigned appearances for which no attempts were recorded. It is useful in the verification of actual wired assignment of trunks in the tandem with records of those assignments.

Fig. 2—Output Summaries (Sheet 3 of 19)

TANDEM ID - SCHEDULE CARD FILE PRINT — PAGE 001 — PP110

PROCESSING DATE 01/12/78

CONTROL DATE INFORMATION
ORT-TBL - 120178 XBT-ITI - 120178 RP-XLT - NO FILE NNX-SEQ - 120178

TDM-SCH INFORMATION

TDM ID	TANDEM OFFICE NAME	PROC OPT	STUDY TYPE	START DATE	END DATE	TIME INTERVALS FIRST	SECOND	THIRD	FOURTH	NPA BREAKDOWN 1	2	3	4	5	HOME NPA
003	HLWDCA0103T	C	B	112877	122377	09001200	14001700	19002100							213

CONTROL DATE INFORMATION
ORT-TBL - 120178 XBT-ITI - 120178 RP-XLT - NO FILE NNX-SEQ - 120178

TDM-SCH INFORMATION

TDM ID	TANDEM OFFICE NAME	PROC OPT	STUDY TYPE	START DATE	END DATE	TIME INTERVALS FIRST	SECOND	THIRD	FOURTH	NPA BREAKDOWN 1	2	3	4	5	HOME NPA
004	HLWDCA0104T	C	B	112877	122377	09001200	14001700	19002100							213

CONTROL DATE INFORMATION
ORT-TBL - 120178 XBT-ITI - 120178 RP-XLT - NO FILE NNX-SEQ - 120178

TDM-SCH INFORMATION

TDM ID	TANDEM OFFICE NAME	PROC OPT	STUDY TYPE	START DATE	END DATE	TIME INTERVALS FIRST	SECOND	THIRD	FOURTH	NPA BREAKDOWN 1	2	3	4	5	HOME NPA
005	LSANCA0105T	C	B	112877	122377	09001200	14001700	19002100							213

CONTROL DATE INFORMATION
ORT-TBL - 120178 XBT-ITI - 120178 RP-XLT - NO FILE NNX-SEQ - 120178

TDM-SCH INFORMATION

TDM ID	TANDEM OFFICE NAME	PROC OPT	STUDY TYPE	START DATE	END DATE	TIME INTERVALS FIRST	SECOND	THIRD	FOURTH	NPA BREAKDOWN 1	2	3	4	5	HOME NPA
006	LSANCA0206T	C	B	112877	122377	09001200	14001700	19002100							213

CONTROL DATE INFORMATION
ORT-TBL - 120178 XBT-ITI - 120178 RP-XLT - NO FILE NNX-SEQ - 120178

TDM-SCH INFORMATION

TDM ID	TANDEM OFFICE NAME	PROC OPT	STUDY TYPE	START DATE	END DATE	TIME INTERVALS FIRST	SECOND	THIRD	FOURTH	NPA BREAKDOWN 1	2	3	4	5	HOME NPA
008	ALHBCA0108T	C	B	112877	122377	09001200	14001700	19002100							213

Fig. 2—Output Summaries (Sheet 4 of 19)

REPORT =1 PAGE 2

INCOMING TRUNK LINK FRAME MASTER FILE PP150

TANDEM ID - 003 UPDATE DATE 12/01/77
PROCESSING DATE 11/04/77

TRUNK LINK FRAME - 00 * - RECORD UPDATED IN THIS RUN

S W	H Z	D L	TRK NO		TRUNK GROUP NAME		TRUNK GROUP ID	REMARKS
	6	1	54		AF50TO	HLWDCA0146A M- HLWDCA0103T	HLWDCA0146AG1	
	6	0	11		AF50TO	BRBNCA1184C M- HLWDCA0103T	BRBNCA1184CG2	
	5	1	1		IH50TO	IGWDCA01MG0 M- HLWDCA0103T	IGWDCA01MG0	
	5	0	7		IH50TO	WHTRCAXF69E M- HLWDCA0103T	WHTRCAXF69E	
	4	1	0000					
	4	0	26		AF50TO	PDRYCAXF82J M- HLWDCA0103T	PDRYCAXF82J	
	3	1	1		IH50TO	MNRVCAXF35J M- HLWDCA0103T	MNRVCAXF35J	
	3	0	8		AF50TO	SNMNCAXF39E M- HLWDCA0103T	SNMNCAXF39E	
	2	1	1		IH50TO	WLMGCA0183C M- HLWDCA0103T	WLMGCA0183C	
	2	0	47	*	AF50TO	WLANCA0155C M- HLWDCA0103T	WLANCA0155CG8	
7	9	1	54		AF50TO	HLWDCA0146A M- HLWDCA0103T	HLWDCA0146AG3	
	9	0	40		AF50TO	MALBCAXG456 M- HLWDCA0103T	MALBCAXG456	
	8	1	21		IH50TO	LNBHCAXJ42G M- HLWDCA0103T	LNBHCAXJ42G	
	8	0	13		DF40TT	CLCYCA011TB M- HLWDCA0103T	CLCYCA011TB	
	7	1	29		AF50TO	LSANCA1093K M- HLWDCA0103T	LSANCA1093KG8	
	7	0	21		IH50TO	TRNCCAXG37A M- HLWDCA0103T	TRNCCAXG37A	
	6	1	40		AF50TO	LSANCA0865E M- HLWDCA0103T	LSANCA0865EG8	
	6	0	21		IH50TO	ALHBCA0157H M- HLWDCA0103T	ALHBCA0157H	
	5	1	0000					
	5	0	66		AF50TO	BRBNCA1184C M- HLWDCA0103T	BRBNCA1184CG1	
	4	1	1		IH50TO	LSANCA1148G M- HLWDCA0103T	LSANCA1148G	
	4	0	34		IH50TO	GRHLCAXF36E M- HLWDCA0103T	GRHLCAXF36E	

Fig. 2—Output Summaries (Sheet 5 of 19)

REPORT =2 PAGE 1

INCOMING TRUNK GROUP ASSIGNMENTS PP180

TANDEM ID - 003
TANDEM TRANSLATION - HLMDCA0103T

UPDATE DATE 12/01/77
PROCESSING DATE 10/12/77

SPARE EQUIPMENT

TRK NO	TL FR	S W	H Z	D L	TRK NO	TL FR	S W	H Z	D L	TRK NO	TL FR	S W	H Z	D L	TRK NO	TL FR	S W	H Z	D L	TRK NO	TL FR	S W	H Z	D L
	00	9	9	1		00	8	4	1		00	8	8	0		00	9	4	0		00	9	4	1		00	3	9	0
	00	4	2	0		00	4	3	0		00	4	6	1		00	4	7	0		00	4	8	0		00	5	6	1
	00	5	7	1		00	5	8	0		00	6	2	1		00	6	4	0		00	6	6	0		00	6	9	1
	00	7	5	1		00	0	4	1		00	1	4	1		00	1	7	0		00	1	8	0		00	2	2	1
	00	2	6	1		00	3	2	1		00	3	3	1		00	3	6	0		01	6	2	1		01	7	2	1
	01	7	5	0		01	7	6	1		01	8	2	1		01	8	6	0		01	8	7	0		01	8	8	1
	01	9	2	1		01	9	5	1		01	0	2	1		01	0	3	1		01	0	9	0		01	1	6	0
	01	1	8	0		01	2	2	0		01	2	2	1		01	2	3	1		01	2	4	0		01	2	5	0
	01	2	7	0		01	2	8	1		01	2	9	0		01	3	3	0		01	4	2	1		01	4	3	0
	01	4	7	0		01	4	9	0		01	4	9	1		01	5	2	0		01	5	3	1		01	5	4	1
	01	5	5	1		01	5	8	0		02	8	4	0		02	8	4	1		02	8	8	1		02	9	2	0
	02	9	2	1		02	9	5	0		02	9	5	1		02	9	7	0		02	0	5	1		02	0	7	1
	02	0	8	0		02	1	4	0		02	1	5	0		02	1	6	0		02	1	8	0		02	2	3	1
	02	3	4	0		02	4	7	1		02	4	8	1		02	5	2	1		02	5	4	0		02	5	6	0
	02	5	8	0		02	5	9	1		02	6	3	1		02	6	4	0		02	6	7	0		02	7	4	0
	02	7	7	0		03	1	9	0		03	2	2	1		03	2	7	0		03	2	8	1		03	2	9	1
	03	3	3	1		03	3	5	0		03	3	8	0		03	3	8	1		03	4	2	0		03	4	2	1
	03	4	3	0		03	5	3	1		03	5	9	0		03	6	2	0		03	6	4	0		03	7	9	1
	03	8	3	1		03	8	4	0		03	8	8	1		03	9	7	1		03	0	4	0		03	0	4	1
	03	0	6	1		04	8	5	1		04	8	7	0		04	8	8	1		04	9	3	0		04	9	7	1
	04	4	7	0		04	5	2	0		04	5	4	0		04	5	6	1		04	6	3	0		04	6	8	0

Fig. 2—Output Summaries (Sheet 6 of 19)

REPORT =2 PAGE 10

INCOMING TRUNK GROUP ASSIGNMENTS PP100

TANDEM ID - 003
TANDEM TRANSLATION - HLWDCA0103T

UPDATE DATE 12/01/77
PROCESSING DATE 10/12/77

TRUNK GROUP NAME - AF50TO BRBNCA1184C M- HLWDCA0103T
TRUNK GROUP IDENTIFICATION - BRBNCA1184CG2

TRK NO	TL FR	S W	H Z	D L	TRK NO	TL FR	S W	H Z	D L	TRK NO	TL FR	S W	H Z	D L	TRK NO	TL FR	S W	H Z	D L	TRK NO	TL FR	S W	H Z	D L	TRK NO	TL FR	S W	H Z	D L
2	02	5	3	1	4	15	8	5	1	8	14	2	3	0	10	04	6	4	1	11	00	8	6	0	16	17	1	9	1
43	12	4	9	0	45	01	0	5	0	50	03	3	4	1	52	05	9	4	0	59	11	5	4	0					

TOTAL ASSIGNMENTS LISTED - 11

TRUNK GROUP NAME - AF50TO BRBNCA1184C M- HLWDCA0103T
TRUNK GROUP IDENTIFICATION - BRBNCA1184CG3

TRK NO	TL FR	S W	H Z	D L	TRK NO	TL FR	S W	H Z	D L	TRK NO	TL FR	S W	H Z	D L	TRK NO	TL FR	S W	H Z	D L	TRK NO	TL FR	S W	H Z	D L	TRK NO	TL FR	S W	H Z	D L
2	01	9	3	0	4	04	4	4	0	8	05	1	9	1	11	06	8	3	1	15	02	8	3	0	17	09	9	7	0
19	08	5	5	1	23	10	6	4	0	26	00	9	3	0	29	11	7	9	1	31	12	2	8	1	38	13	7	4	1
40	03	9	4	1	43	14	3	6	1	45	15	4	3	0	51	09	2	4	1	53	10	1	6	1	58	08	8	8	0
60	12	3	7	0	61	11	6	5	0																				

TOTAL ASSIGNMENTS LISTED - 20

TRUNK GROUP NAME - AF50TO BRBNCA1184C M- HLWDCA0103T
TRUNK GROUP IDENTIFICATION - BRBNCA1184CG4

TRK NO	TL FR	S W	H Z	D L	TRK NO	TL FR	S W	H Z	D L	TRK NO	TL FR	S W	H Z	D L	TRK NO	TL FR	S W	H Z	D L	TRK NO	TL FR	S W	H Z	D L	TRK NO	TL FR	S W	H Z	D L
201	00	6	8	1	204	04	4	2	0	206	05	1	5	1	208	06	4	7	0	209	02	9	8	0	211	05	7	9	1
213	18	5	3	0	214	17	7	6	0	216	01	5	6	1	218	04	8	5	0	219	10	7	7	0	221	00	7	2	1
222	11	8	2	1	223	01	4	5	1	226	03	8	3	0	228	02	3	5	1	231	12	3	2	0	233	14	2	6	0
237	15	0	2	0	239	16	9	3	0	241	19	5	4	0															

TOTAL ASSIGNMENTS LISTED - 21

Fig. 2—Output Summaries (Sheet 7 of 19)

XBT-ITI (CARD CODE 4) PAGE 2

INCOMING TRUNK LINK FRAME TRANSACTION REPORT PP120

TANDEM ID - 003 UPDATE DATE 12/01/77
PROCESSING DATE 08/29/77

ACT CODE	TDM ID	TLF NO	S W	H Z	D L	FR ID	TRK NO	TRUNK GROUP ID	--REMARKS--	----------MESSAGE----------	ERROR CODE
D	003	01	2	2	1	0				AN EXISTING MASTER WAS DELETED.	
A	003	01	1	9	1	0	63	LSANCA2987AGB		A NEW MASTER WAS CREATED.	
A	003	01	1	9	0	0	9	PSDNCA1157K		A NEW MASTER WAS CREATED.	
A	003	01	1	4	0	0	14	NRWLCAXG92G		A NEW MASTER WAS CREATED.	
D	003	01	0	2	1	0				AN EXISTING MASTER WAS DELETED.	
D	003	02	8	4	0	0				AN EXISTING MASTER WAS DELETED.	
D	003	02	4	7	1	0				AN EXISTING MASTER WAS DELETED.	
A	003	02	4	2	0	0	16	NRWLCAXG92G		A NEW MASTER WAS CREATED.	
D	003	02	3	4	0	0				AN EXISTING MASTER WAS DELETED.	
A	003	02	2	8	1	0	15	BLPKCAXF33J		A NEW MASTER WAS CREATED.	
A	003	02	2	5	0	0	28	DWNYCAXF86A		A NEW MASTER WAS CREATED.	
D	003	02	1	4	0	0				AN EXISTING MASTER WAS DELETED.	
A	003	02	0	6	0	0	65	LSANCA2987AGB		A NEW MASTER WAS CREATED.	
A	003	02	0	4	1	0	3	LNBHCAXM59F		A NEW MASTER WAS CREATED.	
A	003	02	0	3	1	0	31	CMTNCA0163X		A NEW MASTER WAS CREATED.	
A	003	03	6	7	0	0	51	WLANCA0155CGB		A NEW MASTER WAS CREATED.	
D	003	03	6	2	0	0				AN EXISTING MASTER WAS DELETED.	
D	003	03	5	3	1	0				AN EXISTING MASTER WAS DELETED.	
A	003	03	4	6	1	0	39	BVHLCA01CGOGB		A NEW MASTER WAS CREATED.	
D	003	03	3	8	1	0				AN EXISTING MASTER WAS DELETED.	
A	003	03	3	8	0	0	3	LSANCA5622E		TRUNK GROUP ID OF A NEW ASSIGNMENT IS NOT VALID.	415
A	003	03	3	8	0	0	3	LSANCA5622E		ONLY ONE UPDATE CAN BE ACCEPTED PER SORT SEQUENCE.	411
D	003	03	2	8	1	0				AN EXISTING MASTER WAS DELETED.	
A	003	04	5	8	1	0	67	LSANCA2987AGB		A NEW MASTER WAS CREATED.	

Fig. 2—Output Summaries (Sheet 8 of 19)

ORT-TBL PAGE 3

TRUNK GROUP IDENTIFICATION MASTER FILE PP160

TANDEM ID - 003 UPDATE DATE 12/01/77
PROCESSING DATE 12/04/77

* - RECORD UPDATED IN THIS RUN

TRUNK GROUP ID		TRUNK GROUP NAME	INSEP
ELSGCA11322	IH50TO	ELSGCA11322 M- HLWDCA0103T	2026
ELSGCA1253C	IH50TO	ELSGCA1253C M- HLWDCA0103T	2126
ELSGCA1264A	IH50TO	ELSGCA1264A M- HLWDCA0103T	2126
GLDLCA1124JGA	IF50TO	GLDLCA1124J M- HLWDCA0103T	2127
GLNDCAXF336	IH50TO	GLNDCAXF336 M- HLWDCA0103T	2046
GRDNCA01CG0	IH50TO	GRDNCA01CG0 M- HLWDCA0103T	2022
GRDNCA0132E	IH50TO	GRDNCA0132E M- HLWDCA0103T	2122
GRDNCA0132H	IH50TO	GRDNCA0132H M- HLWDCA0103T	2122
GRHLCAXF36E	IH50TO	GRHLCAXF36E M- HLWDCA0103T	2054
HLWDCA01CG0GA	IF50TO	HLWDCA01CG0 M- HLWDCA0103T	2014
HLWDCA01CG0GB	AF50TO	HLWDCA01CG0 M- HLWDCA0103T	2014
HLWDCA0146AG1	AF50TO	HLWDCA0146A M- HLWDCA0103T	2014
HLWDCA0146AG2	AF50TO	HLWDCA0146A M- HLWDCA0103T	2014
HLWDCA0146AG3	AF50TO	HLWDCA0146A M- HLWDCA0103T	2014
HNBHCAXL592	IH50TO	HNBHCAXL592 M- HLWDCA0103T	2049
HNPKCA0158C	IH50TO	HNPKCA0158C M- HLWDCA0103T	2066
HRBHCAXA37A	IH50TO	HRBHCAXA37A M- HLWDCA0103T	2053
HWTHCA0197J	IH50TO	HWTHCA0197J M- HLWDCA0103T	2128
IGWDCA01MG0	IH50TO	IGWDCA01MG0 M- HLWDCA0103T	2029
LACNCA11354	IH50TO	LACNCA11354 M- HLWDCA0103T	2035
LACRCA1124KGA	IF50TO	LACRCA1124K M- HLWDCA0103T	2123
LAHBCAXF69A	IH50TO	LAHBCAXF69A M- HLWDCA0103T	2060
LAPNCAXF96F	IH50TO	LAPNCAXF96F M- HLWDCA0103T	2046

Fig. 2—Output Summaries (Sheet 9 of 19)

ORT-TBL (CARD CODE 3) PAGE 7

TRUNK GROUP IDENTIFICATION TRANSACTION REPORT PP130

TANDEM ID - 017 UPDATE DATE 12/01/77
PROCESSING DATE 09/16/77

ACT CODE	TDM ID	TRUNK GROUP ID	TRUNK GROUP NAME	CLCI IND	IN SEP	MESSAGE	ERROR CODE
C	017	CURRENT DATE 120177	PREVIOUS DATE 120177			AN EXISTING DATE RECORD HAS BEEN CHANGED.	
C	017	CURRENT DATE 120177	PREVIOUS DATE 120177			ONLY ONE DATE RECORD PER TANDEM CAN BE ACCEPTED.	320
A	017	ELMNCA0110T AF00MT	ELMNCA0110T M- LSANCA0517T	Y	2710	A NEW MASTER WAS CREATED.	
A	017	GRDNCA0221T MI30M1EMA	GRDNCA0221T M- LSANCA0517T	Y	2821	A NEW MASTER WAS CREATED.	
A	017	GRDNCA0231T MI40M1EMA	GRDNCA0231T M- LSANCA0517T	Y	2831	A NEW MASTER WAS CREATED.	
A	017	HNPKCA0158C IH50TO	HNPKCA0158C M- LSANCA0517T	Y	2006	A NEW MASTER WAS CREATED.	

Fig. 2—Output Summaries (Sheet 10 of 19)

NNX-SEQ PAGE 5

CLUSTERED NNX SEQUENCING MASTER FILE PP170

TANDEM ID - 003

UPDATE DATE 12/01/77
PROCESSING DATE 12/13/77

* - RECORD UPDATED IN THIS RUN

	NPA	SEQUENCE NUMBER	NNXS	REMARKS	DESEP
	213	323	852	LSAN 08 65K	2013
	213	324	855	LSAN 08 65K	2017
	213	325	931, 932, 933, 934, 935, 936, 938, 939	LSAN 10 93A	2013
	213	326	937, 930	LSAN 10 93K	2013
	213	327	661, 662, 663, 664, 665, 667	LSAN 12 66F	2002
*	213	328	666, 668, 669, 660	LSAN 12 66E	2002
	213	329	851, 874, 876	LSAN 29 87A	2014
	213	330	457	MALB XF 457	2050
	213	331	456	MALB XG 456	2050
	213	332	454, 459	PCPL XF 45A	2056
*	213	333	821, 822, 827	PDRY XF 82J	2055
*	213	334	823	PDRY XF 82K	2055
	213	335	392, 396, 399	SNMN XF 39E	2056
	213	336	393, 394, 395, 451	SNMN XG 39F	2056
	213	337	450	SNMN XJ 45E	2056
	213	338	455	TPNG XF 455	2056
	213	339	473, 477, 478, 479	WLAN XF 47F	2059
	213	340	270	WLAN XF 270	2017
	213	341	279	WLAN XG 279	2017
	213	342	470, 474, 475	WLAN XG 47G	2059
	213	343	826, 820	WLAN XH 82A	2059
	213	344	828, 829	WLAN XH 82A	2056
	213	345	824, 825	WLAN XJ 82E	2059

Fig. 2—Output Summaries (Sheet 11 of 19)

NNX-SEQ (CARD CODE 6) PAGE 5

CLUSTERED NNX TRANSACTION REPORT PP140

TANDEM ID - 008

UPDATE DATE 12/01/77
PROCESSING DATE 10/20/77

ACT CODE	TDM ID	NPA	SEQ NO	NNX	REMARKS	DE SEP	MESSAGE	ERROR CODE
C	008	CURRENT DATE 120177		PREVIOUS DATE 120177			AN EXISTING DATE RECORD HAS BEEN CHANGED.	
C	008	213	001	865	ARTS XF 86A	2048	AN EXISTING MASTER WAS CHANGED.	
I	008	213	002	860 924	ARTS XF 86K	2048	A NEW MASTER WAS INSERTED.	
D	008	213	007	774	CMTN 01 63C	2006	AN EXISTING MASTER WAS DELETED.	
C	008	213	009	774 979	CMTN 01 63X	2006	AN EXISTING MASTER WAS CHANGED.	
A	008	213	017	921 926 802	NRWL XG 92G	2048	A NEW MASTER WAS CREATED.	
I	008	213	212	705	RESD 01 CG0	2036	A NEW MASTER WAS INSERTED.	
C	008	213	224	782 786	VNNY 02 78C	2039	AN EXISTING MASTER WAS CHANGED.	
A	008	213	225	781 787 986	VNNY 02 78A	2039	A NEW MASTER WAS CREATED.	
C	008	213	334	821 823 827	PDRY XF 82K	2055	AN EXISTING MASTER WAS CHANGED.	
C	008	213	342	470 474 475	WLAN XG 47G	2059	AN EXISTING MASTER WAS CHANGED.	
C	008	213	514	746	LSAN 09 74C	2007	AN EXISTING MASTER WAS CHANGED.	
C	008	213	515	747 748 749	LSAN 09 74A	2007	AN EXISTING MASTER WAS CHANGED.	
C	008	213	516	741 742 744	LSAN 09 CG0	2007	AN EXISTING MASTER WAS CHANGED.	
C	008	213	702	647 640	ELSG 12 53C	2028	AN EXISTING MASTER WAS CHANGED.	
C	008	213	743	540	TRNC XF 54J	2053	AN EXISTING MASTER WAS CHANGED.	
A	008	213	744	320 328	TRNC 11 32A	2038	A NEW MASTER WAS CREATED.	
I	008	213	745	533	TRNC 11 53D	2038	A NEW MASTER WAS INSERTED.	
C	008	213	812	335 914 963	GLND XF 33S	2046	AN EXISTING MASTER WAS CHANGED.	
C	008	213	902	554	WTHR	2001	AN EXISTING MASTER WAS CHANGED.	
A	008	213	905	853	TIME	2001	A NEW MASTER WAS CREATED.	

Fig. 2—Output Summaries (Sheet 12 of 19)

PCMA RESULTS STANDARD REPORTS PAGE 1

TANDEM ID - 003
TANDEM OFFICE - HLWDCA01G3T

PROCESSING DATE 01/15/78 PP220
STUDY PERIOD 11/28 - 12/23
MISSING DATES 12/02 12/03 12/06 12/07 12/08 12/15 12/17

TRUNK GROUP NAME	TERMINATING NPA NNX GROUPINGS	SELECTED STUDY TIME INTERVALS 0900-1200 ATTMT	PCT	1400-1700 ATTMT	PCT	1900-2100 ATTMT	PCT	FOURTH ATTMT	PCT
IH50TC AGORCA1188L M- HLWDCA01G3T									
	213 204					1	3.4		
	213 272	1	1.5	1	1.8				
	213 273	1	1.5	1	1.8				
	213 274	1	1.5						
	213 275			1	1.8				
	213 277	3	4.6	4	7.0				
	213 278	3	4.6	4	7.0				
	213 462	1	1.5	1	1.8				
	213 464	2	3.1						
	213 468	2	3.1						
	213 473	1	1.5						
	213 552	3	4.6	1	1.8	1	3.4		
	213 553	6	9.2	4	7.0	2	6.9		
	213 558	1	1.5						
	213 559	3	4.6	1	1.8	1	3.4		
	213 651					1	3.4		
	213 652	1	1.5			1	3.4		
	213 653	1	1.5						
	213 654	1	1.5						
	213 655			2	3.5				
	213 656	1	1.5			1	3.4		
	213 657	1	1.5			1	3.4		
	213 658	1	1.5						
	213 659	1	1.5	1	1.8				
	213 661					1	3.4		
	213 662	1	1.5						
	213 663	1	1.5	1	1.8	1	3.4		
	213 665			1	1.8				
	213 666	1	1.5	2	3.5				
	213 667	1	1.5	3	5.3				
	213 820	2	3.1	2	3.5				
	213 825	3	4.6	2	3.5				
	213 826	1	1.5			3	10.3		
	213 836	2	3.1	1	1.8				
	213 838			1	1.8	1	3.4		
	213 839	1	1.5	2	3.5	2	6.9		
	213 841	1	1.5	1	1.8				
	213 843	2	3.1	2	3.5				
	213 845			2	3.5				
	213 846	1	1.5			2	6.9		
	213 847	1	1.5						
	213 852					1	3.4		
	213 855			2	3.5				
	213 870			6	10.5	1	3.4		

Fig. 2—Output Summaries (Sheet 13 of 19)

PLAA RESULTS STANDARD REPORTS PAGE 2

TANDEM ID - 003
TANDEM OFFICE - HLWDCA0103T

PROCESSING DATE 01/13/78 PP220
STUDY PERIOD 11/28 - 12/23
MISSING DATES 12/02 12/03 12/06 12/07 12/08 12/15 12/17

TRUNK GROUP NAME	TERMINATING NPA NNX GROUPINGS	SELECTED STUDY TIME INTERVALS 0900-1200 ATTMT	PCT	1400-1700 ATTMT	PCT	1900-2100 ATTMT	PCT	FOURTH ATTMT	PCT
IH50TG AGORCA1188L M- HLWDCA0103T									
	213 874					2	6.9		
	213 876	2	3.1	2	3.5	1	3.4		
	213 878	1	1.5						
	213 930			1	1.8				
	213 931			1	1.8	1	3.4		
	213 933			2	3.5				
	213 934					1	3.4		
	213 935			1	1.8	1	3.4		
	213 936	1	1.5						
	213 937	6	9.2	1	1.8				
	213 938	2	3.1			1	3.4		
	213 939					1	3.4		
	TOTAL ATTEMPTS	65		57		29			
IH50TG ALMBCA0157H M- HLWDCA0103T									
	213 069	1	1.4						
	213 270	1	1.4						
	213 273			1	2.4				
	213 278	1	1.4						
	213 279	1	1.4						
	213 388	8	10.8	6	14.3	3	14.3		
	213 391	1	1.4						
	213 392			1	2.4	3	14.3		
	213 393	1	1.4						
	213 395	1	1.4						
	213 396	2	2.7	1	2.4				
	213 399	1	1.4	1	2.4	1	4.8		
	213 450	1	1.4			1	4.8		
	213 454	2	2.7	3	7.1				
	213 455					1	4.8		
	213 456	2	2.7	4	9.5	1	4.8		
	213 457	2	2.7	3	7.1				
	213 459	1	1.4						
	213 550	4	5.4	3	7.1				
	213 553	2	2.7						
	213 556	1	1.4						
	213 558	1	1.4						
	213 559	2	2.7						
	213 660	2	2.7	2	4.8				
	213 666	3	4.1	1	2.4				
	213 821	4	5.4	2	4.8	2	9.5		

Fig. 2—Output Summaries (Sheet 14 of 19)

PPAA RESULTS STANDARD REPORTS PAGE 3

TANDEM ID = 003
TANDEM OFFICE = HLWDCA0103T

PROCESSING DATE 01/13/78 PP220
STUDY PERIOD 11/28 - 12/23
MISSING DATES 12/02 12/03 12/06 12/07 12/08 12/15 12/17

TRUNK GROUP NAME	TERMINATING NPA NNX GROUPINGS	SELECTED STUDY TIME INTERVALS 0900-1200 ATTMT	PCT	1400-1700 ATTMT	PCT	1900-2100 ATTMT	PCT	FOURTH ATTMT	PCT
IH50TO ALH8CA0157H M- HLWDCA0103T									
	213 822	8	10.8	2	4.8	1	4.8		
	213 823	5	6.8	6	14.3	7	33.3		
	213 827	1	1.4						
	213 829	1	1.4						
	213 847			1	2.4				
	213 879	2	2.7						
	213 930			1	2.4				
	213 931	3	4.1						
	213 934	2	2.7						
	213 935	1	1.4						
	213 936					1	4.8		
	213 937	3	4.1	4	9.5				
	213 938	3	4.1						
	TOTAL ATTEMPTS	74		42		21			
PH50TO ARCOCA11M60 M- HLWDCA0103T									
	213 271	1	0.7			1	1.3		
	213 272	3	2.0	2	3.0				
	213 273	2	1.3						
	213 274	2	1.3						
	213 275	1	0.7	1	1.5	3	3.8		
	213 276	1	0.7						
	213 277	3	2.0						
	213 278	2	1.3	2	3.0				
	213 390	1	0.7			1	1.3		
	213 391	2	1.3						
	213 392					1	1.3		
	213 393			1	1.5				
	213 394			1	1.5	1	1.3		
	213 395					1	1.3		
	213 396					3	3.8		
	213 397	1	0.7			1	1.3		
	213 399	1	0.7						
	213 451	1	0.7	1	1.5				
	213 455	2	1.3			2	2.5		
	213 456	2	1.3	1	1.5	2	2.5		
	213 457					1	1.3		
	213 459			1	1.5				
	213 461	1	0.7						
	213 462	1	0.7	1	1.5	2	2.5		
	213 463	3	2.0	1	1.5				

Fig. 2—Output Summaries (Sheet 15 of 19)

PPAA RESULTS CUSTOM REPORTS PAGE 1918

TANDEM ID - 017
TANDEM OFFICE - LSANCA0517T

PROCESSING DATE 10/12/77 PP230
STUDY PERIOD 07/25 - 08/19
MISSING DATES 07/30 08/06 08/13 08/16 08/17 08/18 08/19

		TERMINATING NPA NNX GROUPINGS	SELECTED STUDY TIME INTERVALS 0900-1200		1400-1700		1900-2100		FOURTH	
	TRUNK GROUP NAME	SEQ NPA NNX NNX NNX NNX NNX NNX NNX NNX NNX NNX	ATTMT	PCT	ATTMT	PCT	ATTMT	PCT	ATTMT	PCT
IH50TO	BELRCAXF47A M- LSANCA0517T									
		701 213 536			2	10.5				
		704 213 648	1	4.8						
		705 213 515	1	4.8	1	5.3				
		706 213 770	1	4.8	1	5.3				
		707 213 532					1	7.7		
		708 213 321			1	5.3				
		710 213 324	1	4.8						
		714 213 772	2	9.5						
		715 213 970 973			2	10.5	1	7.7		
		716 213 673 674	3	14.3			1	7.7		
		720 213 426			1	5.3				
		722 213 425 429			1	5.3	1	7.7		
		726 213 325			2	10.5				
		729 213 778			1	5.3	1	7.7		
		730 213 971	1	4.8						
		734 213 641 645 649	7	33.3	2	10.5	1	7.7		
		737 213 545			2	10.5	2	15.4		
		739 213 541			1	5.3	1	7.7		
		740 213 430 594 596 598	1	4.8			4	30.8		
		742 213 831			1	5.3				
		743 213 320 328	3	14.3						
		747 213 775			1	5.3				
		TOTAL ATTEMPTS	21		19		13			

Fig. 2—Output Summaries (Sheet 16 of 19)

PPAA RESULTS CUSTOM REPORTS PAGE 1911

TANDEM ID - 017
TANDEM OFFICE - LSANCA05171

PROCESSING DATE 10/12/77 PP238
STUDY PERIOD 07/25 - 08/19
MISSING DATES 07/30 08/06 08/13 08/16 08/17 08/18 08/19

TRUNK GROUP NAME	SEQ	TERMINATING NPA NNX GROUPINGS	SELECTED STUDY TIME INTERVALS 0900-1200 ATTMT	PCT	1400-1700 ATTMT	PCT	1900-2100 ATTMT	PCT	FOURTH ATTMT	PCT
IH50TO BLFLCAXF86A 7- LSANCA05171										
	116	213 877					1	5.9		
	706	213 770	1	3.7						
	707	213 538	2	7.4						
	708	213 321	2	7.4						
	709	213 323	2	7.4						
	710	213 324 329	1	3.7	1	5.9	3	17.6		
	712	213 372	1	3.7						
	713	213 644 675 676 679	4	14.8	1	5.9	5	29.4		
	715	213 978			1	5.9				
	716	213 674	1	3.7						
	717	213 672					1	5.9		
	726	213 325	1	3.7	1	5.9				
	727	213 538			1	5.9				
	729	213 778			1	5.9				
	731	213 678	2	7.4	1	5.9				
	733	213 642 646	1	3.7			1	5.9		
	734	213 641 645 649	3	11.1						
	736	213 779					2	11.8		
	737	213 545			1	5.9				
	738	213 542	2	7.4	2	11.8				
	739	213 377			1	5.9				
	741	213 548					1	5.9		

Fig. 2—Output Summaries (Sheet 17 of 19)

PPAA RESULTS CUSTOM REPORTS PAGE 1912

TANDEM ID - 017
TANDEM OFFICE - LSANCA05177

PROCESSING DATE 10/12/77 PP230
STUDY PERIOD 07/25 - 08/19
MISSING DATES 07/30 08/06 08/13 08/16 08/17 08/18 08/19

		TERMINATING NPA NNX GROUPINGS	SELECTED STUDY TIME INTERVALS 0900-1200		1400-1700		1900-2100		FOURTH	
TRUNK GROUP NAME	SEQ	NPA NNX NNX NNX NNX NNX NNX NNX NNX NNX	ATTMT	PCT	ATTMT	PCT	ATTMT	PCT	ATTMT	PCT
IH50TO BLFLCAXF86A 7- LSANCA05177										
	743	213 320 328 533	3	11.1	2	11.8	3	17.6		
	745	213 373 378			2	11.8				
	746	213 549			1	5.9				
	748	213 835			1	5.9				
		213 540	1	3.7						
		TOTAL ATTEMPTS	27		17		17			
IH50TO BLGRCAXF92A 7- LSANCA05177										
	101	213 240 247	2	1.8	2	2.9				
	102	213 241 242 243 244	4	3.6	1	1.4	3	7.3		
	103	213 245	2	1.8	1	1.4				
	105	213 248					2	4.9		
	106	213 798			1	1.4				
	107	213 249	1	0.9			1	2.4		
	108	213 764			2	2.9				
	109	213 875	1	0.9	1	1.4				
	110	213 983			1	1.4				
	111	213 765	1	0.9						
	112	213 767 768	1	0.9	1	1.4	1	2.4		
	113	213 769	1	0.9						
	114	213 984			1	1.4				
	115	213 761 762 763 766	3	2.7			2	4.9		

Fig. 2—Output Summaries (Sheet 18 of 19)

PPAA TRUNK DISCREPANCY REPORT PAGE 22

TANDEM ID - 003
TANDEM NAME - HLNDCA5103T

UPDATE DATE 12/01/77
PROCESSING DATE 10/12/77
STUDY PERIOD 07/25-08/19

PP210

TLF NO	FRM ID	S W	H Z	D L	TRK NO	TRUNK GROUP IDENTIFICATION	MESSAGE
16	0	8	7	0	19	SPLVCAXF89C	ZERO ATTEMPTS RECORDED DURING STUDY PERIOD.
16	0	6	8	1	0000		00009 ATTEMPTS RECORDED DURING STUDY PERIOD.
16	0	6	8	0	22	WLANCAXF47ACZ	ZERO ATTEMPTS RECORDED DURING STUDY PERIOD.
16	0	6	7	1	2	SNFNCAXF36AGB	ZERO ATTEMPTS RECORDED DURING STUDY PERIOD.
16	0	6	5	0	4	GRDNCA01CG0	ZERO ATTEMPTS RECORDED DURING STUDY PERIOD.
16	0	6	4	1	0000		00018 ATTEMPTS RECORDED DURING STUDY PERIOD.
16	0	6	3	1	45	LSANCA1266AG3	ZERO ATTEMPTS RECORDED DURING STUDY PERIOD.
16	0	6	2	0	0000		00011 ATTEMPTS RECORDED DURING STUDY PERIOD.
16	0	5	7	1	0000		00002 ATTEMPTS RECORDED DURING STUDY PERIOD.
16	0	5	6	1	43	WLANCAXG47A	ZERO ATTEMPTS RECORDED DURING STUDY PERIOD.
16	0	5	5	0	0000		00071 ATTEMPTS RECORDED DURING STUDY PERIOD.
16	0	5	4	1	15	WLANCAXH82ACZ	ZERO ATTEMPTS RECORDED DURING STUDY PERIOD.
16	0	5	3	1	0000		00112 ATTEMPTS RECORDED DURING STUDY PERIOD.
16	0	5	2	0	5	CLCYCA011TB	ZERO ATTEMPTS RECORDED DURING STUDY PERIOD.
16	0	4	8	1	95	LSANCA1093AG1	ZERO ATTEMPTS RECORDED DURING STUDY PERIOD.
16	0	3	5	1	07	ELSGCA11322	ZERO ATTEMPTS RECORDED DURING STUDY PERIOD.
16	0	1	8	1	26	SNMNCAXJ45E	ZERO ATTEMPTS RECORDED DURING STUDY PERIOD.
16	0	1	8	0	8	WLANCAXF47ACZ	ZERO ATTEMPTS RECORDED DURING STUDY PERIOD.
16	0	0	4	0	10	SNFNCAXF36AG8	ZERO ATTEMPTS RECORDED DURING STUDY PERIOD.
16	0	0	2	0	0000		00258 ATTEMPTS RECORDED DURING STUDY PERIOD.
17	0	9	8	0	0000		00018 ATTEMPTS RECORDED DURING STUDY PERIOD.
17	0	7	4	1	0000		00199 ATTEMPTS RECORDED DURING STUDY PERIOD.

Fig. 2—Output Summaries (Sheet 19 of 19)