



เอกสารอ้างอิง

1. Alfred V. AHO, and Jeffrey D. Ullman. The Theory of Parsing, Translation, and Compiling. Vol. 1: Parsing. Englewood Cliffs, N.J.: Prentice-hall, Inc., 1972.
2. David Gries. Compiler Construction for Digital Computer. New York: John Wiley & Sons, Inc., 1971.
3. Aloyse P. Oberle. Programming the IBM System/360 Model 20 with RPG. Englewood Cliffs, N.J.: Prentice-hall, Inc., 1970.
4. Gary B. Shell and Thomas J. Cashman. Introduction to Computer Programming RPG. California: Anaheim Publishing Company, 1972.
5. Jean E. Sammet. Programming Languages: History and Fundamentals. Englewood Cliffs, N.J.: Prentice-hall, Inc., 1969.
6. Nippon Electric Company, Limited. NEAC - SERIES 2200 Operating System 1 COBOL Compiler D & H. Tokyo: Nippon Electric Company, Limited.
7. Daniel D. Mc Cracken and Umberto Garbassi. A guide to COBOL programming. 2 ed. Sydney: John Wiley & SONS Inc., 1970.
8. ทิวรรณ นพวงศ์ และ กอบกุล เตชะวณิช. โคบอลเบื้องต้น กรุงเทพฯ: โรงพิมพ์ศิริผลสาร, 2516.
9. Nippon Electric Company, Limited. NEAC - SERIES 2200 Operating System mod 1 Assembly Reference Manual. Tokyo: Nippon Electric Company, Limited.

ภาคผนวก

ผนวก ก.

แบบกำหนดเพิ่มข้อมูล

แบบกำหนดเพิ่มข้อมูลส่วนขยาย

แบบกำหนดการรับข้อมูล

แบบกำหนดการคำนวณ

แบบกำหนดการส่งข้อมูล

ภาคผนวก ข.

ลักษณะของโปรแกรมอาร์พีจีในเทปแม่เหล็ก

เทปแม่เหล็กซึ่งมีหมายเลขตรรกประจำตัว ๓ ใช้เป็นเทปแม่เหล็กที่เก็บโปรแกรมภาษาอาร์พีจี ขนาด ๘๐ ตัว อักขระต่อ ๑ ระเบียบ ลักษณะดังนี้

ระเบียบแรกมีอักขระ RTCKK ที่สคมภ ๑ - ๕

ระเบียบต่อมา คือ โปรแกรมอาร์พีจี แต่ละระเบียบจะมีเฉพาะคำสั่ง

แบบ F, แบบ E, แบบ I, แบบ C และแบบ O เท่านั้น จะไม่มี Comment เลย

เมื่อเป็นระเบียบข้อมูล I กับระเบียบข้อมูล O ตรงสคมภ ๑๕, ๑๖ จะต้องมีอักขระ I, H, D, T ดังนี้

เมื่อมี I1, I2, ตามลำดับเพื่อบ่งชี้ระเบียบแบบ I

เมื่อมี H1, H2, ตามลำดับ เพื่อบ่งชี้ระเบียบแบบ H

เมื่อมี D1, D2, ตามลำดับ เพื่อบ่งชี้ระเบียบแบบ D

เมื่อมี T1, T2, ตามลำดับ เพื่อบ่งชี้ระเบียบแบบ T

ซึ่งอักขระในสคมภ ๑๕, ๑๖ เกิดจากการสร้างของตัวแปลภาษา เมื่ออ่านบัตรเก็บเข้าในเทปแม่เหล็ก

ผนวก ค.

การจัดเรียงบัตรโปรแกรมตัวอย่าง

RTOCK1012 *
RTCKK1 *RPGCOBOL CONVERSION BY KK.

FCARDIN IP
FREPORT 0
ICARDIN NS 01 37 CS

READ01
PRINTRT

I
I
I
I
C 01 SALARY MULT .1
C 01 SALARY ADD SALTOT
C 01 DED ADD DEDTOT
OREPORT H 201 OF
0 OR 1P
0
0
0
0
0
0 D 1 01
0
0
0
0 T 2 LR
0
0

1 3 DEPT
4 9 EMPNO
10 30 NAME
31 362 SALARY
DED 52
SALTOT 82
DEDTOT 62

15 "DEPT. NO."
25 "EMP. NO."
47 "NAME"
65 "SALARY"
80 "DEDUCTIONS"

DEPT 15
EMPNO 25
NAME 47
SALARY 65 " , 0. "
DED 80 " 0. "
SALTOT 65 " , 0. "
DEDTOT 80 " , 0. "

/*
COBOLD010 *

7E

RPGCOB002 *

111A19202W.JONES 061200S
111A19201J.DOE 055050S
111A19203R.SMITH 041520S
115B19163A.MARIA 091800S
115B19185S.SUSANA 100000S
115B19281W.JACOB 105000S
125B19300D.WALSE 90000S
125B19307E.DONA 110000S
125B19400M.YONUNS 120000S
1EOF

ภาคผนวก ง.

ผลที่ได้จากโปรแกรม RTOCK1

62

LIST OF R.P.G. SOURCE PROGRAM
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```

FCARDIN  IP                                READ01
FREPOR  T  0                                PRINTRT
ICARDIN  NS  01  37  CS
I
I
I
I
C  01      SALARY'  MULT  .1      DED  52
C  01      SALARY'  ADD  SALTOT  SALTOT  82
C  01      DED      ADD  DEDTOT  DEDTOT  62
OREPOR  T  H  201  OF
O      OR      1P
O
O      15  "DEPT. NO."
O      25  "EMP.NO."
O      47  "NAME"
O      65  "SALARY"
O      80  "DEDUCTIONS"
O      D  1      01
O      DEPT      15
O      EMPNO     25
O      NAME      47
O      SALARY    65 " , 0. "
O      DED       80 " 0. "
O      T  2      LR
O      SALTOT    65 " , 0. "
O      DEDTOT    80 " , 0. "

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/*

R.P.G. PRE-COMPILATION LISTING
=====

```

00001 FCARDIN IP READ01
00002 FREPORT 0 PRINTRT
00003 ICARDIN I1 01 37 CS
00004 I 1 3 DEPT
00005 I 4 9 EMPNO
00006 I 10 30 NAME
00007 I 31 362 SALARY
00008 C 01 SALARY MULT .1 DED 52
00009 C 01 SALARY ADD SALTOT SALTOT 82
00010 C 01 DED ADD DEDTOT DEDTOT 62
00011 OREPORT H1 201 OF
00012 0 OR 1P
00013 0 15 "DEPT. NO."
00014 0 25 "EMP. NO."
00015 0 47 "NAME"
00016 0 65 "SALARY"
00017 0 80 "DEDUCTIONS"
00018 0 D1 1 01
00019 0 DEPT 15
00020 0 EMPNO 25
00021 0 NAME 47
00022 0 SALARY 65 " , 0. "
00023 0 DED 80 " 0. "
00024 0 T12 LR
00025 0 SALTOT 65 " , 0. "
00026 0 DEDTOT 80 " , 0. "
00027 /*
ERROR* 00000

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END OF R.P.G. PRE-COMPILATION

LIST OF COBOL FROM R.P.G
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COBOLD010 *
ABAVPA010 *
COBOL*INPUT BJ

OPTION RPGCOBLN,50
IDENTIFICATION DIVISION.
PROGRAM-ID. RPGCOBOL CONVERSION BY KK.
REMARKS TRANSLATION OF R.P.G. TO COBOL BY "RTCKK".
ENVIRONMENT DIVISION.
CONFIGURATION SECTION.
SOURCE-COMPUTER. NEAC-2200.
OBJECT-COMPUTER. NEAC-2200 WITH SUPERVISOR CONTROL
MEMORY SIZE 24576 CHARACTERS.
SPECIAL-NAMES. PAGE IS TOP-PAGE
CHANNEL 1 OF PRINTER B IS CHAN01
CHANNEL 2 OF PRINTER B IS CHAN02
CHANNEL 3 OF PRINTER B IS CHAN03
CHANNEL 4 OF PRINTER B IS CHAN04
CHANNEL 5 OF PRINTER B IS CHAN05
CHANNEL 6 OF PRINTER B IS CHAN06
CHANNEL 7 OF PRINTER B IS CHAN07
CHANNEL 8 OF PRINTER B IS CHAN08
EVF-SIGNAL OF PRINTER B IS CHAN-2
ON STATUS IS OV.

INPUT-OUTPUT SECTION.

FILE-CONTROL.

SELECT FFCARDIN ASSIGN TO CARD-READER E.
SELECT FFREPORT ASSIGN TO PRINTER A.

DATA DIVISION.

FILE SECTION.

FD FFCARDIN

RECORD CONTAINS 80 CHARACTERS
LABEL RECORD IS OMITTED
DATA RECORD IS RRCARDIN.

01 RRCARDIN.

02 YYCARDIN PICTURE X OCCURS 80 TIMES.

FD FFREPORT

RECORD CONTAINS 132 CHARACTERS
LABEL RECORD IS OMITTED
DATA RECORD IS RRREPORT.

01 RRREPORT.

02 YYREPORT PICTURE X OCCURS 132 TIMES.

WORKING-STORAGE SECTION.

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77 HH PICTURE 9.
77 DD PICTURE 9.
77 TT PICTURE 9.
77 I PICTURE 999.
77 L1 PICTURE 999 VALUE 101.
77 L2 PICTURE 999 VALUE 102.
77 L3 PICTURE 999 VALUE 103.
77 L4 PICTURE 999 VALUE 104.
77 L5 PICTURE 999 VALUE 105.
77 L6 PICTURE 999 VALUE 106.
77 L7 PICTURE 999 VALUE 107.
77 L8 PICTURE 999 VALUE 108.
77 L9 PICTURE 999 VALUE 109.
77 LR PICTURE 999 VALUE 110.
77 H1 PICTURE 999 VALUE 111.
77 H2 PICTURE 999 VALUE 112.
77 H3 PICTURE 999 VALUE 113.
77 H4 PICTURE 999 VALUE 114.
77 H5 PICTURE 999 VALUE 115.
77 H6 PICTURE 999 VALUE 116.
77 H7 PICTURE 999 VALUE 117.

77 H8 PICTURE 999 VALUE 118.
77 H9 PICTURE 999 VALUE 119.
77 H0 PICTURE 999 VALUE 120.
77 1P PICTURE 999 VALUE 100.
77 C1DED PICTURE 59(0003)V9(2).
77 C1SALTOT PICTURE 59(0006)V9(2).
77 C1DEDTOT PICTURE 59(0004)V9(2).
01 INDICATOR.
02 IND PICTURE 9 OCCURS 120 TIMES.
01 IICARDIN.
02 IIDEPT PICTURE X(0003).
02 I1EMPNO PICTURE X(0006).
02 I1NAME PICTURE X(0021).
02 I1SALARY PICTURE 59(0004)V9(2).
01 HIREPORT.
02 FILLER PICTURE X(0006) VALUE SPACES.
02 FILLER PICTURE X(0009) VALUE "DEPT. NO.".
02 FILLER PICTURE X(0003) VALUE SPACES.
02 FILLER PICTURE X(0007) VALUE "EMP. NO.".
02 FILLER PICTURE X(0018) VALUE SPACES.
02 FILLER PICTURE X(0004) VALUE "NAME".
02 FILLER PICTURE X(0012) VALUE SPACES.
02 FILLER PICTURE X(0006) VALUE "SALARY".
02 FILLER PICTURE X(0005) VALUE SPACES.
02 FILLER PICTURE X(0010) VALUE "DEDUCTIONS".
01 DIREPORT.
02 FILLER PICTURE X(0012) VALUE SPACES.
02 D1DEPT PICTURE X(0003).

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02 FILLER      PICTURE X(0004) VALUE SPACES.
02 DIEMPNO     PICTURE X(0006).
02 FILLER      PICTURE X(0001) VALUE SPACES.
02 D1NAME      PICTURE X(0021).
02 FILLER      PICTURE X(0010) VALUE SPACES.
02 D1SALARY    PICTURE Z,ZZZ.99.
02 FILLER      PICTURE X(0009) VALUE SPACES.
02 D1DED       PICTURE ZZZ.99.
01 TIREPORT:
02 FILLER      PICTURE X(0055) VALUE SPACES.
02 T1SALTOT    PICTURE ZZZ,ZZZ.99.
02 FILLER      PICTURE X(0007) VALUE SPACES.
02 T1DEDTOT    PICTURE Z,ZZZ.99.
01 X1CARDIN:
02 X1DEPT      PICTURE X(0003).
02 X1EMPNO     PICTURE X(0006).
02 X1NAME      PICTURE X(0021).
02 X1SALARY    PICTURE S9(0004)V9(2).

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PROCEDURE DIVISION.

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START.
PERFORM SETOF-ROUTINE VARYING
    I FROM 1 BY 1 UNTIL I GREATER 120.
MOVE 1 TO IND (1P).
PERFORM OPEN-ROUTINE.
PERFORM READ-ROUTINE THRU READ-EXIT.
RPG-CYCLE.
PERFORM HEAD-ROUTINE THRU HEAD-EXIT.
PERFORM HALT-ROUTINE THRU HALT-EXIT.
PERFORM READ-ROUTINE THRU READ-EXIT.
IF IND (LR) EQUAL TO 1
MOVE 1 TO IND (HO) GO TO FOR-CALC.
PERFORM BREAK-ROUTINE THRU BREAK-EXIT
FOR-CALC.
PERFORM CALC-ROUTINE THRU CALC-EXIT.
PERFORM DETAIL-ROUTINE THRU DETAIL-EXIT.
PERFORM TOTAL-ROUTINE THRU TOTAL-EXIT.
PERFORM SETOF-ROUTINE VARYING
    I FROM 1 BY 1 UNTIL I GREATER 110.
PERFORM MOVE-RECORD.
GO TO RPG-CYCLE.
SETOF-ROUTINE.
MOVE ZERO TO IND (I).
OPEN-ROUTINE.
OPEN INDJT FFCARDIN.
MOVE SPACE TO RRCARDIN.
OPEN OUTDJT FFREPORT.
MOVE SPACE TO RRREPORT.
MOVE 1 TO HH.
MOVE 1 TO DD.
MOVE 1 TO TT.
HEAD-ROUTINE.
IF HH EQUALS ZERO GO TO HEAD-EXIT.
MOVE SPACE TO RRREPORT.
IF OV

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OR IND (1P) EQUAL TO 1
WRITE RRREPORT BEFORE ADVANCING CHAN01
MOVE HIREPORT TO RRREPORT
WRITE RRREPORT BEFORE ADVANCING 2 LINES
MOVE SPACE TO RRREPORT.
MOVE SPACE TO RRREPORT.

HEAD-EXIT.

EXIT.

DETAIL-ROUTINE.

IF DD EQUALS ZERO GO TO DETAIL-EXIT.

MOVE IIDEPT TO DIDEPT.

MOVE IIEMPNO TO DIEMPNO.

MOVE IINAME TO DINAME.

MOVE IISALARY TO DISALARY.

MOVE CDED TO DDED.

IF IND (01) EQUAL TO 1

MOVE DIREPORT TO RRREPORT

WRITE RRREPORT BEFORE ADVANCING 1 LINES

MOVE SPACE TO RRREPORT.

MOVE SPACE TO RRREPORT.

DETAIL-EXIT.

EXIT.

TOTAL-ROUTINE.

IF TT EQUALS ZERO GO TO TOTAL-EXIT.

MOVE CISALTOT TO TISALTOT.

MOVE CDEDTOT TO TDEDTOT.

IF IND (LR) EQUAL TO 1

MOVE TIREPORT TO RRREPORT

WRITE RRREPORT

MOVE SPACE TO RRREPORT.

MOVE SPACE TO RRREPORT.

TOTAL-EXIT.

EXIT.

CALC-ROUTINE.

IF IND (01) EQUAL TO 1

COMPUTE CDED ROUNDED = IISALARY * .1.

IF IND (01) EQUAL TO 1

COMPUTE CISALTOT ROUNDED = IISALARY + CISALTOT

IF IND (01) EQUAL TO 1

COMPUTE CDEDTOT ROUNDED = CDED + CDEDTOT

CALC-EXIT.

EXIT.

READ-ROUTINE.

READ FFCARDIN AT END MOVE 1 TO IND (L1) IND (L2) IND (L3)

MOVE 1 TO

IND (L4) IND (L5) IND (L6)

MOVE 1 TO

IND (L7) IND (L8) IND (L9)

IND (LR) GO TO READ-EXIT.

IF YYCARDIN (37) EQUAL TO "S"

MOVE 1 TO IND (01).
IF IND (1P) EQUAL TO 1 MOVE RRCARDIN TO IICARDIN
ELSE MOVE RRCARDIN TO XICARDIN.
READ-EXIT.
EXIT.
BREAK-ROUTINE.
GO TO BREAK-EXIT.
BREAK-EXIT.
EXIT.
MOVE-RECORD.
MOVE XICARDIN TO IICARDIN.
HALT-ROUTINE.
IF IND (H0) EQUAL TO 1 GO TO CLOSE-ROUTINE.
IF IND (H1) EQUAL TO 1 GO TO CLOSE-ROUTINE.
IF IND (H2) EQUAL TO 1 GO TO CLOSE-ROUTINE.
IF IND (H3) EQUAL TO 1 GO TO CLOSE-ROUTINE.
IF IND (H4) EQUAL TO 1 GO TO CLOSE-ROUTINE.
IF IND (H5) EQUAL TO 1 GO TO CLOSE-ROUTINE.
IF IND (H6) EQUAL TO 1 GO TO CLOSE-ROUTINE.
IF IND (H7) EQUAL TO 1 GO TO CLOSE-ROUTINE.
IF IND (H8) EQUAL TO 1 GO TO CLOSE-ROUTINE.
IF IND (H9) EQUAL TO 1 GO TO CLOSE-ROUTINE.
HALT-EXIT.
EXIT.
CLOSE-ROUTINE.
CLOSE FFCARDIN.
CLOSE FFREPORT.
STOP RUN.

END CONV

IEOF

ภาคผนวก จ.

ผลที่ได้จากโปรแกรม COBOLD

RP3COB

UNRESOLVED LST35 AND DIAGS MSPT: UNUSED #

LIB: UNUSED #

YEAR: DAY:

OPTION

RP3COBLN,50

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000010 IDENTIFICATION DIVISION.
000020 PROGRAM-ID. RP3COB01 CONVERSION BY KK.
000030 REMARKS. TRANSLATION OF R.P.G. TO COBOL ENVIRONMENT DIVISION.
000040 ENVIRONMENT DIVISION.
000050 CONFIGURATION SECTION.
000060 SOURCE-COMPUTER. NEAC-2200.
000070 OBJECT-COMPUTER. NEAC-2200 WITH SUPERVISOR CONTROL
000080 MEMORY SIZE 24576 CHARACTERS.
000090 SPECIAL-NAMES.
000100 PAGE IS TOP-PAGE
000110 CHANNEL 1 OF PRINTER A IS CHAN01
000120 CHANNEL 2 OF PRINTER A IS CHAN02
000130 CHANNEL 3 OF PRINTER A IS CHAN03
000140 CHANNEL 4 OF PRINTER A IS CHAN04
000150 CHANNEL 5 OF PRINTER A IS CHAN05
000160 CHANNEL 6 OF PRINTER A IS CHAN06
000170 CHANNEL 7 OF PRINTER A IS CHAN07
000180 EVF-SIGNAL OF PRINTER A IS CHAN-2
000190 ON STATUS IS OV.
000200 INPUT-OUTPUT SECTION.
000210 FILE-CONTROL.
000220 SELECT FFRCARDIN ASSIGN TO CARD-READER F.
000230 SELECT FFREPORT ASSIGN TO PRINTER B.
000240 DATA DIVISION.
000250 FILE SECTION.
000260 FD FFRCARDIN
000270 RECORD CONTAINS 80 CHARACTERS
000280 LABEL RECORD IS OMITTED
000290 DATA RECORD IS RRRCARDIN.
000300 01 RRRCARDIN.
000310 02 YYCARDIN PICTURE X OCCURS 80 TIMES.
000320 FD FFREPORT
000330 RECORD CONTAINS 132 CHARACTERS
000340 LABEL RECORD IS OMITTED
000350 DATA RECORD IS RRREPORT.
000360 01 RRREPORT.
000370 02 YYREPORT PICTURE X OCCURS 132 TIMES.
000380 WORKING-STORAGE SECTION.
000390 77 H1 PICTURE 9.
000400 77 H2 PICTURE 9.
000410 77 H3 PICTURE 9.
000420 77 I1 PICTURE 999.
000430 77 L1 PICTURE 999 VALUE 101.
000440 77 L2 PICTURE 999 VALUE 102.
000450 77 L3 PICTURE 999 VALUE 103.
000460 77 L4 PICTURE 999 VALUE 104.
000470 77 L5 PICTURE 999 VALUE 105.
000480 77 L6 PICTURE 999 VALUE 106.
000490 77 L7 PICTURE 999 VALUE 107.
000500 77 L8 PICTURE 999 VALUE 108.
000510 77 L9 PICTURE 999 VALUE 109.
000520 77 L0 PICTURE 999 VALUE 110.
000530 77 H1 PICTURE 999 VALUE 111.
000540 77 H2 PICTURE 999 VALUE 112.
000550 77 H3 PICTURE 999 VALUE 113.
000560 77 H4 PICTURE 999 VALUE 114.

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0057	77	45	PICTURE	999	VALUE	115.
0058	77	46	PICTURE	999	VALUE	116.
000590	77	47	PICTURE	999	VALUE	117.
000600	77	48	PICTURE	999	VALUE	118.
000610	77	49	PICTURE	999	VALUE	119.
000620	77	40	PICTURE	999	VALUE	120.
000630	77	19	PICTURE	999	VALUE	100.
000640	77		CIDFD	PICTURE	S9(0003)V9(2).	
000650	77		CISALTOT	PICTURE	S9(0006)V9(2).	
000660	77		CIDEDTOT	PICTURE	S9(0004)V9(2).	
000670	01		INDICATOR.			
00068		02	IND	PICTURE	9 OCCURS 120 TIMES.	
00069	01		INDCARDIN.			
00070	02		INDDEPT	PICTURE	X(0003).	
000710	02		INDEMPNO	PICTURE	X(0006).	
000720	02		INDNAME	PICTURE	X(0021).	
000730	02		INDSALARY	PICTURE	S9(0004)V9(2).	
00074	01		DIRECT.			
000750	02		FILLER	PICTURE	X(0006) VALUE SPACES.	
00076	02		FILLER	PICTURE	X(0009) VALUE "DEPT. NO.".	
000770	02		FILLER	PICTURE	X(0003) VALUE SPACES.	
00078	02		FILLER	PICTURE	X(0007) VALUE "EMP. NO.".	
000790	02		FILLER	PICTURE	X(0018) VALUE SPACES.	
00080	02		FILLER	PICTURE	X(0004) VALUE "NAME".	
000810	02		FILLER	PICTURE	X(0012) VALUE SPACES.	
000820	02		FILLER	PICTURE	X(0006) VALUE "SALARY".	
000830	02		FILLER	PICTURE	X(0005) VALUE SPACES.	
000840	02		FILLER	PICTURE	X(0010) VALUE "DEDUCTIONS".	
00085	01		DIRECT.			
00086	02		FILLER	PICTURE	X(0012) VALUE SPACES.	
00087	02		DIDDEPT	PICTURE	X(0003).	
00088	02		FILLER	PICTURE	X(0004) VALUE SPACES.	
00089	02		DIDEMPNO	PICTURE	X(0006).	
00090	02		FILLER	PICTURE	X(0001) VALUE SPACES.	
00091	02		DIDNAME	PICTURE	X(0021).	
00092	02		FILLER	PICTURE	X(0010) VALUE SPACES.	
00093	02		DIDSALARY	PICTURE	Z,ZZ,99.	
00094	02		FILLER	PICTURE	X(0009) VALUE SPACES.	
00095	02		DIDDED	PICTURE	ZZ,99.	
00096	01		DIRECT.			
000970	02		FILLER	PICTURE	X(0055) VALUE SPACES.	
00098	02		TISALTOT	PICTURE	ZZ,ZZZ,99.	
000990	02		FILLER	PICTURE	X(0007) VALUE SPACES.	
00100	02		TIDEDTOT	PICTURE	Z,ZZ,99.	
00101	01		XINDCARDIN.			
00102	02		XIDDEPT	PICTURE	X(0003).	
00103	02		XIDEMPNO	PICTURE	X(0006).	
00104	02		XIDNAME	PICTURE	X(0021).	
00105	02		XIDSALARY	PICTURE	S9(0004)V9(2).	
00106			PROCEDURE DIVISION.			
00107			START.			
00108			PERFORM SETOF-ROUTINE VARYING			
00109			I FROM 1 BY 1 UNTIL I GREATER I20.			
001100			MOVE 1 TO IND (IP).			
00111			PERFORM OPEN-ROUTINE.			
00112			PERFORM READ-ROUTINE THRU READ-EXIT.			
00113			RO5-CYCLE.			
00114			PERFORM HEAD-ROUTINE THRU HEAD-EXIT.			
00115			PERFORM HALT-ROUTINE THRU HALT-EXIT.			
00116			PERFORM READ-ROUTINE THRU READ-EXIT.			
00117			IF IND (LR) EQUAL TO 1			

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001180 MOVE I TO IND (40) GO TO FOR-CALC.
001190 PERFORM BREAK-ROUTINE THRU BREAK-EXIT.
001200 FOR-CALC.
001210 PERFORM CALC-ROUTINE THRU CALC-EXIT.
001220 PERFORM DETAIL-ROUTINE THRU DETAIL-EXIT.
001230 PERFORM TOTAL-ROUTINE THRU TOTAL-EXIT.
001240 PERFORM SETOF-ROUTINE VARYING
001250 I FROM 1 BY 1 UNTIL I GREATER 110.
001260 PERFORM MOVE-RECORD.
001270 GO TO RPG-CYCLE.
001280 SETOF-ROUTINE.
001290 MOVE ZERO TO IND (1).
001300 OPEN-ROUTINE.
001310 OPEN INPUT FFCARDIN.
001320 MOVE SPACE TO RRCARDIN.
001330 OPEN OUTPUT FFRREPORT.
001340 MOVE SPACE TO RRREPORT.
001350 MOVE 1 TO HH.
001360 MOVE 1 TO DD.
001370 MOVE 1 TO TT.
001380 HEAD-ROUTINE.
001390 IF HH EQUALS ZERO GO TO HEAD-EXIT.
001400 MOVE SPACE TO RRREPORT.
001410 IF DD
001420 OR IND (1P) EQUAL TO 1
001430 WRITE RRREPORT BEFORE ADVANCING CHANNEL
001440 MOVE RRREPORT TO RRREPORT
001450 WRITE RRREPORT BEFORE ADVANCING 2 LINES
001460 MOVE SPACE TO RRREPORT.
001470 MOVE SPACE TO RRREPORT.
001480 HEAD-EXIT.
001490 EXIT.
001500 DETAIL-ROUTINE.
001510 IF DD EQUALS ZERO GO TO DETAIL-EXIT.
001520 MOVE DIDPT TO DIDPT.
001530 MOVE DIEMPNO TO DIEMPNO.
001540 MOVE DIName TO DIName.
001550 MOVE DISALARY TO DISALARY.
001560 MOVE DIDED TO DIDED.
001570 IF IND (01) EQUAL TO 1
001580 MOVE DIREPORT TO RRREPORT
001590 WRITE RRREPORT BEFORE ADVANCING 1 LINES
001600 MOVE SPACE TO RRREPORT.
001610 MOVE SPACE TO RRREPORT.
001620 DETAIL-EXIT.
001630 EXIT.
001640 TOTAL-ROUTINE.
001650 IF TT EQUALS ZERO GO TO TOTAL-EXIT.
001660 MOVE CISALTOT TO TISALTOT.
001670 MOVE CIDEDTOT TO TIDEDTOT.
001680 IF IND (1R) EQUAL TO 1
001690 MOVE TIREPORT TO RRREPORT
001700 WRITE RRREPORT
001710 MOVE SPACE TO RRREPORT.
001720 MOVE SPACE TO RRREPORT.
001730 TOTAL-EXIT.
001740 EXIT.
001750 CALC-ROUTINE.
001760 IF IND (01) EQUAL TO 1
001770 COMPUTE CIDED ROUNDED = IISALARY * .1.
001780 IF IND (01) EQUAL TO 1
001790 COMPUTE CISALTOT ROUNDED = IISALARY + CISALTOT.
001800 IF IND (01) EQUAL TO 1

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```

00184 READ-ROUTINE.
00185 READ FFCARDIN AT END MOVE 1 TO IND (L1) IND (L2) IND (L3)
00186 MOVE 1 TO
00187 IND (L4) IND (L5) IND (L6)
00188 MOVE 1 TO
00189 IND (L7) IND (L8) IND (L9)
00190 IND (LR) GO TO READ-EXIT.
00191 IF YYCARDIN (37) EQUAL TO "5"
00192 MOVE 1 TO IND (01).
001930 IF IND (10) EQUAL TO 1 MOVE RRCARDIN TO IICARDIN
001940 ELSE MOVE RRCARDIN TO XICARDIN.
00195 READ-EXIT.
00196 EXIT.
00197 BREAK-ROUTINE:
00198 GO TO BREAK-EXIT.
00199 BREAK-EXIT.
00200 EXIT.
00201 MOVE-RECORD.
00202 MOVE XICARDIN TO IICARDIN.
00203 HALT-ROUTINE.
00204 IF IND (H0) EQUAL TO 1 GO TO CLOSE-ROUTINE.
002050 IF IND (H1) EQUAL TO 1 GO TO CLOSE-ROUTINE.
002060 IF IND (H2) EQUAL TO 1 GO TO CLOSE-ROUTINE.
00207 IF IND (H3) EQUAL TO 1 GO TO CLOSE-ROUTINE.
00208 IF IND (H4) EQUAL TO 1 GO TO CLOSE-ROUTINE.
002090 IF IND (H5) EQUAL TO 1 GO TO CLOSE-ROUTINE.
002100 IF IND (H6) EQUAL TO 1 GO TO CLOSE-ROUTINE.
002110 IF IND (H7) EQUAL TO 1 GO TO CLOSE-ROUTINE.
00212 IF IND (H8) EQUAL TO 1 GO TO CLOSE-ROUTINE.
00213 IF IND (H9) EQUAL TO 1 GO TO CLOSE-ROUTINE.
00214 HALT-EXIT.
00215 EXIT.
00216 CLOSE-ROUTINE:
00217 CLOSE FFCARDIN.
00218 CLOSE FFRPORT.
00219 STOP RUN.
999999 END COBOL

```

NEAC-2200 COBOL 3 COMPILATION RECORD

EXTERNAL IDENTIFICATION= RRG008 REV: 000 TIME: STD. HRS. DAY: YR:
OBJECT PROGRAM VISIBILITY: VISIBLE TO ALL.
COMPIER VERSION: 411.4 VISIBILITY: A SOURCE PROG: AND LIBR. TAPE NAME: UNUSED MSPLT:
THERE ARE 3 WARNING DIAGNOSTICS.
OBJECT TIME MEMORY REQUIREMENT IS 020612 CHARACTERS.

DIAGS SEQ NO LIB NO C COBOL SOURCE LANGUAGE STATEMENT OBJ LOC

```

00010 000 IDENTIFICATION DIVISION.
00011 000 PROGRAM-ID.   RPGCOBOL CONVERSION BY KK.
00012 000 REMARKS: TRANSLATION OF R.P.G. TO COBOL ENVIRONMENT DIVISION.
00013 000 ENVIRONMENT DIVISION.
00014 000 CONFIGURATION SECTION.
00015 000 SOURCE-COMPUTER.  NEAC-2200.
00016 000 OBJECT-COMPUTER. NEAC-2200 WITH SUPERVISOR CONTROL
00017 000 MEMORY SIZE 24576 CHARACTERS.
00018 000 SPECIAL-NAMES.  PAGE IS TOP-PAGE
00019 000 CHANNEL 1 OF PRINTER B IS CHAN01
00020 000 CHANNEL 2 OF PRINTER B IS CHAN02
00021 000 CHANNEL 3 OF PRINTER B IS CHAN03
00022 000 CHANNEL 4 OF PRINTER B IS CHAN04
00023 000 CHANNEL 5 OF PRINTER B IS CHAN05
00024 000 CHANNEL 6 OF PRINTER B IS CHAN06
00025 000 CHANNEL 7 OF PRINTER B IS CHAN07
00026 000 CHANNEL 8 OF PRINTER B IS CHAN08
00027 000 EVF-SIGNAL OF PRINTER B IS CHAN-2
00028 000 ON STATUS IS OV.
00029 000
00030 000 INPUT-OUTPUT SECTION.
00031 000 FILE-CONTROL.
00032 000 SELECT FFCARDIN ASSIGN TO FARD-READER F.
00033 000

```

```

1-OBSERVE: THIS FILE-NAME IS REPRESENTED IN OBJECT TIME PRINTOUTS AS "FILE 1".    1-3 000101
00034 000 SELECT FFEREPORT ASSIGN TO PRINTER B.
1-OBSERVE: THIS FILE-NAME IS REPRESENTED IN OBJECT TIME PRINTOUTS AS "FILE 2".    1-3 000102

```

```

00035 000 DATA DIVISION.
00036 000 FILE SECTION.
00037 000 FD FFCARDIN
00038 000 RECORD CONTAINS 80 CHARACTERS
00039 000 LABEL RECORD IS OMITTED
00040 000 DATA RECORD IS RRCARDIN.    005370
00041 000 01 RRCARDIN.    005251
00042 000 02 YYCARDIN PICTURE X OCCURS 80 TIMES.
00043 000 FD FFEREPORT
00044 000 RECORD CONTAINS 132 CHARACTERS
00045 000 LABEL RECORD IS OMITTED
00046 000 DATA RECORD IS RRREREPORT.    006003
00047 000 01 RRREREPORT.    005600
00048 000 02 YYEREPORT PICTURE X OCCURS 132 TIMES.

```

```

WORKING-STORAGE SECTION.
00049 000 77 01 PICTURE 9.    004117
00050 000 77 02 PICTURE 9.    004120
00051 000 77 03 PICTURE 9.    004121
00052 000 77 04 PICTURE 9.    004124
00053 000 77 05 PICTURE 999.    004127
00054 000 77 06 PICTURE 999 VALUE 101.    004132
00055 000 77 07 PICTURE 999 VALUE 102.    004135
00056 000 77 08 PICTURE 999 VALUE 103.    004140
00057 000 77 09 PICTURE 999 VALUE 104.    004143
00058 000 77 10 PICTURE 999 VALUE 105.    004146

```

DIAGS

SEQ NO

LINE NO C

COBOL SOURCE LANGUAGE STATEMENT

OBJ LOC

00049	000	77	07 PICTURE 999 VALUE 107.	004151
00050	000	77	08 PICTURE 999 VALUE 108.	004154
00051	000	77	09 PICTURE 999 VALUE 109.	004157
00052	000	77	10 PICTURE 999 VALUE 110.	004162
00053	000	77	11 PICTURE 999 VALUE 111.	004165
00054	000	77	12 PICTURE 999 VALUE 112.	004170
00055	000	77	13 PICTURE 999 VALUE 113.	004173
00056	000	77	14 PICTURE 999 VALUE 114.	004176
00057	000	77	15 PICTURE 999 VALUE 115.	004201
00058	000	77	16 PICTURE 999 VALUE 116.	004204
00059	000	77	17 PICTURE 999 VALUE 117.	004207
00060	000	77	18 PICTURE 999 VALUE 118.	004212
00061	000	77	19 PICTURE 999 VALUE 119.	004215
00062	000	77	20 PICTURE 999 VALUE 120.	004220
00063	000	77	21 PICTURE 999 VALUE 100.	004223
00064	000	77	CIDED PICTURE S9(0003)V9(2).	004230
00065	000	77	CISALTOT PICTURE S9(0006)V9(2).	004240
00066	000	77	CIDFOTOT PICTURE S9(0004)V9(2).	004246
00067	000	01	INDICATOR.	004436
00068	000	02	IND PICTURE 9 OCCURS 120 TIMES.	004247
00069	000	01	HCARDIN.	004502
00070	000	02	HCDEPT PICTURE X(0003).	004441
00071	000	02	HCEMPNO PICTURE X(0006).	004447
00072	000	02	HCNAME PICTURE X(0021).	004474
00073	000	02	HC SALARY PICTURE S9(0004)V9(2).	004502
00074	000	01	HIREPORT.	004622
00075	000	02	FILLER PICTURE X(0006) VALUE SPACES.	004510
00076	000	02	FILLER PICTURE X(0009) VALUE "DEPT. NO.".	004521
00077	000	02	FILLER PICTURE X(0003) VALUE SPACES.	004524
00078	000	02	FILLER PICTURE X(0007) VALUE "EMP. NO.".	004533
00079	000	02	FILLER PICTURE X(0018) VALUE SPACES.	004555
00080	000	02	FILLER PICTURE X(0004) VALUE "NAME".	004561
00081	000	02	FILLER PICTURE X(0012) VALUE SPACES.	004575
00082	000	02	FILLER PICTURE X(0006) VALUE "SALARY".	004603
00083	000	02	FILLER PICTURE X(0005) VALUE SPACES.	004610
00084	000	02	FILLER PICTURE X(0010) VALUE "DEDUCTIONS".	004622
00085	000	01	DIREPORT.	004742
00086	000	02	FILLER PICTURE X(0012) VALUE SPACES.	004636
00087	000	02	DIDPT PICTURE X(0003).	004641
00088	000	02	FILLER PICTURE X(0004) VALUE SPACES.	004645
00089	000	02	DTEMPNO PICTURE X(0006).	004653
00090	000	02	FILLER PICTURE X(0001) VALUE SPACES.	004654
00091	000	02	DNAME PICTURE X(0021).	004701
00092	000	02	FILLER PICTURE X(0010) VALUE SPACES.	004713
00093	000	02	DISALARY PICTURE Z,ZZZ.99.	004723
00094	000	02	FILLER PICTURE X(0009) VALUE SPACES.	004734
00095	000	02	DIDED PICTURE ZZZ.99.	004742
00096	000	01	TIREPORT.	005062
00097	000	02	FILLER PICTURE X(0055) VALUE SPACES.	005031
00098	000	02	TISALTOT PICTURE ZZZ,ZZZ.99.	005043
00099	000	02	FILLER PICTURE X(0007) VALUE SPACES.	005052
00100	000	02	TIDFOTOT PICTURE Z,ZZZ.99.	005062
00101	000	01	XICARDIN.	005126
00102	000			005065

DIAGS	SEQ NO	LIB NO	C	COBOL SOURCE LANGUAGE STATEMENT	OBJ LOC
	001130	000		02 XIEMPNO PICTURE X(0006).	005073
	001140	000		02 XI NAME PICTURE X(0021).	005120
	001150	000		02 XI SALARY PICTURE 99(0004)V9(2).	005126
	001160	000		PROCEDURE DIVISION.	
	001169	0515		7BEGIN/PROG SECTION 0.	
	001170	0000		START.	
	001180	0000		PERFORM SETOF-ROUTINE VARYING	
	001190	0000		I FROM 1 BY 1 UNTIL I GREATER 120.	
	001100	0000		MOVE 1 TO IND (I).	
	001110	0000		PERFORM OPEN-ROUTINE.	
	001120	0000		PERFORM READ-ROUTINE THRU READ-EXIT.	
	001130	0000		RPG-CYCLE.	
	001140	0000		PERFORM HEAD-ROUTINE THRU HEAD-EXIT.	
	001150	0000		PERFORM HALT-ROUTINE THRU HALT-EXIT.	
	001160	0000		PERFORM READ-ROUTINE THRU READ-EXIT.	
	001170	0000		IF IND (LR) EQUAL TO 1	
	001180	0000		MOVE 1 TO IND (HO) GO TO FOR-CALC.	
	001190	0000		PERFORM BREAK-ROUTINE THRU BRFAK-EXIT.	
	001200	0000		FOR-CALC.	
	001210	0000		PERFORM CALC-ROUTINE THRU CALC-EXIT.	
	001220	0000		PERFORM DETAIL-ROUTINE THRU DETAIL-EXIT.	
	001230	0000		PERFORM TOTAL-ROUTINE THRU TOTAL-EXIT.	
	001240	0000		PERFORM SETOF-ROUTINE VARYING	
	001250	0000		I FROM 1 BY 1 UNTIL I GREATER 110.	
	001260	0000		PERFORM MOVE-RECORD.	
	001270	0000		GO TO RPG-CYCLE.	
	001280	0000		SETOF-ROUTINE.	
	001290	0000		MOVE ZERO TO IND (I).	
	001300	0000		OPEN-ROUTINE.	
	001310	0000		OPEN INPUT FFCARDIN.	
	001320	0000		MOVE SPACE TO RRCARDIN.	
	001330	0000		OPEN OUTPUT FREPORT.	
	001340	0000		MOVE SPACE TO RRREPORT.	
	001350	0000		MOVE 1 TO HH.	
	001360	0000		MOVE 1 TO DD.	
	001370	0000		MOVE 1 TO TT.	
	001380	0000		HEAD-ROUTINE.	
	001390	0000		IF HH EQUALS ZERO GO TO HEAD-EXIT.	
	001400	0000		MOVE SPACE TO RRREPORT.	
	001410	0000		IF DV	
	001420	0000		OR IND (IP) EQUAL TO 1	
	001430	0000		WRITE RRREPORT BEFORE ADVANCING CHANDI	
	001440	0000		MOVE HIREPORT TO RRREPORT	
	001450	0000		WRITE RRREPORT BEFORE ADVANCING 2 LINES	
	001460	0000		MOVE SPACE TO RRREPORT.	
	001470	0000		MOVE SPACE TO RRREPORT.	
	001480	0000		HEAD-EXIT.	
	001490	0000		EXIT.	
	001500	0000		DETAIL-ROUTINE.	
	001510	0000		IF DD EQUALS ZERO GO TO DETAIL-EXIT.	
	001520	0000		MOVE IIDEPT TO DIDEPT.	
	001530	0000		MOVE IIEMPNO TO DIEMPNO.	
	001540	0000		MOVE IINAME TO DINAME.	
	001550	0000		MOVE IISALARY TO DISALARY.	

DIAGS SEQ NO LTR NO C COBOL SOURCE LANGUAGE STATEMENT OBJ LOC

```

011560 000 MOVE CISED TO DISED:
011570 000 IF IND (01) EQUAL TO 1
011580 000 MOVE DIREPORT TO RRREPORT
011590 000 WRITE RRREPORT BEFORE ADVANCING 1 LINES
011600 000 MOVE SPACE TO RRREPORT:
011610 000 MOVE SPACE TO RRREPORT:
011620 000
011630 000
011640 000
011650 000
011660 000
011670 000
011680 000
011690 000
011700 000
011710 000
011720 000
011730 000
011740 000
011750 000
011760 000
011770 000
011780 000

```

1 WARNING: HIGH ORDER DIGITS WILL BE TRUNCATED AT OBJECT TIME. 3 7 000033

```

011790 000
011800 000
011810 000
011820 000
011830 000
011840 000
011850 000
011860 000
011870 000
011880 000
011890 000
011900 000
011910 000
011920 000
011930 000

```

1 WARNING: FIELD CAPACITY EXCEEDED. 3 7 000038

011940 0000 FLSE MOVE RRCARDIN TO XICARDIN.

COBOL D 11.4 EXTERNAL IDENTIFICATION= R3GCOB REV: 000 TIME: STD. HRS. DAY: YR: PAGE: 005
 DIAGS SEQ NO LTR NO C COBOL SOURCE LANGUAGE STATEMENT OBJ LOC
 1 WARNING: FIELD CAPACITY EXCEEDED. 3 7 000038

```

001950    0000    READ-EXIT.
01960    0000       EXIT.
0197    0000    BREAK-ROUTINE.
0198    0000       GO TO BREAK-EXIT.
0199    0000    BREAK-EXIT.
0200    0000       EXIT.
0201    0000    MOVE-REPORT.
0202    0000       MOVE XICARDIN    TO IICARDIN.
0203    0000    HALT-ROUTINE.
0204    0000       IF IND (-40) EQUAL TO 1 GO TO CLOSE-ROUTINE.
0205    0000       IF IND (-41) EQUAL TO 1 GO TO CLOSE-ROUTINE.
0206    0000       IF IND (-42) EQUAL TO 1 GO TO CLOSE-ROUTINE.
0207    0000       IF IND (-43) EQUAL TO 1 GO TO CLOSE-ROUTINE.
0208    0000       IF IND (-44) EQUAL TO 1 GO TO CLOSE-ROUTINE.
0209    0000       IF IND (-45) EQUAL TO 1 GO TO CLOSE-ROUTINE.
0210    0000       IF IND (-46) EQUAL TO 1 GO TO CLOSE-ROUTINE.
0211    0000       IF IND (-47) EQUAL TO 1 GO TO CLOSE-ROUTINE.
0212    0000       IF IND (-48) EQUAL TO 1 GO TO CLOSE-ROUTINE.
0213    0000       IF IND (-49) EQUAL TO 1 GO TO CLOSE-ROUTINE.
0214    0000    HALT-EXIT.
0215    0000       EXIT.
0216    0000    CLOSE-ROUTINE.
0217    0000       CLOSE FFCARDIN.
0218    0000       CLOSE FFREPORT.
0219    0000       STOP RUN.
099998    1505    BEGIN/PROG/AT /BEGIN/PROG
099999    0001    END COBOL
  
```

ภาคผนวก ฉ.

โปรแกรมตัวแปลภาษาอาร์พีจีเป็นโคบอล
(RTOCK1)

```

INS          PROG  RTOCK1
             ORG   1500
             ADMODE3
CARD DA,     1X80,R
             DC    1
TAPE DA,     1X80,R
             DC    1
PRINT DA,    1X132,R
             DC    1
TABLEXDA,   150X70,R
NAME        1,10
IOPUT       11,11
FILENO      12,13
BEGIN       14,17
LAST        18,21
LENGTH      23,25
DECP        26,26
PICTUR      27,44
EDIT        45,70

```

```

DC          =1
PICX1 DCW   :X(    ) .      :
PICX2 DCW   :X(    ) VALUE  :
PIC91 DCW   :S9(    ) .      :
PIC92 DCW   :S9(    ) VALUE  :
PICV1 DCW   :S9(    ) V9( ) . :
PICV2 DCW   :S9(    ) V9( ) . :
PICV9 DCW   :SV9( ) .        :

```

```

*
* COBOL RESERVE WORDS   HAVING ITEM MARK AT RIGHTMOST CHARACTER
*
*

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```

E COBID DCW   : IDENTIFICATION DIVISION. :
E COBPR DCW   : PROGRAM-ID. :
E          DCW   : BY "RTOCK1". :
COBRE DCW     : REMARKS. TRANSLATION OF R.P.G. TO COBOL:
E COBEN DCW   : ENVIRONMENT DIVISION. :
E COBCO DCW   : CONFIGURATION SECTION. :
E COBSO DCW   : SOURCE-COMPUTER. NEAC-2200. :
E COBOB DCW   : OBJECT-COMPUTER. NEAC-2200 WITH SUPERVISOR CONTROL:
E COBME DCW   : MEMORY SIZE 24576 CHARACTERS. :
E COBSP DCW   : SPECIAL-NAMES. PAGE IS TOP-PAGE:
E COBES DCW   : EVF-SIGNAL OF PRINTER B IS CHAN-2:
E COBON DCW   : ON STATUS IS OV. :
E COBIN DCW   : INPUT-OUTPUT SECTION. :
E COBFI DCW   : FILE-CONTROL. :
E COBDA DCW   : DATA DIVISION. :
E COBWK DCW   : WORKING-STORAGE SECTION. :
E COBPD DCW   : PROCEDURE DIVISION. :
E COBFS DCW   : FILE SECTION. :

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E LTOLH DCW :77 L1 PICTURE 999 VALUE 101.:
E INDEX DCW :02 IND PICTURE 9 OCCURS 120 TIMES.:
CHANPT DCW :CHANNEL 1 OF PRINTER B IS CHAN01:
KOJNT DCW :000:
SWX DCW =1
CTAL01 CEQU =1C01
CTAL10 DCW =1C10
CTAL14 DCW =1C14
CTAL17 DCW =1C17
CTAL41 CEQU =1C41
CTAL42 CEQU =1C42
CTAL43 CEQU =1C43
CTAL44 CEQU =1C44
CTAL45 CEQU =1C45
CTAL46 CEQU =1C46
CTAL60 CEQU =1C60
CTAL65 DCW =1C65
CTAL71 CEQU =1C71
CTAL77 CEQU =1C77
KEEPX1 DCW =3
KEEPX2 DCW =3
KEEPX3 DCW =3
KEEPX4 DCW =3
KEEPX5 DCW =3
KEEPX6 DCW =3
TEMP1 DCW =1
TEMP2 DCW =2
TEMP3 DCW =3
TEMP4 DCW =4
TEMP5 DCW =5
TEMP6 DCW =6
TEMP7 DCW =7
TEMP8 DCW =8
TEMP9 DCW =9
TEMP10 DCW =10
TEMP11 DCW =11
STORE1 DCW =1
STORE2 DCW =2
STORE3 DCW =3
STORE4 DCW =4
STORE5 DCW =5
STORE6 DCW =6
STORE7 DCW =7
STORE8 DCW =8
STORE9 DCW =9
BLANK1 DCW : :
BLANK2 DCW : :
BLANK3 DCW : :
BLANK4 DCW : :
BLANK5 DCW : :
BLANK6 DCW : :
BLANK7 DCW : :
BLANK8 DCW : :
BLANK9 DCW : :
AND DCW :AND:

```

```

OR      DCW      :OR:
DOT     DCW      :.:
COMMA   DCW      :,:
UNIT    DCW      :A:
ADDR    DSA      TAPE+50
ATEN    DSA      TEN
ONE     DCW      :01:
TWO     DCW      :02:
TO      DCW      :TO:
SWA     DCW      =1
STYS    DCW      :77:
BEGIN   H
        DC      =6C010101010101
        B      REWINA
        B      REWINB
        B      REWINC
        BS     II=1
        BS     HH=1
        BS     DD=1
        BS     TT=1
START   B      READC
        C      CARD+3,;1EOF:
        BCT    DISPYC,CTAL42
        C      CARD+4,;RTCKK:
        BCT    START,CTAL45
        BCE    CALLZ,CARD+5,T
        B      WRITEC
        PDT    *,00,02,57
        MCW    :LIST OF R.P.G. SOURCE PROGRAM:,PRINT+55
        B      PIM
        MCW    :=====,PRINT+55
        B      PIM
        B      PIM
        B      PIM
NOTEND  B      READC
        B      PRINTC
        BCE    NOTEND,CARD+6,*
        BCE    AGAIN,CARD+5,F
        BCE    ITYPE,CARD+5,I
        BCE    CONTIN,CARD+5,C
        BCE    AGAIN,CARD+5,E
        BCE    AGAIN,CARD+5,L
        BCE    CONTIN,CARD+5,0
        C      CARD+1,;/*:
        BCT    AGAIN,42
        B      NOTEND
CONTIN  BS      20
WTAPE   BCE     CHANGE,CARD+X5,<
BA20    BA      =1B1,20
        C      =3B70,20
        BCT    WTAPE,41
        B      HDT
CHANGE  MCW     :":,CARD+X5
        B      BA20
ITYPE   BCE     AGAIN,CARD+15,15

```

	BA	=1B1,II
	MCW	:I:,CARD+14
	MCW	II,CARD+15
	B	AGAIN
HDT	BCE	HTYPE,CARD+14,H
	BCE	DTYPE,CARD+14,D
	BCE	TTYPE,CARD+14,T
	B	AGAIN
HTYPE	BA	=1B1,HH
	MCW	HH,CARD+15
	B	AGAIN
DTYPE	BA	=1B1,DD
	MCW	DD,CARD+15
	B	AGAIN
TTYPE	BA	=1B1,TT
	MCW	TT,CARD+15
AGAIN	B	WRITEC
	C	CARD+1,:/*:
	BCT	NOTEND,CTAL45
	B	WRITEC
	B	WRITEC
CALLT	B	REWINA
	B	REWINB
	B	REWINC
	B	RPGCHK
CALLZ	B	READTC
	C	CARD+4,;RTCKK:
	BCT	DISPYT,45
CALLZA	B	READTC
	BCE	CALLT,CARD, /
	BCE	CALLZ,CARD+14,15
	BCE	ZII,CARD+14,I
	BCE	ZHH,CARD+14,H
	BCE	ZDD,CARD+14,D
	BCE	ZTT,CARD+14,T
	B	CALLZ
ZII	MCW	CARD+15,II
	B	CALLZA
ZHH	MCW	CARD+15,HH
	B	CALLZA
ZDD	MCW	CARD+15,DD
	B	CALLZA
ZTT	MCW	CARD+15,TT
	B	CALLZA
ERROR	DCW	:***ERROR**:
NALLOW	DCW	:NOT ALLOWANCE :
SNAMETDA,		100X11,R
SNAME		1,8
SLL		9,10
SFT		11,11
RPGCHK	DC	=1
	BS	TEMP5
	B	READTC
	B	PIM
	B	PIM

CKSQ	BCE	CKFL,CARD+14,15
	B	RPGCOM
CKRN	BCE	CKSQ,CARD+6,15
	MCW	4,8
CKEE	C	CARD+13,SNAME+X2
	BCT	RPGCOM,42
	C	=3B0,8
	BCT	CKFL,42
	BS	=1B11,8
	B	CKEE
CSURCE	BCE	OPCODE,CARD+27,A
	BCE	OPCODS,CARD+27,S
	BCE	OPCODM,CARD+27,M
	BCE	OPCODZ,CARD+27,Z
	BCE	OPCODT,CARD+27,T
	BCE	OPCODE,CARD+27,D
	BCE	OPCODE,CARD+27,C
	BCE	OPCODE,CARD+27,G
OPERE	MCW	ERRER,PRINT+20
	MCW	:OPERATION CODE :,PRINT+35
	MCW	NALLOW,PRINT+50
	B	PIMER
OPCODE	C	RPGCOM,CARD+50,15
	MCW	CARD+47,SNAME+X1-2
	B	ADD14
OPCODS	BCE	OPCODE,CARD+28,U
	BCE	RPGCOM CARD+28,E
	B	OPERE
OPCODM	BCE	OPCODE,CARD+28,U
	BCE	OPCODE,CARD+28,O
	B	OPERE
OPCODZ	BCE	ZAS,CARD+28,-
	B	OPERE
ZAS	BCE	OPCODE,CARD+29,A
	BCE	OPCODE,CARD+29,S
	B	OPERE
OPCODT	BCE	RPGCOM,CARD+28,A
	B	OPERE
OSURCE	BCE	CKRN,CARD+42,15
	BCE	CKNL,CARD+31,15
	MCW	4,8
CKCC	C	CARD+36,SNAME+X2-2
	BCT	RPGCOM,42
	C	=3B0,8
	BCT	CKFL,42
	BS	=1B11,8
	B	CKCC
CKNL	BCE	RPGCOM,CARD+44,"
	BCE	RPGCOM,CARD+44,<
	MCW	ERRER,PRINT+20
	MCW	:WRONG CONSTANT OR:,PRINT+40
	MCW	:WRONG EDIT WORD :,PRINT+60
	B	PIMER
PRECOM	EXT	=1C17,STORE5
	MCW	:ERROR*!,PRINT+8

```

MCW STORE5,PRINT+15
B PIM
B REWINC
B PIM
MCW :END OF R.P.G. PRE-COMPILATION:;PRINT+49
B PIM
B PIM
B PIM
C =580,STORE5
BCT STARTA,42
STARTA B ERRXR
B REWINC
SW 1,5
SW 9,13
SW 17,21
BS 4
B READTC
C CARD+4,;RTCKK:
BCT DISPYT,CTAL45
B CLEAR
MCW :*,;TAPE+17
MCW :ABAVPA010:;TAPE+8
B WRITEA
MCW :COBOL*INPUT:;TAPE+10
MCW :BU:;TAPE+16
B WRITEA
B CLEAR
MCW =386,4
COMPA BCE EQUALA,CARD+X1,*
BA =181,4
C 4,=3880
BCT NONAME,CTAL42
DISPYC B COMPA
MCW :CAN NOT FIND R.P.G. CONTROL CARD :;PRINT+80
B PIM
MCW :*** PUT A CARD CONTAINS RTCKK AT COL.1-5:;PRINT+87
B PIM
MCW :*** LEADING R.P.G. PROGRAM :;PRINT+80
B PIM
MCW :*****PJSHI RUN BUTTON :;PRINT+80
B PIM
B PIM
B PIM
H
DC =6C070707070707
B START
DISPYT MCW :CAN NOT FIND R.P.G. TAPE ON TAPE UNIT 3 :;PRINT+87
B PIM
MCW :AFTER MOUNTING A CORRECT TAPE ***** :;PRINT+87
B PIM
MCW :*****PJSHI RUN BUTTON :;PRINT+80
B PIM
B PIM
B PIM
H

```



```

DC      =6C07070707070707
B      CALLZ
EQUALA SW  CARD+X1+1
      MCW  CARD+X1+6,PNAME=6
X11    MCW  :OPTION:,TAPE+11
      MCW  PNAME,TAPE+28
      MCW  :LN,SO:,TAPE+33
      B    WRITEA
      B    CLEAR
      EXM  COBID,TAPE+7,51
      B    WRITEA
      EXM  COBPR,TAPE+7,51
      C    PNAME,:NONAME:
      BCT  X22,42
      MCW  CARD+X1+30,TAPE+50
      CW   CARD+X1+1
COMPB  BCE  BLANKA,(ADDR-2),15
      BCE  OK,(ADDR-2),33
      MCW  DOT,(ADDR-2)
      BA   =1B1,ADDR
      B    OK
BLANKA BS   =1B1,ADDR
      B    COMPB
NONAME MCW  :NONAME:,PNAME
      B    X11
X22    MCW  PNAME,TAPE+24
      MCW  DOT,TAPE+25
OK     B    WRITEA
      EXM  COBRE,TAPE+7,51
      B    WRITEA
      EXM  COBEN,TAPE+7,51
      B    WRITEA
      EXM  COBCO,TAPE+7,51
      B    WRITEA
      EXM  COBSO,TAPE+7,51
      B    WRITEA
      EXM  COBOB,TAPE+7,51
      B    WRITEA
      EXM  COBME,TAPE+7,51
      B    WRITEA
      EXM  COBSP,TAPE+7,51
      B    WRITEA
      MCW  =1B1,TEMP1
      MCW  =2C0001,TEMP2
NEXTCN MCW  CHANPT,TAPE+54
      MCW  TEMP1,TAPE+31
      MCW  TEMP2,TAPE+54
      B    WRITEA
      BA   =1B1,TEMP1
      BA   =1B1,TEMP2
      BCE  NEXT,TEMP1,11
      B    NEXTCN
NEXT   EXM  COBES,TAPE+7,51
      B    WRITEA
      EXM  COBON,TAPE+7,51
      B    WRITEA

```

```

EXM COBIN,TAPE+7,51
B WRITEA
EXM COBFI,TAPE+7,51
B WRITEA
BS 4
BS 8
BS 12
BS 16
BS 20
BS TEMP2
MCW CTAL65,WTC-4
MCW CTAL10,PRC-8
MCW CTAL14,PRC-15
MCW BLANK1,TEMP1
B KKK111+7
KKK111 MCW CARD+5,TEMP1
B READTC
BCE KKK111,CARD+6,*
C CARD+1,:/*:
BCT ENDKEP,CTAL42
BCE KEEPFCARD+5,F
BCE KEEPICARD+5,I
BCE KEEPCCARD+5,C
BCE KEEPCARD+5,O
B KKK111
KEEPF MCW CARD+13,NAME+X1
MCW :FF:,NAME+X1-3
MCW CARD+5,IOPUT+X1
A +1,TEMP2
EXT CTAL17,TEMP2
MCW TEMP2,FILENO+X1
B CLEAR
BCE MOVER,CARD+39,R
BCE MOVER,CARD+39,C
BCE MOVEP,CARD+39,P
BCE MOVET,CARD+39,T
BCE MOVET,CARD+39,D
B ERROR
ERROR EXM CARD,PRINT+10,71
B PIM
ERRXR MCW :*** CORRECT R.P.G. PROGRAM BEFORE:,PRINT+45
MCW :CONVERT TO COBOL ***:,PRINT+65
B PIM
B 183
MOVER MCW :CARD-READER E.:',TAPE+55
B MOVEAS
MOVEP BCE MOVEJ,CARD+40,J
MCW :PRINTER B.:',TAPE+52
B MOVEAS
MOVEU MCW :CARD-PUNCH A.:',TAPE+55
B MOVEAS
MOVET BCE IN,IOPUT+X1,I
MCW :H:',TAPE+53
COMPC BCE AB,UNIT,A
BCE AB,UNIT,B

```

	BCE	AB,UNIT,C
	BCE	AB,UNIT,D
	MCW	:E:,CARD+54
	B	ADD
IN	MCW	:D:,TAPE+53
	B	COMPC
AB	MCW	UNIT,CARD+54
	MCW	DOT,CARD+55
ADD	BA	=IBI,UNIT
	MCW	:TAPE-UNIT :,TAPE+52
MOVEAS	MCW	:ASSIGN TO :,TAPE+41
	MCW	NAME+X1,TAPE+30
	MCW	:SELECT!,TAPE+16
	B	WRITEA
	B	RMOVEF
ADDTY	BA	=2B70,4
	B	KKK111
KEEPFD	MCW	:IEOF!,TAPE+3
	B	WRITEB
	MCW	:IEOF!,TAPE+3
	B	WRITEB
	B	REWIND
	EXM	COBDA,TAPE+7,51
	B	WRITEA
	EXM	COBFS,TAPE+7,51
LOOPW	B	WRITEA
	B	READTB
	C	TAPE+3, :IEOF:
	BCT	RETAPB,CTAL42
	B	LOOPW
RETAPB	B	REWIND
	B	CLEAR
	EXM	COBWK,TAPE+7,51
	B	WRITEA
	BCE	KEEPCD,CARD+5,C
	C	CARD+11,BLANK5
	BCT	COMP,45
COMP	MCW	CARD+13,NAME+X1
	BS	NAME+X1-8
	MCW	CARD+5,IOPUT+X1
	MCW	4,8
SUBX2	BS	=3B70,8
	MCW	CARD+13,STORE3
	C	NAME+X2,STORE3
	BCT	FINDN,42
	C	8,=3B0
	BCT	ASSUME,42
	B	SUBX2
FINDN	MCW	FILENO+X2,FILENO+X1
	MCW	CARD+15,NAME+X1-8
	MCW	NAME+X1,TEMP10
	MCW	FILENO+X1,STORE2
	B	ADDTY
ASSUME	EXM	CARD,PRINT,71

```

MCW      :FILE-NAME DOES NOT MATCH:,PRINT+110
MCW      :FILE-NAME ASSUME:,PRINT+130
B        PIM
B        PIM
H
B        183
NOP
KEEPPI  BCE  KEEPFD,TEMP1,FI
KEEPPO  C    CARD+11,BLANK5
        BCT  COMPN,45
        C    CARD+14,OR
        BCT  KKK111,42
        C    CARD+15,BLANK2
        BCT  FIELD,42
REC      MCW  4,8
        MCW  CARD+5,IOPUT+X1
        MCW  CARD+15,TEMP10-8
        MCW  TEMP10,NAME+X1
        MCW  CARD+15,NAME+X1-8
        MCW  STORE2,FILENO+X1
FIELD    B    ADDTY
        BCE  IFIELD,CARD+5,I
        C    CARD+42,BLANK3
        BCT  KKK111,42
        MCW  CARD+5,IOPUT+X1
        MCW  CARD+42,LAST+X1
        MCW  CARD+69,EDIT+X1
        C    CARD+36,BLANK5
EXM      CARD,PRINT+10,71
MCW      :ERROR CARD:,PRINT+100
B        PIM
MCW      :F:,CARD+5
B        KKK111
BCT      STOR,45
MCW      :FILLER:,NAME+X1-4
B        ADDTY
STOR     MCW  CARD+36,STORE5
        MCW  STORE6,NAME+X1-2
MCW48   MCW  TEMP10-8,NAME+X1-8
B        ADDTY
IFIELD  C    CARD+46,BLANK4
        BCT  KKK111,42
        MCW  CARD+46,BEGIN+X1
        MCW  CARD+50,LAST+X1
        MCW  CARD+51,DECP+X1
        MCW  CARD+57,NAME+X1-2
        MCW  CARD+5,IOPUT+X1
B        MCW48
KEEPPC  BCE  KEEPFD,TEMP1,FI
KEEPCD  C    CARD+50,BLANK3
        BCT  KKK111,42
        MCW  CARD+47,STORE5
        MCW  STORE6,NAME+X1-2
        MCW  :C1:,NAME+X1-3
        MCW  CARD+5,IOPUT+X1

```

	ZA	CARD+50, LENGT H+X1
	MCW	CARD+51, DECP+X1
	B	ADDTY
ENDKEP	B	REWIND
	B	CLEAR
	BS	8
LOOPF	MCW	IOPUT+X2, TEMP1
	C	FILENO+X2, BLANK2
	BCT	ADD70, 45
	BCE	IFORM, TEMP1, I
	BCE	CFORM, TEMP1, C
	BCE	QFORM, TEMP1, 0
BA70	BCE	CHLL, TEMP1, I
ADD70	BA	=3B70, 8
	C	4, 8
	BCT	LOOPF, 41
	H	
	B	TFINS
CHLL	BS	16
ASFT	BCE	ADD70, SFT+X4, 15
	BCE	SNEQ, SFT+X4, I
ADD11	BA	=1B11, 16
	B	ASFT
SNEQ	C	NAME+X2, SNAME+X4
	BCT	NEQSN, 42
	B	ADD11
NEQSN	BCE	MCWLL, SLL+X4-1, L
	B	ADD70
MCWLL	MCW	:77:, TAPE+8
	MCW	SNAME+X4, TAPE+20
	MCW	SLL+X4, TAPE+12
	MCW	PIC, TAPE+30
	MCW	PICTUR+X2, TAPE+50
	B	RSCAN
	B	WRITEA
	B	ADD70
IFORM	ZA	LAST+X2, LENGT H+X2
	S	BEGIN+X2, LENGTH+X2
	A	+1, LENGTH+X2
	BCE	AFORM, DECP+X2, 15
CFORM	BCE	AFORM, DECP+X2, 00
	ZA	LENGTH+X2, TEMP4
	S	DECP+X2, TEMP4
	EXT	CTAL17, TEMP4
	C	=4B0, TEMP4
	BCT	PV9, 42
	MCW	PICV1, PICTUR+X2
	MCW	DECP+X2, PICTUR+X2-6
	MCW	TEMP4, PICTUR+X2-11
	B	BA70
AFORM	ZA	LENGTH+X2, TEMP4
	EXT	CTAL17, TEMP4
	BCE	XFORM, DECP+X2, 15
	MCW	PIC91, PICTUR+X2
MCWPIC	MCW	TEMP4, PICTUR+X2-12

```

XFORM  B      BA70
        MCW    PICX1,PICTUR+X2
        B      MCWPIC
OFORM  BCE    FILLO,NAME+X2-9,F
        BS     12
        MCW    NAME+X2-2,STORE6
OCOM   C      NAME+X3-2,STORE6
        BCT    NAMEEQ,42
        BA     =3B70,12
        C      8,12
        BCT    OCOM,41
        MCW    STORE6,PRINT+20
        MCW    :THIS ITEM MAY MISS SPEELING :,PRINT+40
        B      PIM
        NOP
NAMEEQ ZA    LAST+X2,TEMP4
        S      LENGTH+X3,TEMP4
        A      +1,TEMP4
        MCW    TEMP4,BEGIN+X2
        MCW    LENGTH+X3,LENGTH+X2
        MCW    PICTUR+X3,PICTUR+X2
        BCE    SUPRES,DECP+X3,00
        BCE    BA70,DECP+X3,15
        BCE    LETERL,PICTUR+X2+1,"
SUPRES MCW    :Z:,PICTUR+X2-17
        MCW    :.:,PICTUR+X2-10
        B      BA70
LETERL B      CHECKD
        MCW    LENGTH+X2,TEMP4
        MCW    DOT,EDIT+X4
BA16   BS     =1B1,16
        BS     =1B1,KEEPX1
        C      =1B0,KEEPX1
        BCT    ENDP,43
        BCE    DOTA,EDIT+X4,.
        BCE    P9,EDIT+X4,15
        BCE    ENDP,EDIT+X4,"
        B      BA16
P9     MCW    :9:,EDIT+X4
        B      BA16
DOTA   BS     =1B1,16
        BCE    ENDP,EDIT+X4,"
        BS     =1B1,KEEPX1
        BCE    ENDP,KEEPX1,00
        BCE    PZ,EDIT+X4,00
        BCE    PB,EDIT+X4,15
        BCE    PD,EDIT+X4,¥
        B      DOTA
PZ     MCW    :Z:,EDIT+X4
        MCW    :Z:,SS=1
        B      DOTA
PB     MCW    SS,EDIT+X4
        B      DOTA
PD     MCW    :¥:,EDIT+X4
        B      DOTA

```

```

ENDP  MCW  BLANK1,EDIT+X4
      MCW  EDIT+X2=8,PICTUR+X2
      MCW  BLAN26=26,EDIT+X2
      B    BA70
FILLO B    CHECKD
      MCW  PICX2,PICTUR+X2
      ZA   LENGTH+X2,TEMP4
      EXT  =1C17,TEMP4
      MCW  TEMP4,PICTUR+X2=12
      B    BA70
PV9   MCW  PICV9,PICTUR+X2
      MCW  DECP+X2,PICTUR+X2=15
      B    BA70
CHECKD SCR  PTR+3,70
      BS   16
      BS   KEEPX1
      BA   =1B1,KEEPX1
      MCW  8,16
      BS   =1B24,16
      BS   TEMP4
COMT4 BCE  NUMPTR,EDIT+X4,<
      BCE  NUMPTR,EDIT+X4,"
      A    +1,TEMP4
      BA   =1B1,16
      BA   =1B1,KEEPX1
      BCE  ADD24,KEEPX1,24
      B    COMT4
ADD24 MCW  ":" ,EDIT+X2
      MCW  +24,TEMP4
NUMPTR ZA  TEMP4,LENGTH+X2
      ZA   LAST+X2,TEMP4
      S    LENGTH+X2,TEMP4
      A    +1,TEMP4
      MCW  TEMP4,BEGIN+X2
PTR    B    0

```

```

*****      ***
* READ CARD INTO CARD AREA      ***
*                                  ***

```

```

READC  SCR  RDC+3,70
      PDT  CARD,11,41
      PCB  *,11,41,10
RDC    B    0

```

```

*****      ***
* READ TAPE 3 INTO CARD AREA    ***
*                                  ***

```

```

READTC SCR  RTC+3,70
      PDT  CARD,11,40,63
      PCB  *,11,40,03
RTC    B    0

```

```

*****      ***
* READ TAPE 2 INTO TAPE AREA    ***
*                                  ***

```

```

READTB SCR  RTB+3,70
      PDT  TAPE,12,40,64
      PCB  *,12,40,04

```

```

RTB      B      0
*****
* READ TAPE 1 INTO CARD AREA ***
*                                     ***
  READTA SCR   RTA+3,70
        PDT   CARD,13,40,61
        PCB   *,13,40,01
RTA      B      0
*****
* WRITE TAPE 3 FROM CARD AREA. ***
*                                     ***
  WRITEC SCR   WTC+3,70
        PDT   CARD,11,00,23
        PCB   *,11,00,03
        NOP   CLEARC
WTC      B      0
*****
* WRITE TAPE 2 FROM TAPE AREA. ***
*                                     ***
  WRITEB SCR   WTB+3,70
        PDT   TAPE,12,00,24
        PCB   *,12,00,04
        B     CLEARC
WTB      B      0
*****
* WRITE TAPE 1 FROM TAPE AREA. ***
*                                     ***
  WRITEA SCR   WTA+3,70
        PDT   TAPE,13,00,21
        PCB   *,13,00,01
        B     CLEARC
WTA      B      0
*****
* REWIND TAPE 3 ***
*                                     ***
  REWINC SCR   RWC+3,70
        PCB   *,00,00,23
        PCB   *,00,00,03
RWC      B      0
*****
* REWIND TAPE 2 ***
*                                     ***
  REWINB SCR   RWB+3,70
        PCB   *,00,00,24
        PCB   *,00,00,04
RWB      B      0
*****
* REWIND TAPE 1 ***
*                                     ***
  REWINA SCR   RWA+3,70
        PCB   *,00,00,21
        PCB   *,00,00,01
RWA      B      0
*****
* PRINT FROM CARD AREA ***

```



```

*                                     ***
PRINTC SCR   PRC+3,70
      MCW   CARD+79,PRINT+90
      PDT   PRINT,12,02,01
      PCB   *,12,02,10
      MCW   : : ,PRINT
      EXM   PRINT,PRINT+1,71
      BA    =1B1,KOUNT
PRC    B      0

```

```

*****                                     ***
* PRINT FROM PRINT AREA                 ***
*                                     ***

```

```

PIM    SCR   PRT+3,70
      PDT   PRINT,12,02,01
      PCB   *,12,02,10
      MCW   : : ,PRINT
      EXM   PRINT,PRINT+1,71
PRT    B      0

```

```

*****                                     ***
* CLEAR CARD AREA IN BLANK             ***
*                                     ***

```

```

CLEARC SCR   CRC+3,70
      MCW   : : ,CARD
      EXM   CARD,CARD+1,71
CRC    B      0

```

```

*****                                     ***
* CLEAR TAPE AREA IN BLANK             ***
*                                     ***

```

```

CLEART SCR   CRT+3,70
      MCW   : : ,TAPE
      EXM   TAPE,TAPE+1,71
CRT    B      0

```

```

*
LEFT72 DSA   TAPE+71
RSCAN  SCR   RSC+3,70
      MCW   LEFT72,KEEPX1
BSCAN  BCE   FSCAN,(KEEPX1-2),15
      BCE   RSC,(KEEPX1-2),33
      BA    =1B1,KEEPX1
      MCW   DOT,(KEEPX1-2)
RSC    B      0
FSCAN  BS    =1B1,KEEPX1
      B     BSCAN

```

```

*
* ROUTINE TO CREATE FD LEVEL USING FFNAME
*                                01 LEVEL USING RRNAME
*                                02 LEVEL USING XXNAME PICTURE X OCCURS NNNN
*

```

```

OCCUR  DCW   :OCCURS :
TIME   DCW   :TIMES :
PIC    DCW   :PICTURE :
BLOCK  DCW   :BLOCK CONTAINS :
RECORD DCW   :RECORD CONTAINS :
CHAR   DCW   :CHARACTERS :
LABEL  DCW   :LABEL RECORD IS OMITTED :

```

DATA	DCW	:DATA RECORD IS :	
REMOVEF	SCR	AAA+3,70	
	B	CLEAR	
	MCW	:FD:,TAPE+8	
	MCW	NAME+X1,TAPE+20	
	B	WRITEB	
	BCE	KARD,CARD+39,RI	CARDREADER
	BCE	KARD,CARD+40,JI	CARDPUNCH
	BCE	PINT,CARD+39,PI	PRINTER
	C	CARD+22,BLANK4	TAPE
	BCT	NOBOCK,CTAL42	
	MCW	BLOCK,TAPE+30	
	MCW	CARD+22,TEMP4	
	MCW	TEMP4,TAPE+35	
	MCW	CHAR,TAPE+50	
	B	WRITEB	
NOBOCK	C	CARD+27,BLANK4	
	BCT	NOREC,CTAL42	
	MCW	CARD+26,TEMP4	
MOVERC	MCW	RECORD,TAPE+30	
	MCW	TEMP4,TAPE+35	
	MCW	CHAR,TAPE+50	
	B	WRITEB	
	MCW	LABEL,TAPE+38	
	B	WRITEB	
	MCW	DATA,TAPE+29	
	MCW	NAME+X1,TEMP10	
	MCW	:RR:,TEMP10-8	
	MCW	TEMP10,TAPE+40	
	B	RSCAN	
	B	WRITEB	
	MCW	ONE,TAPE+8	
	MCW	TEMP10,TAPE+20	
	B	RSCAN	
	B	WRITEB	
	MCW	TWO,TAPE+12	
	BCE	ININ,IOPUT+X1,I	
	MCW	:YY:,TEMP10-8	
	B	PICMCW	
ININ	MCW	:XX:,TEMP10-8	
PICMCW	MCW	TEMP10,TAPE+24	
	MCW	PIC,TAPE+35	
	MCW	:X:,TAPE+38	
	MCW	OCCUR,TAPE+46	
	MCW	TEMP4,TAPE+51	
	MCW	TIME,TAPE+58	
	B	RSCAN	
	B	WRITEB	
	B	AAA	
KARD	MCW	: 80:,TEMP4	
	B	MOVERC	
PINT	MCW	: 132:,TEMP4	
	B	MOVERC	
NOREC	B	PINT	
AAA	B	0	

TFINS BS 8
 BS 12
 BS 16
 BS 20
 BS STORE1
 MCW :77 HH PICTURE 9.: ,TAPE+23
 B WRITEA
 MCW :77 DD PICTURE 9.: ,TAPE+23
 B WRITEA
 MCW :77 TT PICTURE 9.: ,TAPE+23
 B WRITEA
 MCW :77 I PICTURE 999.: ,TAPE+25
 B WRITEA

EXMLR EXM LTOLH,TAPE+7,51
 BA =1B1,STORE1
 MCW STORE1,TAPE+12
 MCW STORE1,TAPE+34
 BCE LR,STORE1,12
 B WRITEA
 B EXMLR

LR MCW :R: ,TAPE+12
 MCW :10: ,TAPE+34
 B WRITEA
 MCW :H1: ,LTOLH+5
 MCW :10: ,LTOLH+27
 BS STORE1

BALH BA =1B1,STORE1
 EXM LTOLH,TAPE+7,51
 MCW STORE1,TAPE+12
 MCW STORE1,TAPE+34
 BCE FIN77,STORE1,12
 B WRITEA
 B BALH

FIN77 MCW :0: ,TAPE+12
 MCW :20: ,TAPE+34
 B WRITEA
 EXM LTOLH,TAPE+7,51
 MCW :1P: ,TAPE+12
 MCW :00: ,TAPE+34
 B WRITEA
 MCW ONE,TAPE+8
 MCW :INDICATOR.: ,TAPE+20
 B WRITEB
 EXM INDEX,TAPE+11,51
 B WRITEB

* ACCESS NAME TABLE CREATE RECORD IN WORKING STOR-

ACCTB BS 8
 BCE CNAME,IOPUT+X2,C
 BCE NOUSE,IOPUT+X2,F
 BCE ELEMET,FILENO+X2,15
 MCW ONE,TAPE+8
 MCW NAME+X2,TAPE+20
 B RSCAN
 B WRITEB
 MCW =4B0,KEEPX4

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ELEMET	B	NOUSE
	ZA	BEGIN+X2,TEMP4
	S	KEEPX4,TEMP4
	S	=1B1,TEMP4
	EXT	=1C17,TEMP4
	C	=4B0,TEMP4
	BCT	EQFIL,42
	MCW	TWO,TAPE+12
	MCW	:FILLER:,TAPE+20
	MCW	:PICTURE:,TAPE+32
	MCW	:X():,TAPE+40
	MCW	TEMP4,TAPE+39
	BCE	NSPACE,IOPUT+X2,I
	MCW	:VALUE SPACES.!,TAPE+54
NSPACE	B	RSCAN
	B	WRITEB
EQFIL	MCW	LAST+X2,KEEPX4
	MCW	TWO,TAPE+12
	MCW	NAME+X2,TAPE+24
	MCW	:PICTURE:,TAPE+32
	MCW	PICTUR+X2,TAPE+51
	BCE	HEDITA,NAME+X2-9,F
ERSCAN	B	RSCAN
	B	WRITEB
	B	NOUSE
HEDITA	MCW	EDIT+X2,TAPE+73
	B	ERSCAN
CNAME	MCW	:77!,TAPE+8
	MCW	NAME+X2,TAPE+20
	MCW	PIC,TAPE+30
	MCW	PICTUR+X2,TAPE+50
	B	WRITEA
NOUSE	BA	=3B70,8
	C	4,8
	BCT	ACCTB,41
	MCW	:1EOF:,TAPE+3
	B	WRITEB
	MCW	:1EOF:,TAPE+3
	B	WRITEB
	B	REWIND
EDATA	B	READTB
	C	TAPE+3,;1EOF:
	BCT	BEGINI,42
	B	WRITEA
	B	EDATA
BEGINI	B	REWIND
	B	READTB
	C	TAPE+12,;I1:
	BCT	ITOX,42
	C	TAPE+3,;1EOF:
	BCT	BEGINP,42
	B	BEGINI+4
ITOX	MCW	:X:,TAPE+11
	B	WRITEA
	B	READTB

```

BCE BEGINP,TAPE+11,H
BCE BEGINP,TAPE+11,D
BCE BEGINP,TAPE+11,C
BCE BEGINP,TAPE+11,T
BCE ITOX,TAPE+11,I
MCW :X:,TAPE+15
B ITOX+7
* BEGIN PROCEDURE DIVISION
  TABIF DA, 9X31,R
  TIND 1,27
  TAND 31,31
  DC =1
  LMSPAC DCW :MOVE SPACE TO:
  LBADVC DCW :BEFORE ADVANCING :
  LLINE DCW :LINES :
  LCHAN DCW :CHAN :
  WRITRR DCW :WRITE BEFORE ADVANCING CHAN01:
  LWRITE DCW :WRITE:
  LWZERO DCW :MOVE ZERO TO:
  MOVE DCW :MOVE:
  EXIT DCW :EXIT.:
  LMONE DCW :MOVE 1 TO:
  IFGT DCW :IF GREATER THAN :
  IFLT DCW :IF LESS THAN :
  IFEQ DCW :IF EQUAL TO :
  LMIND DCW :MOVE 1 TO INDI ( ) :
  LMZERO DCW :MOVE ZERO TO :
  LMZIND DCW :MOVE ZERO TO IND ( ) :
  ANDIN DCW :AND IND ( ) EQUAL TO 1:
  IFIN DCW :IF IND ( ) EQUAL TO 1:
E PROCR DCW :PROCEDURE DIVISION.:
E PERF DCW :PERFORM SETOF-ROUTINE VARYING :
E DCW : I FROM 1 BY 1 UNTIL I GREATER 120. :
E DCW :MOVE 1 TO INDI (1P). :
E DCW :PERFORM OPEN-ROUTINE. :
E DCW :PERFORM READ-ROUTINE THRU READ-EXIT. :
E DCW :PERFORM HEAD-ROUTINE THRU HEAD-EXIT. :
E DCW :PERFORM HALT-ROUTINE THRU HALT-EXIT. :
E DCW :PERFORM READ-ROUTINE THRU READ-EXIT. :
E DCW :IF IND (LR) EQUAL TO 1 :
E DCW :MOVE 1 TO INDI (H0) GO TO FOR-CALC. :
E DCW :PERFORM BREAK-ROUTINE THRU BREAK-EXIT. :
E DCW :PERFORM CALC-ROUTINE THRU CALC-EXIT. :
E DCW :PERFORM DETAIL-ROUTINE THRU DETAIL-EXIT.:
E DCW :PERFORM TOTAL-ROUTINE THRU TOTAL-EXIT. :
E DCW :PERFORM SETOF-ROUTINE VARYING :
E DCW : I FROM 1 BY 1 UNTIL I GREATER 110. :
E DCW :PERFORM MOVE-RECORD. :
E DCW :GO TO RPG-CYCLE. :
*
BEGINP B REWINB
B REWINC
EXM PROCR,TAPE+7,51
B WRITEA
MCW :START.!,TAPE+12

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      B      WRITEA
      BS     12
STARTP B      PERSCR
      C      =1B5,TEMP1
      BCT    STARTP,41
      MCW    :RPG-CYCLE.!,TAPE+16
      B      WRITEA
STARTQ B      PERSCR
      C      =1B10,TEMP1
      BCT    STARTQ,43
      MCW    :FOR-CALC.!,TAPE+15
      B      WRITEA
STARTR B      PERSCR
      C      =1B18,TEMP1
      BCT    STARTR,41
SETOFR MCW    :SETOF-ROUTINE.!,TAPE+20
      B      WRITEA
      MCW    :MOVE ZERO TO IND (I).!,TAPE+31
      B      WRITEA
OPENRT MCW    :OPEN-ROUTINE.!,TAPE+19
      B      WRITEA
      BS     8
      BS     12
      B      READTC
RDPENI B      READTC
      BCE    FFNAME,CARD+5,F
      MCW    :MOVE 1 TO HH.!,TAPE+23
      MCW    HH,TAPE+16
      B      WRITEA
      MCW    :MOVE 1 TO DD.!,TAPE+23
      MCW    DD,TAPE+16
      B      WRITEA
      MCW    :MOVE 1 TO TT.!,TAPE+23
      MCW    TT,TAPE+16
      B      WRITEA
      B      REWINC
      B      HEADRT
PERSCR SCR    PER+3,70
      EXM    PERF+X3,TAPE+11,51
      B      WRITEA
      BA     =3B40,12
      BA     =1B1,TEMP1
PER    B      0
      NOP
FFNAME MCW    :OPEN:,TAPE+14
      BCE    FFII,CARD+14,I
      MCW    :OUTPUT!,TAPE+21
EFOO  MCW    CARD+13,TEMP10
      MCW    :FF!,TEMP10-8
      MCW    TEMP10,TAPE+34
      B      RSCAN
      B      WRITEA
      MCW    :MOVE SPACE TO!,TAPE+23
      MCW    :RR!,TEMP10-8

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MCW  TEMP10,TAPE+34
B     RSCAN
B     WRITEA
B     RDPEN1
EFII  MCW  :INPUT:,TAPE+21
B     FFOO
HEADRT MCW  :HEAD-ROUTINE.:,TAPE+19
B     WRITEA
MCW  :IF HH EQUALS ZERO:,TAPE+27
MCW  :GO TO HEAD-EXIT.:,TAPE+44
BS    TEMP10
BS    SWA
B     WRITEA
B     REWINC
B     READTC
HEAD11 B    READTC
BCE   FINHDR,CARD+5,0
BCE   HEAD66,CARD, /
B     HEAD11
FINHDR C    CARD+11,BLANK5
BCT   HEAD11,42
MCW   CARD+13,TEMP10
MCW   CARD+15,TEMP10-8
BCE   NOHEAD,HH,00
POSCH MCW   CARD+15,TEMP10-8
BS    16
MCW   =4B24,12
MCW   CARD+17,SPACE=1
MCW   CARD+19,SKAP=2
HEAD32 B    COMPIS
HEAD33 B    READTC
BCE   ENDIF,CARD+14,15
MCW   =3B24,12
B     HEAD32
ENDIF BCE   HHR,TEMP10-9,4I
BCE   DDR,TEMP10-9,DI
BCE   TTR,TEMP10-9,T
HHR   B     MRR
B     HDRR
B     CHSKIP
B     MRR
C     TEMP10-8,HH
BCT   HEXIT,42
B     RDHEAD
BCE   HEXIT,SWA,01
BCE   HEXIT,CARD+14,D
BCE   HEXIT,CARD+14,T
B     POSCH
HEAD66 MCW  :ERROR TAPE CAN NOT FIND OUTPUT:,PRINT+36
MCW  :FILE ***END OF COMPILATION*** :,PRINT+70
B     PIM
B     PIM
B     183
NOHEAD MCW  LWRITE,TAPE+15
MCW  TEMP10,TAPE+27

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	MCW	:RR:,TAPE+19
	B	RSCAN
	B	WRITEA
HEXIT	B	MRR
	MCW	:MOVE ZERO TO IND (1P):,TAPE+34
	B	WRITEA
	MCW	:HEAD=EXIT.:,TAPE+16
	B	WRITEA
	MCW	EXIT,TAPE+15
	B	WRITEA
	B	HEADD
HDRR	SCR	HAB+3,70
	BS	16
HEAD77	MCW	TIND+X4,TAPE+37
	MCW	TAND+X4,TAPE+41
	B	WRITEA
	BA	=1B31,16
	BCE	HAB,TIND+X4-25,15
	B	HEAD77
HAB	B	0
COMPIS	SCR	PIS+3,70
	BS	TEMP1
	C	CARD+X3,:OV;
	BCT	OVERF,42
	C	CARD+X3,:OF;
	BCT	OVERF,42
PISBK	BCE	PIS,CARD+X3,15
	MCW	IFIN,TIND+X4
	BCE	NPOS,CARD+X3-2,N
PISZR	C	16,=3B0
	BCT	MCWAND,45
PISTEM	MCW	CARD+X3,TEMP2
	MCW	TEMP2,TIND+X4-16
PISBA	BA	=1B31,16
	BA	=1B1,TEMP1
	BCE	EQT1,TEMP1,01
	BCE	EQT2,TEMP2,02
	B	PIS
EQT1	MCW	=1B27,12
	B	PISBK
EQT2	MCW	=1B30,12
	B	PISBK
OVERF	MCW	:IF OV:,TIND+X4=20
	B	PISBA
NPOS	MCW	NOT,TIND+X4=11
	B	PISZR
MCWAND	MCW	AND,TIND+X4=24
	BCE	PISOR,TEMP1,00
	B	PISTEM
PISOR	MCW	BLANK3,TIND+X4=24
	MCW	OR,TIND+X4=25
	B	PISTEM
PIS	B	0
MRR	SCR	MR+3,70
	MCW	LMSPAC,TAPE+24

	M̄C̄W	TEMP10,TAPE+35
	M̄C̄W	:RR:,TAPE+27
	B	RSCAN
	B	WRITEA
MR	B	0
CHSKIP	S̄C̄R	KIP+3,70
	C	SKAP,BLANK2
	B̄C̄T	NOSKIP,42
	M̄C̄W	WRITRR,TAPE+50
	M̄C̄W	TEMP10,TAPE+25
	M̄C̄W	:RR:,TAPE+18
	M̄C̄W	SKAP,TAPE+50
	B	WRITEA
NOSKIP	M̄C̄W	MOVE,TAPE+14
	M̄C̄W	TEMP10,TAPE+25
	M̄C̄W	TO,TAPE+28
	M̄C̄W	TEMP10,TAPE+40
	M̄C̄W	:RR:,TAPE+32
	B	WRITEA
	M̄C̄W	LWRITE,TAPE+15
	M̄C̄W	TEMP10,TAPE+25
	M̄C̄W	:RR:,TAPE+18
	B̄C̄E	NOSPAC,SPACE,15
	M̄C̄W	LBADVC,TAPE+47
	M̄C̄W	SPACE,TAPE+50
	M̄C̄W	LLINE,TAPE+59
NOSPAC	B	WRITEA
	M̄C̄W	BLANK1,TABIF
	EXM	TABIF,TABIF+1,71
KIP	B	0
RDHEAD	S̄C̄R	RHD+3,70
RDCM	C	CARD+15,BLANK2
	B̄C̄T	RDHD,45
	B	READTC
	B̄C̄E	ENDING,CARD,7
	B	RDCM
RDHD	M̄C̄W	CARD+15,TEMP10-8
	B	RHD
ENDING	B	REWINC
	M̄C̄W	=1B1,SWA
RHD	B	0
FTABL	S̄C̄R	FTA+3,70
	BS	4
FTC	C	NAME+X1-2,STORE6
	B̄C̄T	NMAT,45
	M̄C̄W	NAME+X1,TAPE+26
	M̄C̄W	MOVE,TAPE+14
	M̄C̄W	TO,TAPE+29
	M̄C̄W	STORE6,STORE8
	M̄C̄W	TEMP10-8,STORE8-6
	M̄C̄W	STORE8,TAPE+40
	B	RSCAN
	B	WRITEA
	B̄C̄E	SUBP,CARD+37,2
	B̄C̄E	SUBB,CARD+38,3

	B	FTA
SUBP	M̄CW	LMZERO,TAPE+24
SSSS	M̄CW	NAME+X1,TAPE+36
	B	WRITEB
	BA	=1B1,TEMP3
ETA	B	0
SUBB	M̄CW	LMSPAC,TAPE+24
	B	SSSS
NMAT	BA	=3B70,4
	B̄CE	FTA,IOPUT+X1,15
	B	FTC
COPYB	S̄CR	COPB+3,70
COPA	B	READTC
	B	WRITEA
	BS	=1B1,TEMP3
	C	=3B0,TEMP3
	B̄CT	COPA,45
COPB	B	0
NOTOT	M̄CW	:TOTAL=EXIT.:,TAPE+17
	B	WRITEA
	M̄CW	EXIT,TAPE+15
	B	WRITEA
	B	CALTRT
DEND	M̄CW	=1B1,SWA
	B	DENDA
TEND	M̄CW	=1B1,SWA
	B	TENDA
HEADD	M̄CW	:DETAIL-ROUTINE.:,TAPE+21
	B	WRITEA
	BS	TEMP3
	M̄CW	:IF DD EQUALS ZERO:,TAPE+27
	M̄CW	:GO TO DETAIL-EXIT.:,TAPE+47
	B	WRITEA
	B̄CE	DXIT,DD,00
	B̄CE	DXIT,SWA,01
	B	RDHEAD
	B̄CE	DXIT,SWA,01
	B̄CE	DXIT,CARD+14,T
EINDD	B	POSCH
DDR	BS	TEMP3
DDS	B̄CE	NTABL,CARD+31,15
	M̄CW	CARD+36,STORE6
	B	FTABL
NTABL	B	READTC
	B̄CE	DEND,CARD,7
	C	CARD+15,BLANK2
	B̄CT	DDS,42
DENDA	M̄CW	:/:,TAPE
	B	WRITEB
	B	REWIB
	B	HDRR
	B	CHSKIP
	B	MRR
DKK	C	=3B0,TEMP3
	B̄CT	COPYDD,42

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      B      READTB
      B      WRITEA
      BS     =1B1,TEMP3
COPYDD  B      DKK
      C      TEMP10=8,DD
      BCT    DXIT,42
      B      RDHEAD
      BCE    DXIT,SWA,01
      BCE    DXIT,CARD+14,T
DXIT    B      POSCH
      B      MRR
      MCW    ;DETAIL=EXIT. :,TAPE+18
      B      WRITEA
      MCW    EXIT,TAPE+15
      B      WRITEA
HEADTT  MCW    ;TOTAL=ROUTINE. :,TAPE+20
      B      WRITEA
      MCW    ;IF TT EQUALS ZERO: ,TAPE+27
      MCW    ;GO TO TOTAL-EXIT. :,TAPE+45
      B      WRITEA
      BCE    TXIT,SWA,01
      BCE    TXIT,TT,00
      B      RDHEAD
      BCE    TXIT,SWA,01
      B      POSCH
ITR     BS     TEMP3
TTS     BCE    TTABL,CARD+31,15
      MCW    CARD+36,STORE5
      B      FTABL
ITABL   B      READTC
      BCE    TEND,CARD, /
      C      CARD+15,BLANK2:
      BCT    TTS,42
TENDA  MCW    ;/: ,TAPE
      B      WRITEB
      B      REWINB
      B      HDRR
      B      CHSKIP
      B      MRR
IKK     C      =3B0,TEMP3
      BCT    COPYTT,42
      B      READTB
      B      WRITEA
      BS     =1B1,TEMP3
      BS     TTK
      BCE    TXIT,SWA,01
COPYTT  C      TEMP10=8,TT
      B      TXIT,42
      B      RDHEAD
      BCE    TXIT,SWA,01
      B      POSCH
TXIT    B      MRR
      MCW    ;TOTAL=EXIT. :,TAPE+17
      B      WRITEA
      MCW    EXIT,TAPE+15

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CALTRT	B	WRITEA	
	B	REWINC	
	B	REWIB	
	MCW	;CALC=ROUTINE.;;TAPE+19	
	B	WRITEA	
CREAD	B	READTC	
	B	READTC	
	BCE	CALRT,CARD+5,C	
	BCE	CALEN,CARD+5,0	
	B	CCREAD	
CALRT	B	CHINRT	
	C	CARD+31,;SETON;	
	BCT	SETON,42	
	C	CARD+31,;SETOF;	
	BCT	SETOF,42	
	C	CARD+29,;GOT;	
	BCT	GOTO,42	
	C	CARD+29,;TAG;	
	BCT	TAG,42	
	C	CARD+29,;Z-A;	
	BCT	ZADD,42	
	C	CARD+29,;Z-S;	
	BCT	ZSUB,42	
	C	CARD+29,;MOV;	
	BCT	MOVE,42	
	C	CARD+29,;COM;	
	BCT	CCOMP,42	
	C	CARD+29,;ADD;	
	BCT	CADD,42	
	C	CARD+29,;SUB;	
	BCT	CSUB,42	
	C	CARD+29,;MUL;	
	BCT	CMUL,42	
	C	CARD+29,;DIV;	
	BCT	CDIV,42	
	MCW	CARD+31,TEMP5	
	MCW	TEMP5,TAPE+48	
	MCW	;*ERROR*;;TAPE+79	
	B	WRITEA	
	B	CCREAD	
CADD	MCW	!+;;SWX1=1	
	B	COMPJT	
CSUB	MCW	!-;;SWX1	
	B	COMPJT	
CMUL	MCW	!*;;SWX1	
	B	COMPJT	
CDIV	MCW	!/;;SWX1	
	B	COMPJT	
COMPUT	B	NAMERT	
	MCW	;COMPUTE	ROUNDED =;;TAPE+43
	MCW	TEMP8,TAPE+32	
	MCW	TEMP10,TAPE+54	
	MCW	SWX1,TAPE+58	
	MCW	KEEP10,TAPE+70	
KUBA	B	CCLLRT	

	C	CARD+58, BLANK 5
	BCT	KPIM, 45
	B	RSCAN
	BS	STORE1
KPIM	B	WRITEA
	BCE	CCREAD, STORE1, 00
	MCW	CARD+54, TEMP2
	BCE	MINUS, TEMP2, 15
PLUS	MCW	IFGT, TAPE+38
	MCW	CARD+58, TEMP4
	B	PMZA
	B	CCPMZ
MINUS	MCW	CARD+56, TEMP2
	BCE	SERO, TEMP2, 15
	MCW	TEMP2, TAPE+63
	MCW	IFLT, TAPE+38
	B	CCPMZ
SERO	MCW	CARD+58, TEMP2
	MCW	IFEQ, TAPE+38
	BS	STORE1
	B	CCPMZ
	B	CCREAD
CCPMZ	SCR	KAC+3, 70
	MCW	TEMP8, TAPE+22
	MCW	ZERO, TAPE+44
	MCW	LMIND, TAPE+65
	MCW	TEMP2, TAPE+63
	B	CCLLRT
	BCE	KULC, STORE1, 01
	B	RSCAN
KULC	B	WRITEA
KAC	B	0
PMZA	SCR	PMZB+3, 70
	BS	STORE1
	C	TEMP4, BLANK 4
	BCT	PMZB, 42
	MCW	=1B1, STORE1
PMZB	B	0
GOTO	MCW	:GO TO :, TAPE+16
	MCW	CARD+41, TEMP10
	MCW	TEMP10, TAPE+23
KUL	B	RSCAN
	B	WRITEA
	B	CCREAD
TAG	MCW	CARD+26, TEMP10
	MCW	TEMP10, TAPE+16
	B	KUL
ZADD	B	NAMERT
	MCW	LMZERO, TAPE+23
	MCW	:ADD:, TAPE+27
	MCW	TO, TAPE+47
KULB	MCW	KEEP10, TAPE+43
	MCW	TEMP8, TAPE+59
	B	KUBA
ZSUB	B	NAMERT

	MCW	LMZERO,TAPE+23
	MCW	:SUBTRACT:,TAPE+32
	MCW	:FROM:,TAPE+47
	B	KULB
CCOMP	B	NAMERT
	MCW	CARD+54,TEMP2
	BCE	LOW,TEMP2,15
HIGH	MCW	IFGT,TAPE+38
	B	CCHLE
	MCW	CARD+58,TEMP4
LOW	MCW	CARD+56,TEMP2
	BCE	EQUALS,TEMP2,15
	MCW	IFLT,TAPE+38
	MCW	CARD+58,TEMP4
	MCW	BLANK2,TEMP4-2
	B	CCHLE
EQUALS	MCW	CARD+58,TEMP2
	BCE	CCREAD,TEMP2,15
	B	CCHLE
	B	CCREAD
CCHLE	SCR	KAD+3,70
	MCW	TEMP10,TAPE+23
	MCW	KEEP10,TAPE+43
	MCW	LMIND,TAPE+70
	MCW	TEMP2,TAPE+68
	B	CCLLRT
	B	PMZA
	BCE	HKK,STORE1,01
	B	RSCAN
HKK	B	WRITEA
KAD	B	0
	MCW	:MOVE:,TAPE+14
	MCW	KEEP10,TAPE+25
	MCW	TO,TAPE+30
	MCW	TEMP8,TAPE+41
	B	RSCAN
	B	WRITEA
	B	CCREAD
SETNRT	SCR	KAG+3,70
	BCE	CCREAD,TEMP2,15
	MCW	LMIND,TAPE+30
	MCW	TEMP2,TAPE+28
	B	CCLLRT
	B	WRITEA
KAG	B	0
SETOF	MCW	CARD+54,TEMP2
	B	SETFRT
	MCW	CARD+56,TEMP2
	B	SETFRT
	MCW	CARD+58,TEMP2
	B	SETFRT
	B	CCREAD
SETFRT	SCR	KAE+3,70
	BCE	CCREAD,TEMP2,15
	MCW	LMZIND,TAPE+33

	M̄CW	TEMP2,TAPE+31
	B	ĈLLRT
	B	WRITEA
KAE	B	0
SETON	M̄CW	ĈARD+54,TEMP2
	B	SETNRT
	M̄CW	ĈARD+56,TEMP2
	B	SETNRT
	M̄CW	ĈARD+58,TEMP2
	B	SETNRT
	B	ĈCREAD
NAMERT	SCR	KAI+3,70
	BS	8
	M̄CW	ĈARD+26,TEMP10
	M̄CW	ĈARD+41,KEEP10=10
	M̄CW	ĈARD+47,TEMP8-2
	M̄CW	BLANK2,TEMP8
	BS	TEMP1
	M̄CW	TEMP10-4,TEMP5
NACOM	C	NAME+X2-2,TEMP6
	B̄CT	NAMEAD,45
	B̄CE	NATTT,TEMP1,00
	B̄CE	NAKKK,TEMP1,01
	M̄CW	NAME+X2-2,TEMP8
	B	KAI
NAT	M̄CW	KEEP10-4,TEMP5
	B	NAZZZ
NATTT	M̄CW	NAME+X2,TEMP10
	M̄CW	KEEP10-4,TEMP5
NAZZZ	BA	=1B1,TEMP1
	BS	8
	B	NACOM
NAKKK	M̄CW	NAME+X2,KEEP10
NAK	M̄CW	TEMP8-2,TEMP6
	B	NAZZZ
NAMEAD	BA	=3B70,8
	B̄CE	NAEEE,IOPUT+X2,0
	B	NACOM
NAEEE	B̄CE	NAT,TEMP1,00
	B̄CE	NAK,TEMP1,01
KAI	B	0
CALEN	M̄CW	;CALC=EXIT.1,TAPE+16
	B	WRITEA
	M̄CW	EXIT,TAPE+15
	B	WRITEA
	B	READRT
CHINRT	SCR	CHI+3,70
	BS	SWA
	BS	TEMP2
	BS	12
	M̄CW	=1B7,12
ĈĈCOM	C	ĈARD+X3,BLANK2
	B̄CT	NOTIF,42
	B̄CE	IFEQRT,SWA,00
	M̄CW	ANDIN,TAPE+38

CCMCW MCW CARD+X3,TEMP2
 MCW TEMP2,TAPE+22
 BCE NINDT,CARD+X3-2,N
 CCTW B WRITEA
 MCW =1B1,SWA
 NOTIF BA =1B3,12
 C 12,=2B16
 BCT CHI,41
 B CCCOM

IFEQRT MCW IFIN,TAPE+38
 B CCMCW
 NINDT MCW NOT,TAPE+26
 B CCTW
 CHI B 0
 NOP

CCLLRT SCR KAB+3,70
 C CARD+15,BLANK9
 BCT KAB,45
 B RSCAN
 KAB B 0
 NOP

IFSQR DCW :IF () EQUAL TO :
 IFSQT DCW : " " :
 ZERO DCW :ZERO;
 LMZER DCW :MOVE ZERO TO :
 NOT DCW :NOT:
 SQRT SCR SQR1+3,70
 BCE ESQRB,CARD+23,15
 MCW CARD+23,TEMP2
 MCW CARD+24,TEMP1
 MCW CARD+26,SWA
 MCW CARD+13,TEMP10
 MCW :YY:,TEMP10-8
 MCW TEMP10,TEN=10
 MCW CARD+15,TEN=8
 B CHSQRT
 B WRITEA
 BCE ESQRB,CARD+30,15
 MCW CARD+30,TEMP2
 MCW CARD+31,TEMP2
 MCW CARD+33,SWA
 B CHSQRT
 MCW AND,TAPE+13
 B WRITEA
 BCE ESQRB,CARD+37,15
 MCW CARD+37,TEMP2
 MCW CARD+38,TEMP1
 MCW CARD+40,SWA
 B CHSQRT
 MCW AND,TAPE+13
 B WRITEA
 ESQRB MCW :MOVE 1 TO INDI () .: ,TAPE+30
 MCW CARD+19,TEMP2
 MCW TEMP2,TAPE+28
 B WRITEA


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MCW      :IF IND (1P) EQUAL TO 1 MOVE: ,TAPE+38
MCW      TEMP10,TAPE+49
MCW      :RR: ,TAPE+41
MCW      TO,TAPE+52
MCW      TEN,TAPE+64
B        WRITEA
MCW      :ELSE MOVE: ,TAPE+42
MCW      TEMP10,TAPE+54
MCW      :RR: ,TAPE+46
MCW      TO,TAPE+58
MCW      TEN,TAPE+70
MCW      :X: ,TAPE+61
B        RSCAN
B        WRITEA
SQR1     B        0
CHSQRT   SCR      QRT+3,70
MCW      IFSQR,TAPE+44
MCW      IFSQT,TAPE+50
MCW      TEMP10,TAPE+23
MCW      TEMP2,TAPE+29
BCE      SQBB,TEMP1,15
MCW      :NOT: ,TAPE+36
SQBB     MCW      SWA,TAPE+49
QRT      B        0
NOP
READRT   B        REWINC
B        REWINB
B        READTC
READ51   B        READTC
BCE      RDFILE,CARD+5,F
BCE      RDFILE,CARD+5,I
B        READ51
RDFILE   BCE      READ51,CARD+14,0
MCW      :READ-ROUTINE.: ,TAPE+19
B        WRITEA
MCW      :READ          AT END MOVE 1: ,TAPE+39
MCW      :TO IND (L1) IND (L2) IND (L3): ,TAPE+69
MCW      CARD+13,TEMP10
MCW      :FF: ,TEMP10-8
MCW      TEMP10,TAPE+23
B        WRITEA
MCW      :MOVE 1 TO: ,TAPE+24
B        WRITEA
MCW      :IND (L4) IND (L5) IND (L6): ,TAPE+42
B        WRITEA
MCW      :MOVE 1 TO : ,TAPE+24
B        WRITEA
MCW      :IND (L7) IND (L8) IND (L9): ,TAPE+44
B        WRITEA
MCW      :IND (LR).           : ,TAPE+41
B        WRITEA
BS       16
READ52   B        READTC
BCE      INS1,CARD+5,I
BCE      ENINSQ,CARD+5,C

```

	BCE	ENINSQ,CARD+5,0
	B	READ52
INS1	BCE	INS2,CARD+14,I
	B	READ52
INS2	B	SQRT
	BCE	ENINSQ,II,01
	B	READ52
ENINSQ	MCW	:READ=EXIT.;;TAPE+16
	B	WRITEA
	MCW	EXIT,TAPE+15
	B	WRITEA
	B	REWIB
	B	REWIC
BREKRT	MCW	:BREAK=ROUTINE.;;TAPE+20
	B	WRITEA
	BS	4
	BS	8
	BS	TEMP1
BRKER	BCE	BKSFT,SFT+X1,15
	BCE	BKSLI,SLL+X1,15
	MCW	=1B1,TEMP1
BKNAME	C	NAME+X2,SNAME+X1
	BCT	MAPOB,45
	MCW	:IF;;TAPE+12
	MCW	NAME+X2,TAPE+24
	MCW	:NOT EQUAL TO;;TAPE+37
	MCW	NAME+X2,TAPE+48
	MCW	:X;;TAPE+39
	B	WRITEA
	MCW	SLL+X1,KEEPX2
LLBK	MCW	:MOVE 1 TO INDI ();;TAPE+29
	MCW	KEEPX2,TAPE+27
	C	KEEPX2,=1B1
	BCT	NBSCAN,45
NBSCAN	B	RSCAN
	B	WRITEA
	BCE	BKSLI,KEEPX2,01
	BCE	LRLR,KEEPX2,R
LISUB	BS	=1B1,KEEPX2
	B	LLBK
LRLR	MCW	=1C12,KEEPX2
	B	LISUB
BKSLI	BA	=1B11,4
	B	BRKER
BKSFT	MCW	:GO TO BREAK=EXIT.;;TAPE+27
	B	WRITEA
NBRK	MCW	:BREAK=EXIT.;;TAPE+17
	B	WRITEA
	MCW	EXIT,TAPE+15
	B	WRITEA
	MCW	:MOVE=RECORD.;;TAPE+18
	B	WRITEA
	BS	20
XTRC	BCE	ANUB,FILENO+X5,15
	BCE	XTR,IOPUT+X5,I

```

ANUB  BA    =2B70,20
      B    XTRC
XTR   MCW   MOVE,TAPE+14
      MCW   NAME+X5,TAPE+26
      MCW   ;X;,TAPE+17
      MCW   TO,TAPE+30
      MCW   NAME+X5,TAPE+42
      B    RSCAN
      B    WRITEA
      C    NAME+X5-8,II
      BCT   ANUB,45
HALTRT MCW   ;HALT-ROUTINE.!,TAPE+19
      B    WRITEA
      BS    TEMP1
HALTB  MCW   ;IF IND (H0) EQUAL TO 1!,TAPE+32
      MCW   ;GO TO CLOSE-ROUTINE.!,TAPE+53
      MCW   TEMP1,TAPE+20
      B    WRITEA
      BCE   ENHALT,TEMP1,11
      BA    =1B1,TEMP1
MAPOB  BA    =2B70,8
      B    BKNAME
ENHALT MCW   ;GO TO HALT-EXIT.!,TAPE+26
      B    WRITEA
      MCW   ;HALT-EXIT.!,TAPE+16
      B    WRITEA
      MCW   EXIT,TAPE+15
      B    WRITEA
      MCW   ;CLOSE-ROUTINE.!,TAPE+20
      B    WRITEA
      BS    8
CLOSA  MCW   ;CLOSE!,TAPE+15
      MCW   NAME+X2,TAPE+26
      B    RSCAN
      B    WRITEA
      C    8,=3B0
      BCT   STOPA,45
      BA    =2B70,8
      B    CLOSA
STOPA  MCW   ;STOP RUN.!,TAPE+19
      B    WRITEA
      MCW   ;END CONV!,TAPE+7
      B    WRITEA
      B    WRITEA
      MCW   ;LEOF!,TAPE+3
      B    WRITEA
      MCW   ;LEOF!,TAPE+3
      B    WRITEA
      B    REWINA
      B    REWINB
      B    REWINC
      PDT   *,00,02,57
      B    PIM
      BS    KOUNT

```

```

M̄CW :LIST OF COBOL FROM R.P.G.;PRINT*55
B PIM
M̄CW :=====;PRINT*55
B PIM
B PIM
BS KOUNT
BA =1B5,KOUNT
ENDCOB B READTA
B PRINTC
B̄CE TPAGE,KOUNT,62
BA =1B1,KOUNT
B COBEOF
TPAGE BS KOUNT
PCB *,00,02,10
PDT *,00,02,57
COBEOF C :1EOF;CARD*3
B̄CT ENDCOB,45
B REWINA
H
D̄C =6C000001000001
B 183
NOP
END BEGIN

```

1EOF

ประวัติผู้เขียน

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