

# COMPUTER TECHNOLOGY

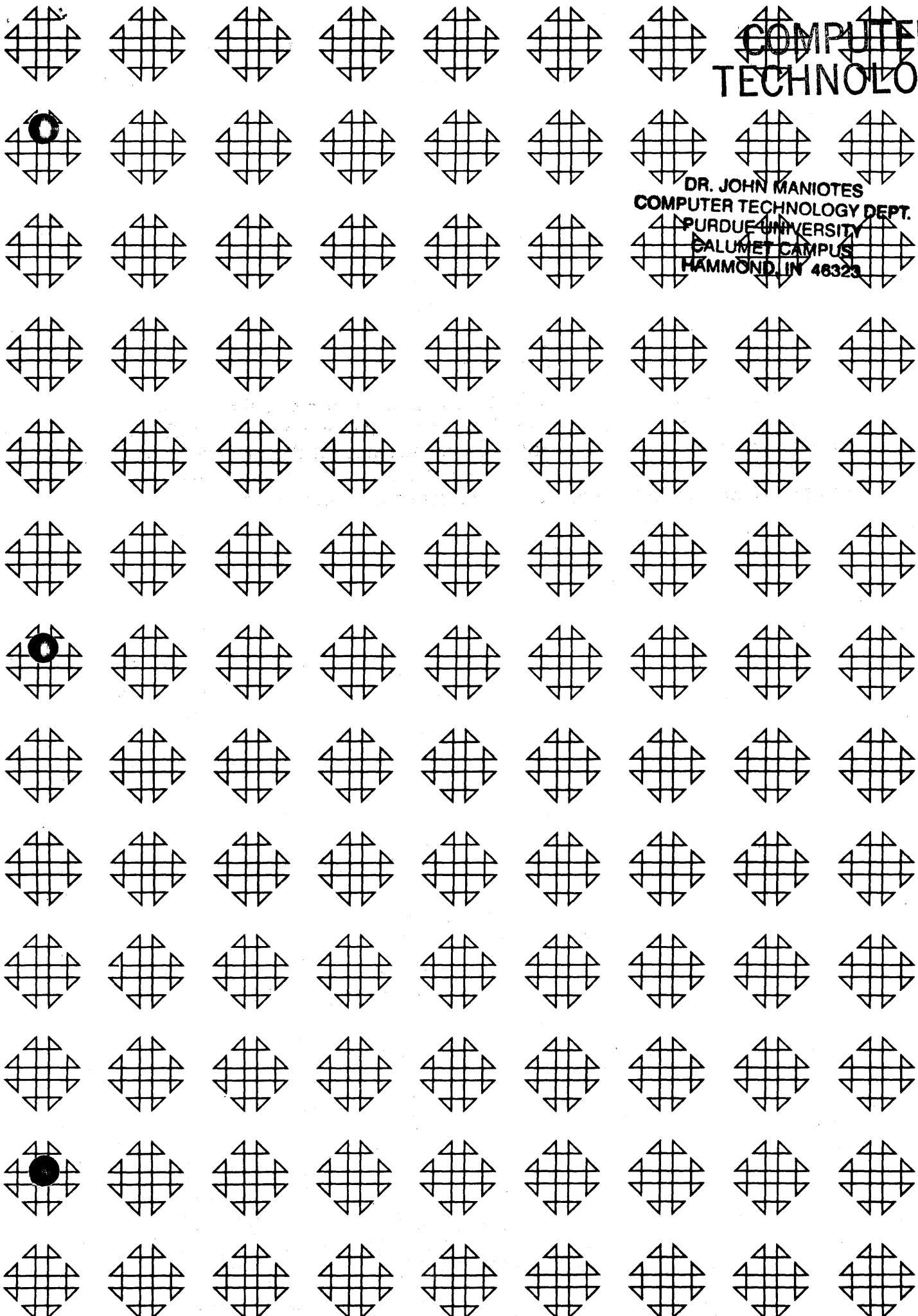
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1620 GENERAL PROGRAM LIBRARY

40-40 Correlation (CARD)

REF 08 015 4 7 6 1

6.0.015



IBM CORPORATION  
1620 USERS GROUP  
2000 N. BROADWAY  
ANN ARBOR, MI 48106

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1620 USERS GROUP PROGRAM REVIEW AND EVALUATION

(fill out in typewriter or pencil, do not use ink)

Program No. \_\_\_\_\_ Date \_\_\_\_\_

Program Name: \_\_\_\_\_

1. Does the abstract adequately describe what the program is and what it does? Yes \_\_\_ No \_\_\_  
Comment \_\_\_\_\_
2. Does the program do what the abstract says? Yes \_\_\_ No \_\_\_  
Comment \_\_\_\_\_
3. Is the Description clear, understandable, and adequate? Yes \_\_\_ No \_\_\_  
Comment \_\_\_\_\_
4. Are the Operating Instructions understandable and in sufficient detail? Yes \_\_\_ No \_\_\_  
Comment \_\_\_\_\_  
Are the Sense Switch options adequately described (if applicable)? Yes \_\_\_ No \_\_\_  
Are the mnemonic labels identified or sufficiently understandable? Yes \_\_\_ No \_\_\_  
Comment \_\_\_\_\_
5. Does the source program compile satisfactorily (if applicable)? Yes \_\_\_ No \_\_\_  
Comment \_\_\_\_\_
6. Does the object program run satisfactorily? Yes \_\_\_ No \_\_\_  
Comment \_\_\_\_\_
7. Number of test cases run \_\_\_\_\_. Are any restrictions as to data, size, range, etc. covered adequately in description? Yes \_\_\_ No \_\_\_  
Comment \_\_\_\_\_
8. Does the Program Meet the minimal standards of the 1620 Users Group? Yes \_\_\_ No \_\_\_  
Comment \_\_\_\_\_
9. Were all necessary parts of the program received? Yes \_\_\_ No \_\_\_  
Comment \_\_\_\_\_
10. Please list on the back any suggestions to improve the usefulness of the program. These will be passed onto the author for his consideration.

Please return to:

Mr. Richard L. Pratt  
Data Corporation  
7500 Old Xenia Pike  
Dayton, Ohio 45432

Your Name \_\_\_\_\_

Company \_\_\_\_\_

Address \_\_\_\_\_

User Group Code \_\_\_\_\_

THIS REVIEW FORM IS PART OF THE 1620 USER GROUP ORGANIZATION'S PROGRAM REVIEW AND EVALUATION PROCEDURE. NONMEMBERS ARE CORDIALLY INVITED TO PARTICIPATE IN THIS EVALUATION.

LOUISIANA STATE UNIVERSITY COMPUTER RESEARCH CENTER

40 - 40  
Correlation Program

Lew D. Harkins

40-40 Correlation

by

Lew D. Harkins

Computer Research Center  
Louisiana State University  
Baton Rouge, Louisiana

November 10, 1961

The 40 - 40 Correlation Program gives means, standard deviations, and correlation coefficients for all possible combinations of variables up to 40. Variables are entered in fixed point form and may be between 2 and 7 digits in size. Sums of squares and crossproducts are accumulated and corrected (see Remarks) in fixed point arithmetic before being floated for the final calculations, thus reducing truncation errors inherent in floating point summations. The fixed point sums of squares and cross-products are limited to 16 digits; sums are limited to 10 digits, and  $n$  is limited to 5 digits.

Input Format

One observation on all variables to be correlated is entered on from one to four data cards, the size of the variables determining how many data cards will be needed to constitute one observation. Variables may be placed in any desired order on the cards, as their location is provided for the program's use by means of the parameter cards. A variable must be at least 2 digits in size and not larger than 7 digits. It is not necessary to flag (x punch) the high order positions of the variables on the data cards. Negative numbers are denoted by a flag (x punch) over the low order position; positive numbers, by the absence of a flag.

Parameter Cards

Three parameter cards are needed for each problem to be processed. All fields on these three cards are two digit fields, and must be flagged in the high order if used. All fields must be used on parameter card 1, and only as many fields as there are variables must be used on each of cards 2 and 3. Unused columns on these three cards may be left blank.

Modifications or revisions to this program, as they occur, will be announced in the appropriate Catalog of Programs for IBM Data Processing Systems. When such an announcement occurs, users should order a complete new program from the Program Information Department.

Parameter Card 1

Col. 1 - 2 -- Total number of variables  
 Col. 3 - 4 -- Number of variables in first card of an observation  
 Col. 5 - 6 -- Number of variables in second card of an observation  
 Col. 7 -- 8 -- Number of variables in third card of an observation } Zero if  
 Col. 9 - 10 -- Number of variables in fourth card of an observation } fewer cards  
 Col. 11 - 80 -- Blank } needed  
 } observa

- 1) Parameter Card 1
- 2) Parameter Card 2
- 3) Parameter Card 3
- 4) Data Cards

Parameter Cards 2 & 3

These two parameter cards specify the location of the variables on the input data cards. The terms "high order position" and "low order position" refer to column number on the data cards, without regard to card number, as the number of variables to be taken from each card is determined by parameter card 1.

Parameter Card 2

Parameter Card 3

Col. 1- 2	High order position of var. 1	Low order position of var. 1
Col. 3- 4	High order position of var. 2	Low order position of var. 2
Col. 5- 6	High order position of var. 3	Low order position of var. 3
.	.	.
.	.	.
Col. 75-76	High order position of var. 38	Low order position of var. 38
Col. 77-78	High order position of var. 39	Low order position of var. 39
Col. 79-80	High order position of var. 40	Low order position of var. 40

Input Procedure

The 40 - 40 Correlation Program tests the last card indicator on the 1620 to determine if all data for a problem has been read, therefore, separate problems cannot be stacked in the read hopper of the 1622 all at one time. If parameter cards and data for the first problems are stacked on top of the program deck it is only necessary to depress the start key after the program has been loaded, and the halt code (48) appears in the op register, to begin processing the first problem. For additional problems, it is only necessary to place parameter cards and data cards in the read hopper and depress the reader start key.

If data cards are not stacked on top of the program deck, then the reset key must be depressed before depressing the start key after the program has loaded and the halt code appears in the op register. The program is self-initializing after each problem and need not be reloaded to process additional problems. The order of input for each problem is:

Console Checks

All tab stops on the typewriter should be cleared and only margins set.  
 Program Switches 2, 3, and 4 are not used; program switch 1 controls output (see "output").  
 Clear memory before loading the program.  
 Input/output check switch should be set to stop.  
 Parity check switch should be set to stop.  
 Overflow check switch should be set to stop.  
 Digit located at core storage position 401 determines course of action in case of characteristic overflow or underflow, (see 1620 SPS Subroutines), and may be changed after the program is loaded. Error codes are those of the SPS subroutines.

Output

Output is under control of program switch #1; with #1 on output is on cards; with #1 off output is by typewriter.

Since the program treats all data as whole numbers, the location of the decimal in the output must be adjusted whenever the input data contain decimals. This is done as follows:

means - output has one more decimal place than input data  
standard deviations - convert from floating point output to fixed point; then move the decimal point to the left the number of places in the input data. For example, if a standard deviation output is 5238456219 and the input for this variable contained 3 decimal places, then the standard deviation is .038456219; correlation coefficient - no adjustment of decimal required.

REMARKS:

Corrected as used here means corrected for the mean

$$\Sigma x - \frac{(\Sigma x)^2}{n} ; \Sigma xy - \frac{\Sigma x \Sigma y}{n}$$

The following calculations are used to arrive at the means, standard deviations, and correlation coefficients:

$$\bar{x} = \frac{\Sigma x}{n} ; s_x = \sqrt{\frac{\Sigma x^2 - \frac{(\Sigma x)^2}{n}}{n-1}} ; r_{xy} = \frac{\Sigma xy - \frac{\Sigma x \Sigma y}{n}}{\sqrt{\left(\Sigma x^2 - \frac{(\Sigma x)^2}{n}\right) \left(\Sigma y^2 - \frac{(\Sigma y)^2}{n}\right)}}$$

Floating point notation used is as follows:

5018640000 = .1864, 5113700000 = 1.37, 4910000000 = .01, etc.

EXAMPLE PROBLEM

5 Variables  
13 Observations  
(Raw Data)

Observation	X <sub>1</sub>	X <sub>2</sub>	X <sub>3</sub>	X <sub>4</sub>	X <sub>5</sub>
1	25.6	2.9	3.	254.	26.41
2	78.1	6.2	7.	780.	27.31
3	43.5	5.0	6.	433.	32.90
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
13	3.5	0.0	8.	36.	49.31

Input Format

	1st Data Card	Last Data Card
Col. 1- 7	Blank	Blank
8-10	256	035
11-12	29	08
13-15	003	008
16-18	254	036
19-22	2641	4981
23-80	Blank	Blank

Parameter Cards

	1st	2nd	3rd
Col. 1- 2	05	08	10
Col. 3- 4	05	11	12
Col. 5- 6	00	13	15
Col. 7- 8	00	16	18
Col. 9-10	00	19	22
Col. 11-80	Blank	Blank	Blank

Output from Typewriter

VR	MEAN	STD DEV
01	4148	5331498954
02	437	5227424137
03	40	5132914028
04	4148	5331467761
05	41042	5424864444

VR	VR	COR COEFF
01	02	5096544667
01	03	5060436826
01	04	5099999007
01	05	5011697431
02	03	5050223114
02	04	5096516763
02	05	5016535123
03	04	5060545014
03	05	5013230260-
04	05	5011827088

Output Adjusted for Decimals

VR	MEAN	STD DEV
01	41.48	31.498954
02	4.37	2.7424137
.	.	.
.	.	.
.	.	.
05	41.042	24.864444

VR	VR	COR COEFF
01	02	.96544667
01	03	.60436826
.	.	.
.	.	.
.	.	.
04	05	.11327088

Operating Instructions

1. Clear memory.
  - a. Set all check switches to program.
  - b. Depress Instant Stop (SCE), Reset, Insert
  - c. Type: 26 00008 00009
  - d. Depress Release, Start
  - e. Allow 2 seconds, then depress Instant Stop (SCE)
  - f. Set all check switches to stop.
2. Load Program.
  - a. Depress Reset (on console)
  - b. Place program deck in read hopper
  - c. Depress Load Key on 1622 unit
  - d. To process last card, depress Reader Start Key.
3. After program is loaded, the halt code (48) will appear in the operation register. Depress Reset, Start. (Reset Key must be depressed before the Start Key as the program interrogates the last card indicator.)
4. If typewriter output is to be given, all tab stops should be cleared from the typewriter, and only margins set.
5. Program switches should be set according to the program specifications.

The program is now ready to accept parameter cards and data cards.

The program is self-initializing between problems and need not be reloaded or restarted to process subsequent problems; however, the last data card in each set must be processed before the next set is placed in the read hopper (due to use of last card indicator).

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*LISTING 40-40  
 Correction Pass*

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1	INIT	TFM	**30,6879Z	02178	16	02208	06879	FLAGS
2		AM	**18,16Z	02190	11	02208	00016	FLAGS
3		TF	0,BIGB+14Z	02202	26	00000	04741	
4		CM	*-6,19999Z	02214	14	02208	19999	FLAGS
5		BNI	*-36,1200Z	02226	47	02190	01200	
6		TFM	**30,6479,9Z	02238	16	02268	06479	FLAGS
7		AM	**18,10,9Z	02250	11	02268	00010	FLAGS
8		TF	SUMS,BIGB+8Z	02262	26	06489	04735	
9		CM	*-6,6879,9Z	02274	14	02268	06879	FLAGS
10		BNI	*-36,1200Z	02286	47	02250	01200	
11		TFM	N,0Z	02298	16	04976	00000	FLAGS
12		RN	R1-1,500Z	02310	36	04987	00500	
13		RN	R1+9,500Z	02322	36	04997	00500	
14		RN	R1+89,500Z	02334	36	05077	00500	
15	READ	TFM	RX1+6,R1Z	02346	16	02412	04988	FLAGS
16		TFM	RX3+6,6199,9Z	02358	16	02532	06199	FLAGS
17		TFM	RX2+11,R1+8Z	02370	16	02501	04996	FLAGS
18		TFM	RX2+23,R1+88Z	02382	16	02513	05076	FLAGS
19		AM	**18,2Z	02394	11	02412	00002	FLAGS
20	RX1	CM	R1+2,0,10Z	02406	14	04990	00000	FLAGS
21		BI	CALC,1200Z	02418	46	02586	01200	
22		TF	RX3+21,RX1+6,11Z	02430	26	02547	02412	FLAGS IND ADD
23		RN	R2-79,500Z	02442	36	06101	00500	
24		AM	RX3+6,7,9Z	02454	11	02532	00007	FLAGS
25		AM	RX2+11,2Z	02466	11	02501	00002	FLAGS
26		AM	RX2+23,2Z	02478	11	02513	00002	FLAGS
27	RX2	TF	**30,0Z	02490	26	02520	00000	
28		TF	**35,0Z	02502	26	02537	00000	
29		SF	R2Z	02514	32	06180	00000	
30	RX3	TF	6206,R2Z	02526	26	06206	06180	
31		SM	**9,1,10Z	02538	12	02547	00001	FLAGS
32		BNI	RX2-36,1200Z	02550	47	02454	01200	
33		CM	RX1+6,R1+8Z	02562	14	02412	04996	FLAGS
34		BNI	RX1-12,1200Z	02574	47	02394	01200	
35	CALC	TFM	CX1+6,6479,9Z	02586	16	02700	06479	FLAGS
36		TFM	CX1+11,6199,9Z	02598	16	02705	06199	FLAGS
37		TFM	CX1+30,6879,8Z	02610	16	02724	06879	FLAGS
38		TFM	CX1+47,0,10Z	02622	16	02741	00000	FLAGS
39		TFM	CX2+18,7519Z	02634	16	02832	07519	FLAGS
40		AM	CX1+47,1,10Z	02646	11	02741	00001	FLAGS
41		AM	CX1+11,7,9Z	02658	11	02705	00007	FLAGS
42		AM	CX1+30,16,8Z	02670	11	02724	00016	FLAGS
43		AM	CX1+6,10,9Z	02682	11	02700	00010	FLAGS
44	CX1	A	6489,6206Z	02694	21	06489	06206	
45		M	*-1,*-1,611Z	02706	23	02705	02705	FLAGS IND ADD
46		A	6895,99Z	02718	21	06895	00099	
47		CM	R1,1,10Z	02730	14	04988	00001	FLAGS
48		BI	CX3,1200Z	02742	46	02874	01200	
49		TF	CX2+11,CX1+11Z	02754	26	02825	02705	
50		TF	CX2+35,CX1+47Z	02766	26	02849	02741	
51		AM	CX2+11,7,9Z	02778	11	02825	00007	FLAGS
52		AM	CX2+18,16Z	02790	11	02832	00016	FLAGS
53		AM	CX2+35,1,10Z	02802	11	02849	00001	FLAGS
54	CX2	M	CX1+11,6213,6Z	02814	23	02705	06213	FLAGS IND ADD
55		A	7519,99Z	02826	21	07519	00099	
56		CM	R1,2,10Z	02838	14	04988	00002	FLAGS
57		BNI	CX2-36,1200Z	02850	47	02778	01200	
58		B	CALC+60Z	02862	49	02646	00000	
59	CX3	AM	N,1Z	02874	11	04976	00001	FLAGS
60		BNI	READ,900Z	02886	47	02346	00900	
61		TF	NM1,NZ	02898	26	04986	04976	
62		SM	NM1,1Z	02910	12	04986	00001	FLAGS
63		BTM	FLOAT,NM1Z	02922	17	04062	04986	FLAGS
64		BI	PUNCH1,100Z	02934	46	04446	00100	
65		K	0,102Z	02946	34	00000	00102	
66		WA	TITLE1,100Z	02958	39	04887	00100	
67		K	0,102Z	02970	34	00000	00102	
68		TFM	MSD1+11,6479,9Z	02982	16	03065	06479	FLAGS
69		TFM	MSD2+6,6879Z	02994	16	03168	06879	FLAGS
70		TFM	PMD1,0,10Z	03006	16	05158	00000	FLAGS
71		AM	MSD1+11,10,9Z	03018	11	03065	00010	FLAGS
72		AM	MSD2+6,16Z	03030	11	03168	00016	FLAGS
73		AM	PMD1,1,10Z	03042	11	05158	00001	FLAGS
74	MSD1	LD	97,6489Z	03054	28	00097	06489	
75		D	91,NZ	03066	29	00091	04976	
76		MF	*,94Z	03078	71	03078	00094	
77		AM	94,5,10Z	03090	11	00094	00005	FLAGS
78		MF	93,*-24Z	03102	71	00093	03078	
79		TF	PMD2,93Z	03114	26	05166	00093	
80		M	MSD1+11,MSD1+11,611Z	03126	23	03065	03055	FLAGS IND ADD
81		TFM	79,0Z	03138	16	00079	00000	FLAGS
82		D	84,NZ	03150	29	00084	04976	
83	MSD2	S	6895,94Z	03162	22	06895	00094	
84		BT	FLOAT,*-6Z	03174	27	04062	03168	
85		FD	99,NM1Z	03186	16	00469	03221	FLAGS
86		FSOR	PMD3,99Z	03198	26	01260	00099	
87		TFM	**23,PMD2-7Z	03210	49	01422	04986	FLAGS
88		SD	**60,1Z	03222	16	05704	03257	FLAGS
89		CM	*-1,PMD2-1Z	03234	16	05642	05176	FLAGS
90		BI	**36,1200Z	03246	49	05178	00094	FLAGS
91		AM	*-25,1Z	03258	16	03281	05159	FLAGS
92		R	*-48Z	03270	43	03330	00000	
93		SF	*-49,0,6Z	03282	14	03281	05165	FLAGS
94		TF	PMDA1+48,BIGB+48Z	03294	46	03330	01200	
95		BNF	**36,PMD2Z	03306	11	03281	00001	FLAGS
96		TFM	PMDA1+23,2Z	03318	49	03270	00000	
97		CF	PMD2Z	03330	32	03281	00000	FLAGS IND ADD
98		TNF	PMDA1+2,PMD1Z	03342	26	04723	04775	
99		TNF	PMDA1+22,PMD2Z	03354	44	03390	05166	
100		TNF	PMDA1+48,PMD3Z	03366	15	04698	00002	
101		BI	PUNCH2,100Z	03378	33	05166	00000	
102		K	0,102Z	03390	73	04677	05158	
103		WA	PMDA1,100Z	03402	73	04697	05166	
104	MSD3	C	PMD1,R1Z	03414	73	04723	05176	
105		BNI	MSD1-36,1200Z	03426	46	04506	00100	
106		BI	PUNCH3,100Z	03438	34	00000	00102	

*8*

*9*



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107	K	0.102Z	03498	34	00000	00102	
108	K	0.102Z	03510	34	00000	00102	
109	WA	TITLE2.100Z	03522	39	04935	00100	
110	K	0.102Z	03534	34	00000	00102	
111	TFM	PMD1.0.10Z	03546	16	05158	00000	FLAGS
112	TFM	CR2+23.6879Z	03558	16	03761	06879	FLAGS
113	TFM	CR4+6.7519Z	03570	16	03852	07519	FLAGS
114	TFM	CR3+6.6479.9Z	03582	16	03816	06479	FLAGS
115	AM	PMD1.1.10Z	03594	11	05158	00001	FLAGS
116	AM	CR2+23.16Z	03606	11	03761	00016	FLAGS
117	AM	CR3+6.10.9Z	03618	11	03816	00010	FLAGS
118 CR1	C	PMD1.1R1Z	03630	24	05158	04988	
119	BI	INIT.1200Z	03642	46	02178	01200	
120	TF	CR2+35. CR2+23Z	03654	26	03773	03761	
121	TF	CR3+11. CR3+6Z	03666	26	03821	03816	
122	TF	PMD2. PMD1Z	03678	26	05166	05158	
123	AM	CR2+35.16Z	03690	11	03773	00016	FLAGS
124	AM	CR3+11.10.9Z	03702	11	03821	00010	FLAGS
125	AM	CR4+6.16Z	03714	11	03852	00016	FLAGS
126	AM	PMD2.1.10Z	03726	11	05166	00001	FLAGS
127 CR2	FM	6895.6911Z	03738	16	00469	03773	FLAGS
127			03750	26	01260	06895	
127			03762	49	01262	06911	FLAGS
128	FSOR	PMD3.99Z	03774	16	05704	03809	FLAGS
128			03786	16	05692	05176	FLAGS
128			03798	49	05178	00099	FLAGS
129 CR3	M	6489.6499Z	03810	23	06489	06499	
130	TFM	79.0Z	03822	16	00079	00000	FLAGS
131	D	84.NZ	03834	29	00084	04976	
132 CR4	S	7535.94Z	03846	22	07535	00094	
133	BT	FLOAT.*-6Z	03858	27	04062	03852	
134	FD	99. PMD3Z	03870	16	00469	03905	FLAGS
134			03882	26	01260	00099	
134			03894	49	01422	05176	FLAGS
135	TF	PMDA1+48. BIGB+48Z	03906	26	04723	04775	
136	BNF	*+36.99Z	03918	44	03954	00099	
137	TDM	PMDA1+35.2Z	03930	15	04710	00002	
138	CF	99Z	03942	33	00099	00000	
139	TNF	PMDA1+34.99Z	03954	73	04709	00099	
140	TNF	PMDA1+2. PMD1Z	03966	73	04677	05158	
141	TNF	PMDA1+10. PMD2Z	03978	73	04685	05166	
142	BT	PUNCH4.100Z	03990	46	04626	00100	
143	K	0.102Z	04002	34	00000	00102	
144	WA	PMDA1.100Z	04014	39	04675	00100	
145	C	PMD2.1R1Z	04026	24	05166	04988	
146	BNI	CR2-48.1200Z	04038	47	03690	01200	
147	B	CR1-36Z	04050	49	03594	00000	
148 FLOAT	LD	99.*-1.11Z	04062	28	00099	04061	FLAGS IND ADD
149	CM	99.0.10Z	04074	14	00099	00000	FLAGS
150	BI	ZRO.1200Z	04086	46	04242	01200	
151	TFM	EXP+11.66.10Z	04098	16	04193	00066	FLAGS
152	TFM	*+23.84.10Z	04110	16	04133	00084	FLAGS
153 FA	BD	SET.84Z	04122	43	04278	00084	
154	CM	*-1.98.10Z	04134	14	04133	00098	FLAGS
155	BI	EXP+12.1200Z	04146	46	04194	01200	
156	AM	FA+11.1.10Z	04158	11	04133	00001	FLAGS
157	SM	*+23.1.10Z	04170	12	04193	00001	FLAGS
158 EXP	B	FAZ	04182	49	04122	00000	
159	TD	*+23.99Z	04194	25	04217	00099	
160	LDM	92.510.9Z	04206	18	00092	00510	FLAGS
161	MF	99.92Z	04218	71	00099	00092	
162	B	EXITZ	04230	49	04254	00000	
163 ZRO	LDM	94.0Z	04242	18	00094	00000	FLAGS
164 EXIT	TF	FLOAT-1.99.6Z	04254	26	04061	00099	FLAGS IND ADD
165	BB	Z	04266	42	00000	00000	
166 SET	CF	FA+11.0.6Z	04278	33	04133	00000	FLAGS IND ADD
167	SM	FA+11.1.10Z	04290	12	04133	00001	FLAGS
168	TF	FA+11. EXP+11.6Z	04302	26	04133	04193	FLAGS IND ADD
169	CM	EXP+11.58.10Z	04314	14	04193	00058	FLAGS
170	BI	EXIT.1200Z	04326	46	04254	01200	
171	BNI	FB.1100Z	04338	47	04398	01100	
172	AM	FA+11.8.10Z	04350	11	04133	00008	FLAGS
173	MF	FA+11.99.6Z	04362	71	04133	00099	FLAGS IND ADD
174	TF	99. FA+11.11Z	04374	26	00099	04133	FLAGS IND ADD
175	B	EXITZ	04386	49	04254	00000	
176 FB	TF	PMDA1+10.99Z	04398	26	04685	00099	
177	AM	EXP+11.41.10Z	04410	11	04193	00041	FLAGS
178	LD	EXP+11. PMDA1+10.6Z	04422	28	04193	04685	FLAGS IND ADD
179	B	EXITZ	04434	49	04254	00000	
180 PUNCH1	TF	BIGB+44. TITLE1+44Z	04446	26	04771	04931	
181	WA	BIGB.400Z	04458	39	04727	00400	
182	TF	BIGB+44. BIGB+144Z	04470	26	04771	04871	
183	WA	BIGB.400Z	04482	39	04727	00400	
184	B	MSD1-72Z	04494	49	02982	00000	
185 PUNCH2	TDM	PMDA1+50.0Z	04506	13	04725	00000	
186	WA	PMDA1.400Z	04518	39	04675	00400	
187	TDM	PMDA1+50.0Z	04530	15	04725	00000	
188	DC	1.-.*Z	04541		00001		
189	B	MSD3Z	04542	49	03462	00000	
190 PUNCH3	WA	BIGB.400Z	04554	39	04727	00400	
191	TF	BIGB+34. TITLE2+34Z	04566	26	04761	04969	
192	WA	BIGB.400Z	04578	39	04727	00400	
193	TF	BIGB+34. BIGB+134Z	04590	26	04761	04861	
194	WA	BIGB.400Z	04602	39	04727	00400	
195	B	CR1-84Z	04614	49	03546	00000	
196 PUNCH4	TDM	PMDA1+50.0Z	04626	15	04725	00000	
197	WA	PMDA1.400Z	04638	39	04675	00400	
198	TD	PMDA1+50. PUNCH2+35Z	04650	25	04725	04541	
199	B	FLOAT-36Z	04662	49	04026	00000	
200 PMDA1	DAC	26.00 000000 0	04675		00026		-Z
201 BIGB	DAC	50.	04727		00050		Z
202	DAC	30.	04827		00030		Z
203 TITLE1	DAC	24.VR MEAN STD DEV-Z	04887		00024		
204 TITLE2	DAC	19.VR VR COR COEFF-Z	04935		00019		
205 N	DS	5Z	04976		00005		
206 NMI	DS	10Z	04986		00010		
207 RI	DSB	2.85Z	04988		00002	00085	
208 PMD1	DS	2Z	05158		00002		
209 PMD2	DS	8Z	05166		00008		
210 PMD3	DS	10Z	05176		00010		

211 SQCP DSB 16.1640.6895Z  
212 SUMS DSB 10.40.6489Z  
213 XYS DSB 7.40.6206Z  
214 R2 DS 80.6180Z  
215 DC 1.0.569Z  
216 DC 1.1.401Z  
217 DEND INITZ

06895 00016 01640  
06489 00010 00040  
06206 00007 00040  
06180 00080  
00569 00001  
00401 00001  
02178

217