

702-705

March 5, 1958

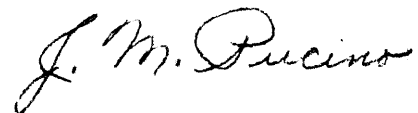
**Memorandum to: All Department Personnel**

**Subject: 702-705 Survey**

Attached is data on the recently conducted field survey. This is a preliminary kit which will be distributed only to department personnel. At a later date a more complete kit will be distributed to interested persons outside the department.

The packet of colored sheets represents the sheets supplied to each installation. For convenience only one sheet of each is enclosed; when distributed to the field, multiple sheets were supplied.

The other two listings describe the material which will be contained in the Tape Master Record.



J. M. Pucino

JMP:pvv

## SPECIAL INSTRUCTIONS

### 702 - 705 Data Processing Machine Usage Survey

Last fall, a great deal of vitally needed data was obtained from the "Tape Utilization Questionnaire" completed by many installations. There is now a genuine need for some additional facts. These "Special Instructions" refer to those installations which were contacted through this previous survey.

A portion of this survey refers again to the usage of magnetic tape units. In order to save duplication of effort, the information previously obtained has been listed on the accompanying sheets with space for additional information we are now seeking.

In the original survey it was requested that the run time be given in hours per week. In some cases actual volumes of data may have been prorated to comply with this request. If this applies in your case, please correct these volumes to show actual volumes per machine run. Please state single average numbers, not ranges or "variable". Also make any other changes which apply.

Since new runs are doubtlessly now being used in the installation, and some old runs may have been combined or eliminated, blank forms have been included.

In addition to information on the usage of magnetic tapes, a separate sheet has been included with questions referring to Central Processing Unit Usage in each run and a page of General Questions referring to the installation as a whole.

Before attempting to assemble the information, please refer to the attached instructions for detailed explanations.

Please note that the blank Tape Usage Analysis sheets have a column labeled "Alternate Tape Drives". If a file is contained on more than one reel of tape, and if tape units are used alternately to save delay of the main frame in changing reels, this column should be checked. The sheets on which information is already listed by accounting machine do not have this column. On these sheets indicate that tape units are used alternately by circling the line number.

Two copies of the listing for each run are enclosed. Return only one. The other is for your file.

## INSTRUCTIONS

### 702 - 705 Data Processing Machine Usage Survey

#### Explanation:

The survey contains questions of vital importance in the design and development of new Data Processing Equipment. The survey consists of three parts, two of which refer to each main frame machine run in the installation, and the third which contains questions of a general nature pertaining to overall machine processing.

The two parts referring to individual machine runs except sorting are:

1. " Tape Usage Analysis " : ( white sheets )  
On this form, individual magnetic tape files are classified in detail. Completeness as well as accuracy will be particularly important in the use of this information.
2. " CPU Usage Analysis " : ( salmon sheets )  
This form asks for three categories of information, memory allocation, drum usage, and program makeup. Each category is important, but it is understood that in some cases the information will be very difficult to obtain. Answering as many of these questions as reasonably possible will be very helpful.

Sorting is to be reported on a separate sheet ( green ). The " Tape Usage Analysis " and " CPU Usage Analysis " sheets are not to be used with sorting.

The third part, " General Questions " refers to overall machine processing. Only one sheet per installation is necessary. ( These sheets are blue. )

#### General Instructions:

1. Many of the terms used on the " Tape Usage Analysis " sheet may have wide interpretations. In order to gain uniformity, a detailed set of instructions has been included. Please read these instructions carefully before attempting to assemble the information.
2. When filing out the sheets, please use a dark pencil or a typewriter since these are most suitable for direct copying. Please do not use a pen.
3. If any questions arise, please contact:  
P. R. Mort  
Product Planning Department  
IBM Product Development Laboratory  
Poughkeepsie, New York
4. Please return the completed forms to the address in 3 by October 4, 1957.

5. It is hoped that enough forms have been enclosed to allow for a duplicate set to be retained in the Branch Office. If additional sheets are necessary, contact us.

Detailed Instructions - Tape Usage Analysis

1. Machine Run:

A separate sheet is to be filled out for each machine run. A run usually starts with the setup of input - output equipment and the loading of a program. The program proceeds until its work is exhausted by using up all input data. The run is terminated by dismounting the input - output units.

For sorting, do not use this sheet, use the Sort Analysis sheet ( green )

2. Type of Run:

Please classify the run as one of the following:

- a. Merge: The purpose of this run is to combine one or more files of already sorted data into one file.
- b. Edit: The records in a file are tested against preestablished criteria. Sequence checking or matching are good examples.
- c. File Maintenance: The records in a file are updated.
- d. File Reference: The master file is not updated or rewritten in this run, but is used as a reference in the compilation of print tapes or other similar requirements.
- e. File Processing: This run is like the File Reference run, but includes File Maintenance. Reports are generated at the same time as the master files are updated.
- f. Scientific: Statistical or engineering computations not classified as accounting.
- g. Other: If the run cannot be described by one of these classifications, please briefly describe the run on the bottom or back of the sheet.

3. Activity:

When a number of transactions are processed against a master file, the activity is the proportion of the master file affected. For example, 1200 inquiries are made in a run against a master file of 100,000 items. If the 1200 inquiries affect 1000 master records, the activity is 1%. 99% of this file is merely inspected and passed in searching for the 1% active master records.

4. Frequency:

How often does the machine run occur? Indicate this by writing a fraction with the number of times it is run in the numerator and the base period in the denominator. For instance; once a day ( 1/day ); three times a week ( 3/week ); once every two months ( 1/2 months ); once a quarter ( 1/quarter ) or ( 1/3 months ) or ( 4/ year ).

5. Run Time:

The time in hours and tenths for the machine run each time it is run including setup, running time, rewinding of tapes, etc.

6. Tape Drives:

The total number of tape units used on-line during the run, including tape units used alternately to handle files of more than one reel of tape in a large file.

7. Name of Run:

Your run designation which can be used for future reference. Each run should have a distinctive name which is used both on the " Tape Usage Analysis " sheet and the " CPU Usage Analysis " sheet.

8. File Description:

Enter here all the files used in the run. Enter input and output files separately. In cases where direct card input or printer output are used, place ( card ) or ( printer ) at the right in the description space.

9. Alternate Tape Drives:

If a file consists of more than one reel of tape and tape drives are switched to save the delay of the main frame in changing tape reels, place a check in this column. If tape units are not alternated, leave this column blank. ( When forms are used which do not have a column labeled " Alternate Tape Drives ", circle this line number. )

10. I/O:

Is the file input or output? If the file is input, place an I in this column. If the file is output, place an O in this column.

11. Average Group Size - Group Per Run:

A group on tape is the information recorded between two interrecord gaps. It may be composed of several records, one record, or a portion of a record. Enter the average number of characters per group and the average number of groups per run for each file.

12. Record Size:

A record is composed of a number of characters, often divided into fields of data which pertain to one item in a file, for instance, in a payroll master file, the information for one employee is usually in one record.

Records may be composed of a fixed or variable number of characters. Enter the average number and the maximum number of characters in the records for each file.

13. RWW:

Was this file read ( or written ) using the " read while write " command? If it was, place a check mark in this column.

14. Control By:

Each file of tape entering or leaving the main frame must pass through a 754 or 752 TCU, a 777 TRC, or 760 CSU. In the appropriate column for each file, place an identifying number for the control unit used. If there is only one TCU in the installation, the whole column will contain '1's. If there are two TCU's there will be a '1' for all the files controlled by one of the TCU's and '2's for all the files controlled by the other. The same holds true for TRC or 760 Control.

15. Source of Input Tapes:

Input files to the system are created in a previous computer run, a card to tape operation, or in some instances, special devices. Place a check mark in the appropriate column.

If, in addition to being used as an input to this run, this tape is also used in an off-line printing or punching operation, check the appropriate column under " Disposition of Output Tape ".

16. Disposition of the Output Tapes:

Output tapes are created for specific purposes. Sometimes a tape will only be used on a peripheral printer. Other tapes may be created for use in another computer run, as well as on a peripheral printer, and then may be retained for historical purposes. A tape may have single or multiple purposes.

There are six sub columns; 720, 717, 774, 722, 702-5, and Historical. For each file, check all the necessary uses of the particular tape file. If a file must be reprocessed on the computer before printing, check only the 702-5 column.

Occasionally, a request will be received for a special listing on an unscheduled basis. Only check the normal, necessary uses of the file.

TAPE USAGE ANALYSIS

SAMPLE

PAGE 14 OF 26 PAGES

CUSTOMER XYZ

BR. OFFICE Kenosha

PREP'D BY John Doe

TYPE OF RUN	ACTIVITY	FREQUENCY	RUN TIME	TAPE DRIVES
File Processing	3 %	1/week	0:8	6

NAME OF RUN Sales Order Updating and Status

DATE 8/30/57

	FILE DESCRIPTION	ALTER-NATE TAPE DRIVES	I/O	AVERAGE GROUP SIZE	NUMBERS OF GROUPS PER RUN	RECORD SIZE		RW	CONTROL BY			SOURCE OF INPUT TAPE			DISPOSITION OF OUTPUT TAPE									
						AVERAGE	MAXIMUM		TCU	TRC	760	702-5	714	SPL	720	717	774	722	702-5	HIST				
1	Sales		I	100	5,000	100	100			2		x												
2	On Order	X	I	1,000	25,000	250	400	x	1		x												x	
3	On Order	X	O	1,000	25,000	250	400	x	1														x	x
4	Status Report		O	100	3,000	100	100		2															
5	Error (Card)		O	75	0	75	75																	
6																								

NOTE: The following comments are intended as a guide in filling out the form.

File No. 1 is an input tape. The records are fixed in length and are placed one record to a group. In addition to being used as an input to this run, the tape is also used in an off-line printing operation.

File No. 3 is an output tape. Several reels of tape are involved and tape units are used alternately to save reel changing time. Records are variable in length and four records are grouped to save tape start time. The file is used as an input to another run and is retained for historical purposes.

File No. 5 is a direct card output for errors. The number of cards punched is negligible.

There are at least two TRC's in the installation. In this run, TRC No. 1 is used for control of files 1 and 4. The other TRC ( TRC No. 2 ) is used for control of files 2 and 3.



General Questions

Customer \_\_\_\_\_  
Br. Office \_\_\_\_\_  
Prepared by \_\_\_\_\_  
Date \_\_\_\_\_

1. Customer requirements in hours and tenths: ( see back )

	<u>per day</u>	<u>per month</u>
Maintenance:		
Regular	_____	_____
Emergency	_____	_____
Debugging	_____	_____
Production Runs:		
Sorting	_____	_____
Other	_____	_____
Other ( one run jobs, etc. )	_____	_____
Total Power On	_____	_____
Setup ( production runs )	_____	_____

2. For estimating purposes, how much time does it take to change the reels on a tape drive ? \_\_\_\_\_ minutes and tenths.

3. What is the maximum number of tape units required for peripheral use at any one time ? \_\_\_\_\_

4. What is the maximum number of tape units required for main frame operation in any one run ? \_\_\_\_\_

5. Are extra tape units included in the system so that some are always under maintenance ? If so, how many ? \_\_\_\_\_

6. How many of each of the following components are now installed?

702 Core Memory _____	712-756 Card Reader _____
705-1 (20K Memory) _____	714-759 Card Reader _____
705-2 (40K Memory) _____	722-758 Card Punch _____
752 Tape Control Unit _____	717-757 Printer _____
754 Tape Control Unit _____	720 Printer _____
777 TRC _____	774-747 Tape Data
760 Control & Storage Unit _____	Selector _____
732 Magnetic Drum _____	with 407 _____
734 Magnetic Drum _____	402, 403, 419 _____
727 Magnetic Tape Unit _____	519 _____

## INSTRUCTIONS - General Questions

### 1. Customer Requirements:

The average number of hours ( and tenths ) the customer uses the machine should be shown opposite " Total Power On ". This should be the sum of the breakdown indicated above.

" Production Runs " should include regular repetitive machine runs broken down into " Sorting " and all " Other " runs.

" Other " ( one run jobs, etc. ) should include all one run jobs and idle time.

" Setup " time is an estimate of the average total time required for setting up input-output equipment, loading programs, etc., for all the regular production runs.

2 - 6. These questions are self-explanatory.



# TAPE USAGE ANALYSIS

PAGE \_\_\_\_\_ OF \_\_\_\_\_ PAGES

CUSTOMER \_\_\_\_\_

BR. OFFICE \_\_\_\_\_

PREP'D BY \_\_\_\_\_

TYPE OF RUN	ACTIVITY	FREQUENCY	RUN TIME	TAPE DRIVES
	%		:	

NAME OF RUN \_\_\_\_\_

DATE \_\_\_\_\_

	FILE DESCRIPTION	ALTER-NATE TAPE DRIVES?	I/O	AVERAGE GROUP SIZE	NUMBERS OF GROUPS PER RUN	RECORD SIZE		R/W	CONTROL BY			SOURCE OF INPUT TAPE			DISPOSITION OF OUTPUT TAPE						
						AVERAGE	MAXIMUM		TCU	TRC	T60	T025	T14	SPL	T20	T17	T74	T22	T025	HIST	
1																					
2																					
3																					
4																					
5																					
6																					
7																					
8																					
9																					
10																					
11																					
12																					
13																					
14																					
15																					
16																					

SEE SEPARATE INSTRUCTION SHEETS (YELLOW)

Customer \_\_\_\_\_

Name of Run \_\_\_\_\_

Br. Office \_\_\_\_\_

( the same designation used on the  
Tape Usage Analysis Sheet)

Prepared By \_\_\_\_\_

Date \_\_\_\_\_

Memory Allocation: ( the number of Core Memory positions used )

1. Total for this machine run \_\_\_\_\_
2. Data Handling \_\_\_\_\_  
     Input \_\_\_\_\_ Output \_\_\_\_\_ Work Areas \_\_\_\_\_
3. Instructions \_\_\_\_\_
4. Constants \_\_\_\_\_

Drum Usage:

1. Is the drum used during this run? \_\_\_\_\_
2. If it is used, how is it used?  
     instruction storage  ; reference data  ;  
     check point memory dumps  ; other \_\_\_\_\_
3. What percent of the run time is drum operation?  
     1% or less  ; 2 to 5%  ; 6 to 15%  ; 16 to 25%  ;  
     26 to 50%  ; more than 50%  .

Program Instructions:

1. How many instruction steps are there in this program?  
     ( the number of instructions resulting from assembly. ) \_\_\_\_\_
2. The average number of instructions executed  
     a. per active master record ( not group ) are \_\_\_\_\_  
     b. per inactive master record ( if any ) are \_\_\_\_\_
3. Are check point and restart procedures used? \_\_\_\_\_  
     If check point is used, approximately how many instruction steps  
     are devoted to check point in the program? \_\_\_\_\_

# SORT ANALYSIS

PAGE \_\_\_\_ OF \_\_\_\_ PAGES

CUSTOMER \_\_\_\_\_

BR. OFFICE \_\_\_\_\_

PREP'D BY \_\_\_\_\_

DATE \_\_\_\_\_

CONTROL PER RECORD		STANDARD SORT	FREQUENCY	RUN TIME
FIELDS	CHARACTERS			

NAME OF SORT \_\_\_\_\_

#	PHASE DESCRIPTION	TAPE DRIVES		AVERAGE GROUP SIZE	NUMBERS OF GROUPS PER RUN	RECORD SIZE		PASSES	CONTROL BY			SOURCE OF INPUT TAPE		DISPOSITION OF OUTPUT TAPE						
		IN	OUT			AVERAGE	MAXIMUM		TCU	TRC	T80	7025	714	SPL	720	717	774	722	7025	HIST
1																				
2																				
3																				
4																				
5																				
6																				
7																				
8																				
9																				
10																				
11																				
12																				
13																				
14																				
15																				
16																				

**SEE INSTRUCTIONS ON BACK**

## INSTRUCTIONS - Sort Analysis

1. **Fill out one sheet for each regular sort operation.**
2. **Control Per Record:** Give the number of fields and the total number of characters used in sorting the records entering the run.
3. **Standard Sort:** If a standard IBM sorting routine such as SORT 54 is used, place the sort number in this box.
4. **Frequency and Run Time:** ( hours and minutes ) Same as the Tape Usage Analysis sheet.
5. **Phase Description:** A sort usually consists of three phases: an internal block sort pass, several merge passes, and a final edit and merge pass. Treat each phase on a separate line.
6. **Tape Drives:** State the total number of tape drives used for input and output in each phase.
7. **Group and Record:** The same definitions should be used as on the Tape Usage Analysis sheet. In all but the last phase, give the record volumes entering the machine. In the last phase, give the size and volume of the groups and records leaving the machine.
8. **Passes:** If one of the phases, such as the intermediate merge phase, requires more than one pass through the machine, put the average number of passes in this space.
9. **Control Source and Disposition:** The same as Tape Usage Analysis sheet.

The following listings show and explain the data contained in the Tape Master Record.

Data supplied by the installation on the colored pages was checked for reasonableness, completeness, etc. Some of the data received were eliminated because of incompleteness, specialized types - such as scientific, etc. The acceptable information was transcribed to cards.

Information was extracted from several types of cards, and along with generated data, formed the master record, as outlined in the first listing. Since the field names were abbreviated, the second listing is included to explain and define each field name.



702-705 Survey  
Tape Master Record

Field	Origin	Number of Positions	Actual Location	Composition
Cust Tally		1	1	SN
Run Tally		1	2	SN
File Tally		1	3	SN
Cust No	1-3	2	5	SN
Cust Name	2-80	22	27	A
Br Office	1-9	3	30	SN
Indus Code	1-13	4	34	SN
Mos Instld	1-15	2	36	SN
Daily P O	1-18	2.1	39	SN
Mo Reg Mnt	1-21	3	42	SN
Mo Em Mnt	1-24	3	45	SN
Mo Debug	1-27	3	48	SN
Mo Sort	1-30	3	51	SN
Mo Prod	1-33	3	54	SN
Mo Other	1-36	3	57	SN
Mo Setup	1-39	3	60	SN
Mo Tot P O	1-43	4	64	SN
Tape Chg	1-45	1.1	66	SN
Max Per Tp	1-47	2	68	SN
Max M F Tp	1-49	2	70	SN
Extra Tp	1-51	2	72	SN
# 702	1-61	1	73	SN
# 705-1	1-62	1	74	SN
# 705-2	1-63	1	75	SN
# 752	1-64	1	76	SN

Field	Origin	Number of Positions	Actual Location	Composition
# 754	1-65	1	77	SN
# 777	1-66	1	78	SN
# 760	1-67	1	79	SN
# 732	1-68	1	80	SN
# 734	1-69	1	81	SN
# 727	1-71	2	83	SN
# 712	1-72	1	84	SN
# 714	1-73	1	85	SN
# 722	1-74	1	86	SN
# 717	1-75	1	87	SN
# 720	1-76	1	88	SN
# 774	1-77	1	89	SN
# 774 - 407	1-78	1	90	SN
# 774 - 402	1-79	1	91	SN
# 774 - 519	1-80	1	92	SN
1 Sft Rent	Generated	5.0	97	SN
Run No	2-6	3	100	SN
Run Title	2-59 6-47	31	131	A
Appl Type	2-16	2	133	SN
Appl Funct	2-17	1	134	SN
Sort Prog	6-16	1	135	SN
Modified	6-16	1	136	SN
Merge Dim	6-17	1	137	SN
Pc Actvty	2-19	.2	139	SN
Ann Freq	2-22	3	142	SN
Run Time	2-25	2.1	145	SN
# Tp Units	2-27	2	147	SN
Tot Mem	3-34	5	152	SN

Field	Origin	Number of Positions	Actual Location	Composition
Tot Data	3-39	5	157	SN
Input Area	3-44	5	162	SN
Outpt Area	3-49	5	167	SN
Work Area	3-54	5	172	SN
Inst Area	3-59	5	177	SN
Const Area	3-64	5	182	SN
Drum Inst	3-65	1	183	SN
Drum Data	3-66	1	184	SN
Drum Ckpt	3-67	1	185	SN
Drum Other	3-68	1	186	SN
Drum Usage	3-69	1	187	SN
# Act Inst	3-73	4	191	SN
# Inact In	3-76	3	194	SN
# Ckpt Ins	3-79	3	197	SN
Mo Run Hrs	Generated	3.1	201	SN
# Inp Fls	Generated	1	202	SN
# Out Fls	Generated	1	203	SN
# Files	Generated	2	205	SN
# Per Orig	Generated	1	206	SN
# M F Orig	Generated	1	207	SN
# Per Dest	Generated	1	208	SN
# M F Dest	Generated	1	209	SN
# Alt Unit	Generated	1	210	SN
Tape Time	Generated	2.1	213	SN
File Line #	4-29	2	215	SN
File Device	4-29	1	216	SN
File Name	4-47	19	235	A
Alt Drive	4-48	1	236	SN

Field	Origin	Number of Positions	Actual Location	Composition
I or O	4-49	1	237	SN
Av Gp Size	4-53 6-53	5	242	SN
Gps Pr Run	4-60 6-60	8	250	SN
Av Rec Siz	4-64 6-64	5	255	SN
Max Rec Sz	4-68 6-68	5	260	SN
R W W	4-69	1	261	SN
Tp Control	4-70-71-72 6-70-71-72	1	262	SN
Input Orig	4-73 6-73	1	263	SN
720 Dest	4-74 6-74	1	264	SN
717 Dest	4-75 6-75	1	265	SN
774 Dest	4-76 6-76	1	266	SN
722 Dest	4-77 6-77	1	267	SN
705 Dest	4-78 6-78	1	268	SN
Hist Dest	4-79 6-79	1	269	SN
Sort Phase	6-19	2	271	SN
# Cont Fld	6-29	2	273	SN
# Cont Chr	6-32	3	276	SN
# Tps In	6-48	1	277	SN
# Tps Out	6-49	1	278	SN
# Passes	6-69	1	279	SN
Tot Char	Generated	7	286	SN
Tot Recs	Generated	9	295	SN
Tot Reels	Generated	2.1	298	SN

Total Number of Characters 298

702 - 705 Survey  
Tape Master Record

Cust Tally	Customer Tally - Denotes first record of any customer
Run Tally	Run Tally - Denotes first record of a run of any customer
File Tally	Denotes first record of a file of any customer
Cust No	Customer Number - A number was assigned by Product Planning to each customer participating in the survey
Cust Name	Customer Name - The name of each customer participating in the survey
Br Office	Branch Office - The branch office which services this customer - the standard IBM Branch Office identification number
Indus Code	Industry Code - Type of business which the customer is engaged in
Mos Instld	Months Installed - The length of time which the customer has had the computer as of October 31, 1957
Daily P O	Daily Power On - Amount of time that power is on daily Includes set-up and run times, and all maintenance time
Mo Reg Mnt	Monthly Regular Maintenance - Number of hours spent for scheduled maintenance (monthly)
Mo Em Mnt	Monthly Emergency Maintenance - Number of hours spent for unscheduled maintenance (monthly)
Mo Debug	Monthly Debugging - Number of hours spent by customer to debug programs (monthly)
Mo Sort	Monthly Sort - Number of hours spent by customer to perform sort operations (monthly)
Mo Prod	Monthly Production - Number of hours spent by customer to perform regular repetitive runs except sorts (monthly)
Mo Other	Monthly Other - Number of hours spent to perform one time jobs plus idle time (monthly)
Mo Setup	Monthly Setup - Number of hours spent to set up input-output equipment, load programs, etc., for the regular production runs (monthly)
Mo Tot P O	Monthly Total Power On - Number of hours spent to perform maintenance, debugging, production and other types of runs and idle time and set-up time (monthly)
Tape Chg	Tape Change - Average number of minutes to change the reels on a tape drive

Max Per Tp      Maximum Peripheral Tapes - Maximum number of tape units required for peripheral use

Max M F Tp      Maximum Main Frame Tapes - Maximum number of tape units required for main frame operation

Extra Tp        Extra Tapes - Number of additional tapes included in the system so that some are always under maintenance

# 702            Number of 702 - Number of 702 main frames at this installation

# 705-1          Number of 705-1 - Number of 705-1 main frames at this installation (20 K memory)

# 705-2          Number of 705-2 - Number of 705-2 main frames at this installation (40 K memory)

# 752            Number of 752 TCU - Number of 752 Tape Control Units at this installation

# 754            Number of 754 TCU - Number of 754 Tape Control Units at this installation

# 777            Number of 777 TRC - Number of 777 Tape Record Coordinators at this installation

# 760            Number of 760 CSU - Number of 760 Control and Storage Units at this installation

# 732            Number of 732 - Number of 732 Magnetic Drums at this installation

# 734            Number of 734 - Number of 734 Magnetic Drums at this installation

# 727            Number of 727 - Number of 727 Magnetic Tape Units at this installation

# 712            Number of 712 - Number of 712 Card Readers at this installation

# 714            Number of 714 - Number of 714 Card Readers at this installation

# 722            Number of 722 - Number of 722 Card Punches at this installation

# 717            Number of 717 - Number of 717 Printers at this installation

# 720            Number of 720 - Number of 720 Printers at this installation

# 774            Number of 774 - Number of 774 Tape Data Selectors at this installation

# 407            Number of 407 - Number of 407 Alphabetic Accounting Machines with the 774 at this installation

# 402	Number of 402 - Number of 402 Alphabetic Accounting Machines with the 774 at this installation
# 519	Number of 519 - Number of 519 Document Originating Punches with the 774 at this installation
1 Sft Rent	First Shift Rental - A generated monthly rental for the equipment at this installation
Run No	Run Number - Number assigned by Product Planning to each production run of every customer
Run Title	Name of run as specified by the customer
Appl Type	Application Type - Code for identification of application type - e. g., payroll, inventory control, etc.
Appl Funct	Application Function - Code for identification of application function - e.g., sort, file maintenance, etc.
Sort Prog	Sort Program - Code for identification of specific sort program, e. g., Sort 01, Sort 53, etc.
Modified	Code for identification of a modified IBM sort
Merge Dim	Merge Dimension - Code for identification of number of ways involved in this merge, e. g., 3-way merge
Pc Actvty	Percent Activity - Proportion of the master file affected by this run
Ann Freq	Annual Frequency - Number of times this machine run occurs in a year
Run Time	Time for the machine run each time it is run - including set-up, running time, rewinding of tapes, etc. (Hours & tenths)
# Tp Units	Number of Tape Units - Number of tape drives used on-line during the run, including tape units used alternately to handle files of more than one reel of tape in a large file
Tot Mem	Total Memory - Total core memory positions used for this machine run
Tot Data	Total Data - Total core memory positions used for input, output and work areas
Input Area	Total core memory positions used for input data
Outpt Area	Output Area - Total core memory positions used for output data
Work Area	Total core memory positions used for work areas
Inst Area	Instruction Area - Number of core memory positions used for instruction storage

Const Area	Constant Area - Number of core memory positions used for storage of program constants
Drum Inst	Drum Instruction - Indication of whether the drum is used for instruction storage
Drum Data	Indication of whether the drum is used for reference data
Drum Ckpt	Drum Checkpoint - Indication of whether the drum is used for check point memory dumps
Drum Other	Indication of whether the drum is used for purposes other than those mentioned above
Drum Usage	Percent of run time that was drum operation (Coded)
# Act Inst	Number of Active Instructions - Average number of instructions executed per active master record (not group)
# Inact In	Number of Inactive Instructions - Average number of instructions executed per inactive master record (not group)
# Ckpt Ins	Number of Checkpoint Instructions - Number of instructions devoted to check point in this program
Mo Run Hrs	Monthly Run Hours - Number of hours spent on this run (monthly)
# Inp Fls	Number of Input Files - A count of input tape and other files (excluding checkpoint and program files) - this may not be the same as the number of input tape units
# Out Fls	Number of Output Files - A count of output tape and other files-this may not be the same as the number of output tape units
# Per Orig	Number of Peripheral Origin - Number of input tape files which result from peripheral operations
# M F Orig	Number of Main Frame Origin - Number of input tape files which result from main frame operations
# Per Dest	Number of Peripheral Destination - Number of output tape files which will be used for peripheral operations
# M F Dest	Number of Main Frame Destination - Number of output tape files which will be used for subsequent main frame operations
# Alt Unit	Number of Alternate Units - Number of alternate tape units which are used for alternate tape unit operations
Tape Time	Sum of individual non-overlapped tape passing times



<b>File Line #</b>	<b>File Line Number - Position of line on Tape Usage Analysis form which this file refers to</b>
<b>File Dev</b>	<b>File Device - Indication of whether file is a tape or other type unit</b>
<b>File Name</b>	<b>Name of file as specified by the customer</b>
<b>Alt Drive</b>	<b>Alternate Drive - Indication of use of alternate tape units</b>
<b>I or O</b>	<b>Input or Output - Indication of whether this file is input or output</b>
<b>Av Gp Size</b>	<b>Average Group Size - Average number of characters between two interrecord gaps</b>
<b>Gps Pr Run</b>	<b>Groups Per Run - Average number of groups in this file</b>
<b>Av Rec Siz</b>	<b>Average Record Size - Average number of characters per record</b>
<b>Max Rec Sz</b>	<b>Maximum Record Size - Maximum number of characters per record</b>
<b>RWW</b>	<b>Read-While-Write - Indication of whether or not this file was read(or written) using the "read while write" command</b>
<b>Tp Control</b>	<b>Tape Control - Indication of control of tape entering or leaving main frame by a 754 or 752, 777 or 760</b>
<b>Input Orig</b>	<b>Input Origin - Indication of source of input as a previous computer run, a card to tape operation, or special device</b>
<b>720 Dest</b>	<b>720 Destination - Indication of whether output tape will be used on a peripheral high speed printer</b>
<b>717 Dest</b>	<b>717 Destination - Indication of whether output tape will be used on a peripheral printer</b>
<b>774 Dest</b>	<b>774 Destination - Indication of whether output tape will be used on a Tape Data Selector</b>
<b>722 Dest</b>	<b>722 Destination - Indication of whether output tape will be used on a Card Punch</b>
<b>705 Dest</b>	<b>705 Destination - Indication of whether output tape will be used in another computer run</b>
<b>Hist Dest</b>	<b>Historical Destination - Indication of whether output tape will be retained for historical purposes</b>

Sort Phase Reference to first, second, third, etc., phase of sort

# Cont Fld Number of Control Fields - Number of fields used in sorting the records entering the run

# Cont Chr Number of Control Characters - Total number of characters used in sorting the records entering the run

# Tps In Number of Tapes in - Total number of tape drives used for input in each phase

# Tps Out Number of Tapes Out - Total number of tape drives used for output in each phase

# Passes Number of Passes - Indication of average number of passes in a multiple pass phase

Tot Char Total Characters - Average group size x number of groups per file

Tot Recs Total Records - Average group size x number of records per group

Tot Reels Total Reels -

$$\frac{[(\# \text{ Char/Group} \times .005 \text{ In/Char}) / .75 \text{ In}] \times \# \text{ Groups/File}}{12 \text{ In/Ft} \times 2300 \text{ Ft}}$$