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ภาคผนวก ก.

การจัดทำหน่วยความจำ ภายใต้ระบบ ซีพีเอ็ม (CP/M)

ภาคผนวก ก.

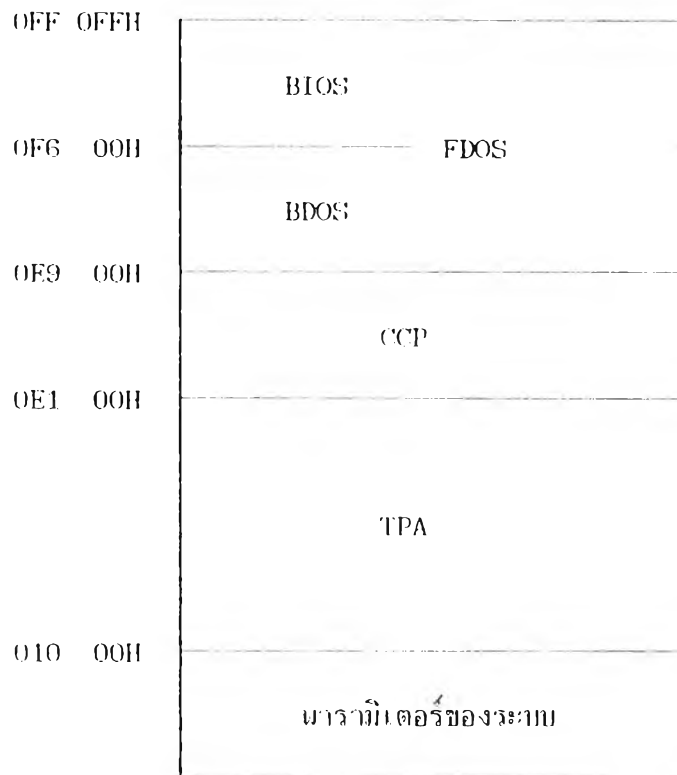
การจัดหน่วยความจำภายใต้ระบบ ซีพีเอ็ม (CP/M)

ซีพีเอ็ม เป็นระบบปฏิบัติการสำหรับไมโครคอมพิวเตอร์ ที่นิยมมากที่สุด ในระดับเครื่องไมโครคอมพิวเตอร์ 8 บิต การจัดหน่วยความจำของระบบซีพีเอ็มนั้น ได้ถูกแบ่งออกเป็น 4 ส่วน ได้แก่

1. BIOS (Basic I/O System) ในส่วนนี้เป็นส่วนที่ขึ้นอยู่กับฮาร์ดแวร์ของแต่ละเครื่อง ที่พยายามส่วนติดต่อ (Interface) ที่เชื่อมระหว่างอุปกรณ์รับส่งข้อมูลต่าง ๆ กับ
2. BDOS (Basic Disk Operating System) เป็นส่วนซอฟต์แวร์ที่ไว้ขึ้นอยู่กับฮาร์ดแวร์ ทำหน้าที่จัดการหน้าที่ต่าง ๆ ที่เกี่ยวข้องกับแผ่นจานแม่เหล็ก ตลอดจนอุปกรณ์รับส่งข้อมูลอื่น ๆ ที่จำเป็นแก่งานโปรแกรมประยุกต์ทั่วไป เช่นการแสดงผลทางจอภาพ กล่าวคือ ส่วนนี้จะทำหน้าที่ติดต่อกับส่วนของ BIOS เอง โดยผู้ใช้งานเพียงแต่ ล็อกฟังก์ชันที่เหมาะสมของ BDOS และเรียกใช้ (CALL) เท่านั้น
3. CCP (Console Command Processor) เป็นส่วนที่บรรจุซอฟต์แวร์ที่ทำหน้าที่ใช้ FDISK เพื่อช่วยให้ผู้ใช้งานสามารถเรียกใช้คำสั่งต่าง ๆ ผ่านทางหน้าจอและแป้นพิมพ์ได้โดยง่าย
4. TPA (Transient Program Area) คือพื้นที่ในหน่วยความจำที่เหลือ ถูกจัดให้เป็นส่วนใช้งานสำหรับโปรแกรมที่ผู้ใช้งานจะเขียนขึ้นไว้

นอกจาก 4 ส่วนดังกล่าวแล้ว ซีพีเอ็ม ยังได้สำรองพื้นที่ในหน่วยความจำที่อยู่ต่ำแอดเดรสต่ำ (Low Address Memory) ไว้ส่วนหนึ่งสำหรับระบบใช้งานเอง

* FDISK หมายถึง การรวมเข้าเป็นส่วนเดียวกันของ BIOS และ BDOS



แสดงส่วนประกอบของการจัดหน่วยความจำ ของระบบพีซี

ภาคผนวก ข.

บัญชีควบคุมงบประมาณของโรงเรียนสตรีศรี

ภาคผนวก ข.

บล็อกควบคุมแฟ้มข้อมูลของระบบซีพีเอ็ม

บล็อกควบคุมแฟ้มข้อมูลของระบบซีพีเอ็ม ใช้เนื้อที่ 36 ไบต์ ทำหน้าที่เป็นสมาชิกของ
สารบัญแฟ้มข้อมูล ในแผ่นจานแม่เหล็ก ของระบบซีพีเอ็ม

dr	f1	f2	//	f8	t1	t2	t3	ex	s1	s2	rx	d0
00	01	02	...	08	09	10	11	12	13	14	15	16

//	dn	cr	r0	r1	r2
...	31	32	33	34	35

dr - รหัสแสดงตู้อ่านแผ่นจานแม่เหล็ก

0 ==> ตู้อ่านแผ่นจานแม่เหล็ก ตู้ปัจจุบัน

1 ==> ตู้อ่านแผ่นจานแม่เหล็ก ตู้ A

2 ==> ตู้อ่านแผ่นจานแม่เหล็ก ตู้ B

:

:

16 ==> ตู้อ่านแผ่นจานแม่เหล็ก ตู้ P

f1...f8 - ชื่อแฟ้มข้อมูล ต้องเป็นรหัส ASCII ตัวอักษรตัวใหญ่

t1...t3 - นามสกุลแฟ้มข้อมูล ต้องเป็นรหัส ASCII ตัวอักษรตัวใหญ่

- ex - หมายเลขขอบเขต (Extent) ปัจจุบัน ปรกติผู้ใช้งานจะกำหนดให้เป็น 00H และจะแปรเปลี่ยน ระหว่างการทำงานตั้งแต่ 0 - 31
- s1 - สำรองไว้สำหรับระบบ
- s2 - สำรองไว้สำหรับระบบ และถูกกำหนดเป็น 0 เมื่อเรียกใช้ฟังก์ชัน OPEN, MAKE, SEARCH
- rc - นับจำนวนระเบียบสำหรับขอบเขต มีค่าตั้งแต่ 0 - 128
- d0...dn - สำรองไว้สำหรับระบบ
- cr - ระเบียบปัจจุบัน ที่จะอ่าน หรือบันทึกของแฟ้มข้อมูลแบบเรียงลำดับ ปรกติผู้ใช้งานจะกำหนดเป็น 0
- r0,r2,r3 - หมายเลขระเบียบของแฟ้มข้อมูลแบบสุ่ม มีค่าตั้งแต่ 0 - 65535

ภาคผนวก ค.

บล็อกควบคุมแฟ้มข้อมูลและฟังก์ชันของระบบไทยทำ

ภาคผนวก ค.

บล็อกควบคุมแฟ้มข้อมูลและฟังก์ชันของระบบไทยทำ

บล็อกควบคุมแฟ้มข้อมูล (File Control Block - FCB) ของระบบไทยทำ ใช้
เนื้อที่ 28 ไบต์

DR	NAME	LEN	BOE	EOE	bbb	EOD	REC	DATE
----	------	-----	-----	-----	-----	-----	-----	------

ฟังก์ชันของระบบไทยทำ ระบบไทยทำจำลองแบบการเก็บบันทึกข้อมูลลงบน แผ่น
จานแม่เหล็ก ในลักษณะของ IBM-3470 โดยระบบได้สร้างฟังก์ชันที่เกี่ยวกับแผ่นจานแม่เหล็กที่
ผู้ใช้งานสามารถเรียกใช้ได้ ดังนี้

1. Set DMA

```
LD HL,<DMA address>
```

```
LD (DMASET),HL
```

2. Set Drive Select (IBM Format)

```
LD A,<Drv> ; 0 - Drive A
```

```
CALL DRVSL ; 1 - Drive B
```

ในฟังก์ชันนี้ มีการตรวจสอบด้วยว่า แผ่นจานแม่เหล็กนั้นเป็น IBM format หรือไม่

3. Set Drive Select (ไม่ตรวจว่าเป็น IBM Format หรือไม่)

```
LD A,<Drv>
```

```
CALL DRVSEL
```

ในฟังก์ชันนี้ จะไม่มีการตรวจสอบว่าแผ่นจานแม่เหล็กนั้นเป็น IBM Format หรือไม่



4. Open file

```
LD HL,<FCB address>
CALL OPEN
```

5. Read Sequential File

5.1 Set DMA

```
5.2 LD IY,<FCB address>
```

```
XOR A
```

```
CALL DSMRD
```

```
JP C,IOERR
```

ในการใช้ฟังก์ชันนี้ รีจิสเตอร์ A จะเก็บ Flag ดังนี้

- 00H Success reading
- 01H Deleted record
- 0FFH End of file

C Flag จะ set ถ้าเกิด IO ERROR และจะ reset ถ้าอ่านได้สำเร็จ

6. Write Sequential File

6.1 Set DMA

```
6.2 LD IY,<FCB address>
```

```
XOR A
```

```
CALL DSMWR
```

```
JP C,IOERR
```

```
OR A
```

```
JP NZ,EOERR
```

การส่งค่ากลับ เหมือนกับฟังก์ชันการอ่าน ยกเว้นรีจิสเตอร์ A

- 0 Success
- non 0 EOE

7. Create File

```
LD HL,<FCB address>
```

```
CALL DSMCRE
```

ค่าที่ส่งกลับมาจากรีจิสเตอร์ A มีความหมาย ดังนี้

0 - Success

1 - Function error

2 - File exist

3 - Reserved name

4 - Not found

5 - Illegal record length

6 - No space

7 - Disk full

8. Close file

```
LD HL,<FCB address>
```

```
CALL CLOSE
```


ภาคผนวก ง.

การใช้งานตัวตรวจสอบไวยากรณ์โปรแกรมภาษาโคบอล

ภาคผนวก ง.

การใช้งานตัวตรวจสอบไวยากรณ์โปรแกรมภาษาโคบอล

ในการใช้ตัวตรวจสอบไวยากรณ์โปรแกรมภาษาโคบอลนั้น จะต้องประกอบด้วยสิ่งต่าง ๆ เหล่านี้

1. ชุดเครื่องไมโครคอมพิวเตอร์ "ไทยทำ"
2. ชุดโปรแกรมตรวจสอบ

ชุดเครื่องไมโครคอมพิวเตอร์ "ไทยทำ" ประกอบด้วย

1. เครื่องไมโครคอมพิวเตอร์ "ไทยทำ"
2. จอภาพ
3. ตู้อ่านแผ่นจานแม่เหล็ก 2 ตู
4. เครื่องพิมพ์ (ในกรณีที่ต้องการพิมพ์ผลลัพธ์ออกทางกระดาษ)
5. แป้นพิมพ์

ชุดโปรแกรมตรวจสอบ ประกอบด้วย

1. โปรแกรมระบบปฏิบัติการ CPM-80
2. ชุดโปรแกรมตรวจสอบ ประกอบด้วย
 - 2.1 LEXICAL.COM
 - 2.2 PARSER.COM
 - 2.3 MESSAGE.COM
 - 2.4 PCOMPILE.COM
 - 2.5 CLEAR.COM
 - 2.6 SCREEN.COM
 - 2.7 COBOL.SUB

การทำงานของชุดโปรแกรมตรวจสอบตามลำดับคำสั่ง จะถูกเก็บไว้ใน Submit

file ที่ชื่อว่า COBOL.SUB โดยลำดับของคำสั่ง จะเป็นดังนี้

```
CLEAR
LEXICAL
PARSER
MESSAGE
```

ดังนั้นการใช้งาน ตัวตรวจสอบไวยากรณ์โปรแกรมภาษาโคบอลนั้น เพียงแต่มีขั้นตอนการใช้งานดังนี้

1. เปิดเครื่องไมโครคอมพิวเตอร์
2. นำแผ่นจานแม่เหล็ก "ชุดโปรแกรมตรวจสอบ" ใส่ในตู้อ่านแผ่นจานแม่เหล็ก A
3. นำแผ่นจานแม่เหล็กบรรจุโปรแกรมตีภาษาโคบอลที่จะทำการตรวจสอบ โดยบันทึกจากโปรแกรมเตรียมข้อมูล "ไทยทำ" ใส่ในตู้อ่านแผ่นจานแม่เหล็ก B
4. สั่งงานให้โปรแกรมตรวจสอบทำงาน โดยใส่คำสั่งดังนี้

```
A>PCOMPILE COBOL
```

5. เมื่อ "ชุดโปรแกรมตรวจสอบ" เสร็จสิ้นการทำงาน จะมีข้อความบอกทางจอภาพว่า

```
"COBOL Pre-Compiler Phase III completely terminated"
```

6. ถ้าต้องการดูผลลัพธ์ จะถูกเก็บอยู่ในแฟ้มข้อมูล CBLSK9.PRN ซึ่งผู้ใช้งานอาจจะใช้คำสั่ง TYPE ของ ซีพีเอ็ม หรือคำสั่ง SCREEN เพื่อดูผลทางหน้าจอก็ได้ หรืออาจจะพิมพ์ผลลัพธ์ออกทางเครื่องพิมพ์ก็ได้

ภาคผนวก จ.

รูปแบบคำสั่งภาษาโคบอล

ภาคผนวก จ.

รูปแบบคำสั่งภาษา โคบอล

Formats For Identification Division

IDENTIFICATION DIVISION•
PROGRAM-ID• program-name•
 [AUTHOR• [comment-entry]...]
 [INSTALLATION• [comment-entry]...]
 [DATE-WRITTEN• [comment-entry]...]
 [DATE-COMPILED• [comment-entry]...]
 [SECURITY• [comment-entry]...]

Formats For Environment Division

ENVIRONMENT DIVISION•
CONFIGURATION SECTION•
SOURCE-COMPUTER• computer-name [WITH DEBUGGING MODE]•
OBJECT-COMPUTER• computer-name
 [INPUT-OUTPUT SECTION•
FILE-CONTROL•
 {file-control-entry}...]

Format For File Control

Option 1

SELECT [OPTIONAL] file-name
ASSIGN TO {implementor-name-1}...
 [RESERVE integer-1 [AREA]]
 [ORGANIZATION IS SEQUENTIAL]
 [ACCESS MODE IS SEQUENTIAL]
 [FILE STATUS IS data-name-1]•

Option 2

SELECT file-name
ASSIGN TO {implementor-name-1}...
 [RESERVE integer-1 [AREA]]
 [ORGANIZATION IS RELATIVE]
 [ACCESS MODE IS { SEQUENTIAL }]]
 [RELATIVE KEY IS data-name-1]•

Option 3

SELECT file-name
ASSIGN TO {implementor-name-1}...
 [RESERVE integer-1 [AREA]
 [AREAS]]
 [ORGANIZATION IS INDEXED]
 [ACCESS MODE IS { SEQUENTIAL
 RANDOM
 DYNAMIC }]]
RECORD KEY IS data-name-1*

Option 4

SELECT file-name ASSIGN TO {implementor-name-1}...

Format For Data Division

DATA DIVISION.

FILE SECTION.

FD file-name

[BLOCK CONTAINS [integer-1 TO] integer-2 { RECORDS
 CHARACTERS }]

[RECORD CONTAINS [integer-3 TO] integer-4 CHARACTERS]

LABEL { RECORD IS } { STANDARD }
 { RECORDS ARE } { OMITTED }

[VALUE OF { implementor-name-1 IS { data-name-1
 literal-1 } } ...]

[DATA { RECORD IS
 RECORDS ARE } {data-name-3}...]

[LINAGE IS { data-name-5
 integer-5 }] LINES [WITH FOOTING AT { data-name-6
 integer-6 }]]

 [LINES AT TOP { data-name-7
 integer-7 }] [LINES AT BOTTOM { data-name-8
 integer-8 }]]]

[{ REPORT IS
 REPORTS ARE } {report-name-1}...].

[record-description-entry]...]...

[SD file-name]

[RECORD CONTAINS [integer-1 TO] integer-2 CHARACTERS]

[DATA { RECORD IS
 RECORDS ARE } {data-name-1}].

{record-description-entry}...]...

[WORKING-STORAGE SECTION•

[77-level-description-entry
record-description-entry]...]

[LINKAGE SECTION•

[77-level-description-entry
record-description-entry]...]

[REPORT SECTION•

[RD report-name

[{ CONTROL IS } { {data-name-1}... }
[{ CONTROLS ARE } { FINAL [data-name-1]... }]

[PAGE [LIMIT IS
LIMITS ARE] integer-1 [LINE
LINES] [HEADING integer-2]

[FIRST DETAIL integer-3] [LAST DETAIL integer-4]

[FOOTING integer-5]*

{report-group-description-entry}...]...]

Format For Data Description Entry**Option 1**

level-number { data-name-1
FILLER }

[REDEFINES data-name-2]

[{ PICTURE } IS character-string]
[PIC]

[USAGE IS { COMPUTATIONAL
COMP
DISPLAY
INDEX }]

[(SIGN IS) { LEADING
TRAILING } (SEPARATE CHARACTER)]

[OCCURS { integer-1 TO integer-2 TIMES DEPENDING ON data-name-3 }
integer-2 TIMES]

[{ ASCENDING
DESCENDING } KEY IS {data-name-4}...]...]

[INDEXED BY {index-name-1}...]

[{ SYNCHRONIZED } [LEFT
RIGHT]]

[{ JUSTIFIED } RIGHT]]
[JUST]

[BLANK WHEN ZERO]

[VALUE IS literal]*

Option 2

66 data-name-1 RENAMES data-name-2 { { THROUGH } data-name-3 } } ...

Option 3

88 condition-name { VALUE IS } { VALUES ARE } { literal-1 { { THROUGH } literal-2 } } } ...

Format For Report Group Description Entry

Option 1

01 [data-name-1]

{ LINE NUMBER IS { integer-1 [ON NEXT PAGE] } }
 { PLUS integer-2 }
 integer-3

TYPE IS {
 { REPORT HEADING }
 { RH }
 { PAGE HEADING }
 { PH }
 { CONTROL HEADING } { data-name-2 }
 { CH } { FINAL }
 { DETAIL }
 { DE }
 { CONTROL FOOTING } { data-name-3 }
 { CF } { FINAL }
 { PAGE FOOTING }
 { PF }
 { REPORT FOOTING }
 { RF }

[[USAGE IS] DISPLAY]

Option 2

level-number [data-name-1]

[BLANK WHEN ZERO]

[GROUP INDICATE]

{ { JUSTIFIED } RIGHT }
 { JUST }

{ LINE NUMBER IS { integer-1 [ON NEXT PAGE] } }
 { PLUS integer-2 }

[COLUMN NUMBER IS integer-3]

{ PICTURE } IS character-string
 { PIC }

{
 { SOURCE IS identifier-1 }
 { VALUE IS literal }
 { SUM { identifier-2 } ... [UPON { data-name-2 } ...] } ... }

{ RESET ON { data-name-4 } }
 { FINAL }

[[USAGE IS] DISPLAY]

Format For Procedure Division

Option 1

```

PROCEDURE DIVISION [USING {data-name-1}...]•
DECLARATIVES•
{section-name SECTION [segment-number]• declarative-sentence•
[paragraph-name• [sentence]...]}...
END DECLARATIVES•
{section-name SECTION [segment-number]•
[paragraph-name• [sentence]...]}...

```

Option 2

```

PROCEDURE DIVISION [USING {data-name-1}...]•
[paragraph-name• [sentence]...]}...

```

General Format For Verbs

ACCEPT identifier [FROM mnemonic-name]

ACCEPT identifier FROM { DATE
DAY
TIME }

ADD { identifier-1
literal-1 } ... TO {identifier-m [ROUNDED]}...
[ON SIZE ERROR imperative-statement]

ADD { identifier-1
literal-1 } { identifier-2
literal } ... GIVING {identifier-m [ROUNDED]}...
[ON SIZE ERROR imperative-statement]

CALL { identifier-1
literal-1 } USING {data-name-1}...]
[ON OVERFLOW imperative-statement]

CLOSE file-name-1
{ REEL } { WITH NO REWIND }
{ UNIT } { FOR REMOVAL }

WITH { NO REWIND }
{ LOCK } ...

COMPUTE {identifier-1 [ROUNDED]}... = arithmetic-expression
[ON SIZE ERROR imperative-statement]

COPY text-name [{ OF
IN } library-name]

DELETE file-name RECORD [INVALID KEY imperative-statement]

DISPLAY { identifier-1
literal-1 } ... [UPON mnemonic-name]

DIVIDE { identifier-1
literal-1 } INTO {identifier-2 [ROUNDED]}...
[ON SIZE ERROR imperative-statement]

DIVIDE { identifier-1 } INTO { identifier-2 } GIVING { identifier-3 [ROUNDED] } ...
 [ON SIZE ERROR imperative-statement]

DIVIDE { identifier-1 } BY { identifier-2 } GIVING { identifier-3 [ROUNDED] } ...
 [ON SIZE ERROR imperative-statement]

DIVIDE { identifier-1 } INTO { identifier-2 } GIVING { identifier-3 [ROUNDED] } ...
REMAINDER identifier-4 [ON SIZE ERROR imperative-statement]

DIVIDE { identifier-1 } BY { identifier-2 } GIVING { identifier-3 [ROUNDED] } ...
REMAINDER identifier-4 [ON SIZE ERROR imperative-statement]

EXIT [PROGRAM].

GENERATE { data-name }
 { report-name }

GO TO [procedure-name-1]

IF condition { statement-1 } { ELSE statement-2 }
 { NEXT SENTENCE } { ELSE NEXT SENTENCE }

INITIATE {report-name-1} ...

INSPECT identifier-1 TALLYING

{ identifier-2 FOR [{ ALL } { identifier-3 }] [{ BEFORE }] INITIAL { identifier-4 }] ... }
 [{ LEADING } { literal-1 }] [{ AFTER }]

INSPECT identifier-1 REPLACING

CHARACTERS BY { identifier-6 } [{ BEFORE }] INITIAL { identifier-7 }]
 { literal-4 } [{ AFTER }] { literal-5 }

[{ ALL }] [{ identifier-5 } BY { identifier-6 }] [{ BEFORE }] INITIAL { identifier-7 }] ... }
 [{ LEADING }] [{ literal-3 }] [{ AFTER }] { literal-5 }

INSPECT identifier-1 TALLYING

{ identifier-2 FOR [{ ALL } { identifier-3 }] [{ BEFORE }] INITIAL { identifier-4 }] ... }
 [{ LEADING } { literal-1 }] [{ AFTER }]

REPLACING

CHARACTERS BY { identifier-6 } [{ BEFORE }] INITIAL { identifier-7 }]
 { literal-4 } [{ AFTER }] { literal-5 }

[{ ALL }] [{ identifier-5 } BY { identifier-6 }] [{ BEFORE }] INITIAL { identifier-7 }] ... }
 [{ LEADING }] [{ literal-3 }] [{ AFTER }] { literal-5 }

MERGE file-name-1 { on { ASCENDING } } KEY { data-name-1 } ... }
 { DESCENDING }

USING file-name-2 (file-name-3) ...

{ OUTPUT PROCEDURE IS section-name-1 [{ THROUGH }] section-name-2 }
 { GIVING file-name-5 } [{ THRU }]

MOVE { identifier-1 } TO { identifier-2 } ...
 { literal }

MULTIPLY { identifier-1 } BY { identifier-2 [ROUNDED] } ...
 { literal-1 }

[ON SIZE ERROR imperative-statement]

MULTIPLY { identifier-1 } BY { identifier-2 } GIVING { identifier-3 [ROUNDED] } ...
 { literal-1 } { literal-2 }

[ON SIZE ERROR imperative-statement]

OPEN OUTPUT { file-name-3 [WITH NO REWIND] } ...

I-O { file-name-5 }

EXTEND { file-name-7 } ...

PERFORM procedure-name-1 [{ THROUGH } procedure-name-2]
 { THRU }

PERFORM procedure-name-1 [{ THROUGH } procedure-name-2] { identifier-1 } TIMES
 { integer-1 }

PERFORM procedure-name-1 [{ THROUGH } procedure-name-2] UNTIL condition-1
 { THRU }

PERFORM procedure-name-1 [{ THROUGH } procedure-name-2]
 { THRU }

VARYING { identifier-2 } FROM { identifier-3 }
 { index-name-1 } { index-name-2 }
 { literal-1 }

BY { identifier-4 } UNTIL condition-1
 { literal-3 }

[AFTER { identifier-5 } FROM { identifier-6 }
 { index-name-3 } { index-name-4 }
 { literal-3 }

BY { identifier-7 } UNTIL condition-2
 { literal-4 }

[AFTER { identifier-8 } FROM { identifier-9 }
 { index-name-5 } { index-name-6 }
 { literal-5 }

BY { identifier-10 } UNTIL condition-3
 { literal-6 }

READ file-name [NEXT] RECORD [INTO identifier] [AT END imperative-statement]

READ file-name RECORD [INTO identifier] [KEY IS data-name]

[INVALID KEY imperative-statement]

RELEASE record-name [FROM identifier]

RETURN file-name RECORD [INTO identifier] AT END imperative-statement

REWRITE record-name [FROM identifier] [INVALID KEY imperative-statement-1]

SEARCH identifier-1 [VARYING { identifier-2 }] [AT END imperative-statement]
 { index-name-1 }

{ WHEN condition-1 { imperative-statement-2 } } ...
 { NEXT SENTENCE }

SEARCH ALL identifier-1 [AT END imperative-statement-1]

WHEN { data-name-1 { IS EQUAL TO } { identifier-3
literal-1
arithmetic-expression-1 } }
condition-name-1

AND { data-name-2 { IS EQUAL TO } { identifier-4
literal-2
arithmetic-expression-2 } }
condition-name-2

{ imperative-statement-2
NEXT SENTENCE }

SET { identifier-1
index-name-1 } ... TO { identifier-3
index-name-3
integer-1 }

SET { index-name-4 } ... { UP BY
DOWN BY } { identifier-4
integer-2 }

SORT file-name-1 { ON { ASCENDING
DESCENDING } KEY { data-name-1 } ... } ...

{ INPUT PROCEDURE IS section-name-1 { { THROUGH
THRU } section-name-2 } }
USING { file-name-2 } ... }

{ OUTPUT PROCEDURE IS section-name-3 { { THROUGH
THRU } section-name-4 } }
GIVING { file-name-4 } ... }

START file-name KEY { IS EQUAL TO
IS =
IS GREATER THAN
IS >
IS NOT LESS THAN
IS NOT < } data-name

[INVALID KEY imperative-statement]

STOP { RUN
literal }

STRING { { identifier-1
literal-1 } ... DELIMITED BY { identifier-3
literal-3
SIZE } } ...

INTO identifier-7 [WITH POINTER identifier-8]

[ON OVERFLOW imperative-statement]

SUBTRACT { identifier-1
literal-1 } ... FROM { identifier-m [ROUNDED] } ...

[ON SIZE ERROR imperative-statement]

SUBTRACT { identifier-1
literal-1 } ... FROM { identifier-m
literal-m }

GIVING { identifier-n [ROUNDED] }

[ON SIZE ERROR imperative-statement]

SUBTRACT { CORRESPONDING
CORR } identifier-1 FROM identifier-2 [ROUNDED]

[ON SIZE ERROR imperative-statement]

TERMINATE {report-name-1}...

UNSTRING identifier-1

{ DELIMITED BY [ALL] { identifier-2
literal-1 } { OR [ALL] { identifier-3
literal-2 } } ... }

INTO {identifier-4 [DELIMITER IN identifier-5][COUNT IN identifier-6]}...

[WITH POINTER identifier-10][TALLYING IN identifier-11]

[ON OVERFLOW imperative-statement]

USE AFTER STANDARD { EXCEPTION
ERROR } PROCEDURE ON

{file-name-1}...
INPUT
OUTPUT
I-O
EXTEND

USE BEFORE REPORTING identifier•

USE FOR DEBUGGING ON { cd-name-1
[ALL REFERENCES OF] identifier-1
file-name-1
procedure-name-1
ALL PROCEDURES }

WRITE record-name [FROM identifier-1]

{ BEFORE
AFTER } ADVANCING { { identifier-2 } { LINE
integer } { LINES }
{ mnemonic-name }
PAGE }

[AT { END-OF-PAGE
EOP } imperative-statement]

WRITE record-name [FROM identifier][INVALID KEY imperative-statement]



Format For Conditions

Relation Condition

$\left\{ \begin{array}{l} \text{identifier-1} \\ \text{literal-1} \\ \text{arithmetic-expression-1} \\ \text{index-name-1} \end{array} \right\}$	$\left\{ \begin{array}{l} \text{IS [NOT] GREATER THAN} \\ \text{IS [NOT] LESS THAN} \\ \text{IS [NOT] EQUAL TO} \\ \text{IS [NOT] >} \\ \text{IS [NOT] <} \\ \text{IS [NOT] =} \end{array} \right\}$	$\left\{ \begin{array}{l} \text{identifier-2} \\ \text{literal-2} \\ \text{arithmetic expression-2} \\ \text{index-name-2} \end{array} \right\}$
--	--	--

Class condition

identifier IS [NOT] $\left\{ \begin{array}{l} \text{NUMERIC} \\ \text{ALPHABETIC} \end{array} \right\}$

Sign condition

arithmetic-expression [NOT] $\left\{ \begin{array}{l} \text{POSITIVE} \\ \text{NEGATIVE} \\ \text{ZERO} \end{array} \right\}$

Condition-name condition

condition-name

Switch-status condition

condition-name

Negated simple condition

NOT simple-condition

Combined condition

condition $\left\{ \left\{ \begin{array}{l} \text{AND} \\ \text{OR} \end{array} \right\} \text{condition} \right\} \dots$

Abbreviated combined relation condition

relation-condition $\left\{ \left\{ \begin{array}{l} \text{AND} \\ \text{OR} \end{array} \right\} \text{[NOT] [relational-operator] object} \right\} \dots$

ภาคผนวก จ.
คำสงวนในภาษาโคล

ภาคผนวก จ.

คำสงวนในภาษาโคบอล

ACCEPT	COMPUTATIONAL	EGI	INDEX
ACCESS	COMPUTE	ELSE	INDEXED
ADD	CONFIGURATION	EMI	INDICATE
ADVANCING	CONTAINS	ENABLE	INITIAL
AFTER	CONTROL	END	INITIATE
ALL	CONTROLS	END-OF-PAGE	INPUT
ALPHABETIC	COPY	ENTER	INPUT-OUTPUT
ALSO	CORR	ENVIRONMENT	INSPECT
ALTER	CORRESPONDING	EOP	INSTALLATION
ALTERNATE	COUNT	EQUAL	INTO
AND	CURRENCY	ERROR	INVALID
ARE		ESI	IS
AREA	DATA	EVERY	
AREAS	DATE	EXCEPTION	JUST
ASCENDING	DATE-COMPILED	EXIT	JUSTIFIED
ASSIGN	DATE-WRITTEN	EXTEND	
AT	DAY		KEY
AUTHOR	DE	FD	
	DEBUG-CONTENTS	FILE	LABEL
BEFORE	DEBUG-ITEM	FILE-CONTROL	LAST
BLANK	DEBUG-LINE	FILLER	LEADING
BLOCK	DEBUG-NAME	FINAL	LEFT
BOTTOM	DEBUG-SUB-1	FIRST	LENGTH
BY	DEBUG-SUB-2	FOOTING	LESS
	DEBUG-SUB-3	FOR	LIMIT
CALL	DEBUGGING	FROM	LIMITS
CANCEL	DECIMAL-POINT		LINAGE
CD	DECLARATIVES	GENERATE	LINAGE-COUNTER
CF	DELETE	GIVING	LINE
CH	DELIMITED	GO	LINE-COUNTER
CHARACTER	DELIMITER	GREATER	LINES
CHARACTERS	DEPENDING	GROUP	LINKAGE
CLOCK-UNITS	DESCENDING		LOCK
CLOSE	DESTINATION	HEADING	LOW-VALUE
COBOL	DETAIL	HIGH-VALUE	LOW-VALUES
CODE	DISABLE	HIGH-VALUES	
CODE-SET	DISPLAY		MEMORY
COLLATING	DIVIDE	I-O	MERGE
COLUMN	DIVISION	I-O-CONTROL	MESSAGE
COMMA	DOWN	IDENTIFICATION	MODE
COMMUNICATION	DUPLICATES	IF	MODULES
COMP	DYNAMIC	IN	MOVE

MULTIPLE	READ	SOURCE-COMPUTER	WHEN
MULTIPLY	RECEIVE	SPACE	WITH
	RECORD	SPACES	WORDS
NATIVE	RECORDS	SPECIAL-NAMES	WORKING-STORAGE
NEGATIVE	REDEFINES	STANDARD	WRITE
NEXT	REEL	STANDARD-1	
NO	REFERENCES	START	ZERO
NOT	RELATIVE	STATUS	ZEROES
NUMBER	RELEASE	STOP	ZEROS
NUMERIC	REMAINDER	STRING	
	REMOVAL	SUB-QUEUE-1	
OBJECT-COMPUTER	RENAMES	SUB-QUEUE-2	
OCCURS	REPLACING	SUB-QUEUE-3	
OF	REPORT	SUBTRACT	
OFF	REPORTING	SUM	
OMITTED	REPORTS	SUPPRESS	
ON	RERUN	SYMBOLIC	
OPEN	RESERVE	SYNC	
OPTIONAL	RESET	SYNCHRONIZED	
OR	RETURN		
ORGANIZATION	REVERSED	TABLE	
OUTPUT	REWIND	TALLYING	
OVERFLOW	REWRITE	TAPE	
	RF	TERMINAL	
PAGE	RH	TERMINATE	
PAGE-COUNTER	RIGHT	TEXT	
PERFORM	ROUNDED	THAN	
PF	RUN	THROUGH	
PH		THRU	
PIC	SAME	TIME	
PICTURE	SD	TIMES	
PLUS	SEARCH	TO	
POINTER	SECTION	TOP	
POSITION	SECURITY	TRAILING	
POSITIVE	SEGMENT	TYPE	
PRINTING	SEGMENT-LIMIT		
PROCEDURE	SELECT	UNIT	
PROCEDURES	SEND	UNSTRING	
PROCEED	SENTENCE	UNTIL	
PROGRAM	SEPARATE	UP	
PROGRAM-ID	SEQUENCE	UPON	
	SEQUENTIAL	USAGE	
QUEUE	SET	USE	
QUOTE	SIGN	USING	
QUOTES	SIZE		
	SORT	VALUE	
RANDOM	SORT-MERGE	VALUES	
RD	SOURCE	VARYING	

ภาคผนวก ช.

รูปแบบคำสั่งภาษาแอสเซมบลี Z-80

ภาคผนวก ช.

รูปแบบคำสั่งภาษาแอสเซมบลี Z-80

Z80, Z80A Instruction

The following is a summary of the Z80, Z80A instruction set showing the assembly language mnemonic and the symbolic operation performed by the instruction. A more detailed listing appears in the Z80-CPU technical manual, and assembly language programming manual. The instructions are divided into the following categories:

- 8-bit loads
- 16-bit loads
- Exchanges
- Memory Block Moves
- Memory Block Searches
- 8-bit arithmetic and logic
- 16-bit arithmetic
- General purpose Accumulator & Flag Operations
- Miscellaneous Group
- Rotates and Shifts
- Bit Set, Reset and Test
- Input and Output
- Jumps
- Restarts
- Returns

In the table the following terminology is used.

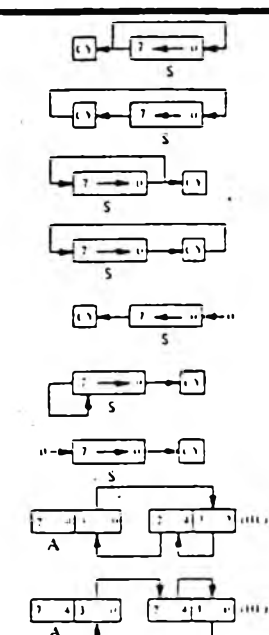
- b ≡ a bit number in any 8-bit register or memory location
- cc ≡ flag condition code
 - NZ ≡ non zero
 - Z ≡ zero
 - NC ≡ non carry
 - C ≡ carry
 - PO ≡ Parity odd or no over flow
 - PE ≡ Parity even or over flow
 - P ≡ Positive
 - M ≡ Negative (minus)

- d ≡ any 8-bit destination register or memory location
 - dd ≡ any 16-bit destination register or memory location
 - e ≡ 8-bit signed 2's complement displacement used in relative jumps and indexed addressing
 - L ≡ 8 special call locations in page zero. In decimal notation these are 0, 8, 16, 24, 32, 40, 48 and 56
 - n ≡ any 8-bit binary number
 - nn ≡ any 16-bit binary number
 - r ≡ any 8-bit general purpose register (A, B, C, D, E, H, or L)
 - s ≡ any 8-bit source register or memory location
 - sb ≡ a bit in a specific 8-bit register or memory location
 - ss ≡ any 16-bit source register or memory location
 - subscript "L" ≡ the low order 8 bits of a 16-bit register
 - subscript "H" ≡ the high order 8 bits of a 16-bit register
 - () ≡ the contents within the () are to be used as a pointer to a memory location or I/O port number
- 8-bit registers are A, B, C, D, E, H, L, I and R
 16-bit register pairs are AF, BC, DE and HL
 16-bit registers are SP, PC, IX and IY

- Addressing Modes implemented include combinations of the following:
- | | |
|--------------------|-------------------|
| Immediate | Indexed |
| Immediate extended | Register |
| Modified Page Zero | Implied |
| Relative | Register Indirect |
| Extended | Bit |

	Mnemonic	Symbolic Operation	Comments
8-BIT LOADS	LD r, s	r ← s	s ≡ r, n, (HL), (IX+e), (IY+e)
	LD d, r	d ← r	d ≡ (HL), r (IX+e), (IY+e)
	LD d, n	d ← n	d ≡ (HL), (IX+e), (IY+e)
	LD A, s	A ← s	s ≡ (BC), (DE), (nn), I, R
	LD d, A	d ← A	d ≡ (BC), (DE), (nn), I, R
16-BIT LOADS	LD dd, nn	dd ← nn	dd ≡ BC, DE, HL, SP, IX, IY
	LD dd, (nn)	dd ← (nn)	dd ≡ BC, DE, HL, SP, IX, IY
	LD (nn), ss	(nn) ← ss	ss ≡ BC, DE, HL, SP, IX, IY
	LD SP, ss	SP ← ss	ss = HL, IX, IY
	PUSH ss	(SP-1) ← ss _H ; (SP-2) ← ss _L	ss = BC, DE, HL, AF, IX, IY
	POP dd	dd _L ← (SP); dd _H ← (SP+1)	dd = BC, DE, HL, AF, IX, IY
EXCHANGES	EX DE, HL	DE ↔ HL	
	EX AF, AF'	AF ↔ AF'	
	EXX	$\begin{pmatrix} BC \\ DE \\ HL \end{pmatrix} \leftrightarrow \begin{pmatrix} BC' \\ DE' \\ HL' \end{pmatrix}$	
	EX (SP), ss	(SP) ↔ ss _L ; (SP+1) ↔ ss _H	ss ≡ HL, IX, IY

	Mnemonic	Symbolic Operation	Comments
MEMORY BLOCK MOVES	LDI	(DE) ← (HL), DE ← DE+1 HL ← HL+1, BC ← BC-1	
	LDIR	(DE) ← (HL), DE ← DE+1 HL ← HL+1, BC ← BC-1 Repeat until BC = 0	
	LDD	(DE) ← (HL), DE ← DE-1 HL ← HL-1, BC ← BC-1	
	LDDR	(DE) ← (HL), DE ← DE-1 HL ← HL-1, BC ← BC-1 Repeat until BC = 0	
MEMORY BLOCK SEARCHES	CPI	A-(HL), HL ← HL+1 BC ← BC-1	
	CPIR	A-(HL), HL ← HL+1 BC ← BC-1. Repeat until BC = 0 or A = (HL)	A-(HL) sets the flags only. A is not affected
	CPD	A-(HL), HL ← HL-1 BC ← BC-1	
	CPDR	A-(HL), HL ← HL-1 BC ← BC-1. Repeat until BC = 0 or A = (HL)	
8-BIT ALU	ADD s	A ← A + s	
	ADC s	A ← A + s + CY	CY is the carry flag
	SUB s	A ← A - s	
	SBC s	A ← A - s - CY	s ≡ r, n, (HL), (IX+e), (IY+e)
	AND s	A ← A ∧ s	
	OR s	A ← A ∨ s	
	XOR s	A ← A ⊕ s	

Mnemonic	Symbolic Operation	Comments
8-BIT ALU CP s	$A \leftarrow s$	$s = r, n$ (HL), (IX+e), (IY+e)
INC d	$d \leftarrow d + 1$	$d = r, (HL)$ (IX+e), (IY+e)
DEC d	$d \leftarrow d - 1$	
16-BIT ARITHMETIC ADD HL, ss ADC HL, ss SBC HL, ss ADD IX, ss ADD IY, ss INC dd DEC dd	$HL \leftarrow HL + ss$ $HL \leftarrow HL + ss + CY$ $HL \leftarrow HL - ss - CY$ $IX \leftarrow IX + ss$ $IY \leftarrow IY + ss$ $dd \leftarrow dd + 1$ $dd \leftarrow dd - 1$	$ss \equiv BC, DE, HL, SP$ $ss \equiv BC, DE, IX, SP$ $ss \equiv BC, DE, IY, SP$ $dd \equiv BC, DE, HL, SP, IX, IY$ $dd \equiv BC, DE, HL, SP, IX, IY$
OP ACC. & FLAG DAA CPL NEG CCF SCF	Converts A contents into packed BCD following add or subtract. $A \leftarrow \overline{A}$ $A \leftarrow 00 - A$ $CY \leftarrow \overline{CY}$ $CY \leftarrow 1$	Operands must be in packed BCD format
MISCELLANEOUS NOP HALT DI EI IM 0 IM 1 IM 2	No operation Halt CPU Disable Interrupts Enable Interrupts Set interrupt mode 0 Set interrupt mode 1 Set interrupt mode 2	8080A mode Call to 0038H Indirect Call
ROTATES AND SHIFTS RLC s RL s RRC s RR s SLA s SRA s SRL s RLD RRD		$s \equiv r, (HL)$ (IX+e), (IY+e)

Mnemonic	Symbolic Operation	Comments
BIT S, R, & T BIT b, s SET b, s RES b, s	$Z \leftarrow \overline{s_b}$ $s_b \leftarrow 1$ $s_b \leftarrow 0$	Z is zero flag $s \equiv r, (HL)$ (IX+e), (IY+e)
INPUT AND OUTPUT IN A, (n) IN r, (C) INI INIR IND INDR OUT(n), A OUT(C), r OUTI OTIR OUTD OTDR	$A \leftarrow (n)$ $r \leftarrow (C)$ $(HL) \leftarrow (C), HL \leftarrow HL + 1$ $B \leftarrow B - 1$ $(HL) \leftarrow (C), HL \leftarrow HL + 1$ $B \leftarrow B - 1$ Repeat until B = 0 $(HL) \leftarrow (C), HL \leftarrow HL - 1$ $B \leftarrow B - 1$ $(HL) \leftarrow (C), HL \leftarrow HL - 1$ $B \leftarrow B - 1$ Repeat until B = 0 $(n) \leftarrow A$ $(C) \leftarrow r$ $(C) \leftarrow (HL), HL \leftarrow HL + 1$ $B \leftarrow B - 1$ $(C) \leftarrow (HL), HL \leftarrow HL + 1$ $B \leftarrow B - 1$ Repeat until B = 0 $(C) \leftarrow (HL), HL \leftarrow HL - 1$ $B \leftarrow B - 1$ $(C) \leftarrow (HL), HL \leftarrow HL - 1$ $B \leftarrow B - 1$ Repeat until B = 0	Set flags
JUMPS JP nn JP cc, nn JR e JR kk, e JP (ss) DJNZ e	$PC \leftarrow nn$ If condition cc is true $PC \leftarrow nn$, else continue $PC \leftarrow PC + e$ If condition kk is true $PC \leftarrow PC + e$, else continue $PC \leftarrow ss$ $B \leftarrow B - 1$, if B = 0 continue, else $PC \leftarrow PC + e$	$cc \left\{ \begin{array}{l} NZ \text{ PO} \\ Z \text{ PE} \\ NC \text{ P} \\ C \text{ M} \end{array} \right.$ $kk \left\{ \begin{array}{l} NZ \text{ NC} \\ Z \text{ C} \end{array} \right.$ $ss = HL, IX, IY$
CALLS CALL nn CALL cc, nn	$(SP-1) \leftarrow PC_H$ $(SP-2) \leftarrow PC_L, PC \leftarrow nn$ If condition cc is false continue, else same as CALL nn	$cc \left\{ \begin{array}{l} NZ \text{ PO} \\ Z \text{ PE} \\ NC \text{ P} \\ C \text{ M} \end{array} \right.$
RESTARTS RST L	$(SP-1) \leftarrow PC_H$ $(SP-2) \leftarrow PC_L, PC_H \leftarrow 0$ $PC_L \leftarrow L$	
RETURNS RET RET cc RETI RETN	$PC_L \leftarrow (SP)$, $PC_H \leftarrow (SP+1)$ If condition cc is false continue, else same as RET Return from interrupt, same as RET Return from non- maskable interrupt	$cc \left\{ \begin{array}{l} NZ \text{ PO} \\ Z \text{ PI} \\ NC \text{ P} \\ C \text{ M} \end{array} \right.$

ภาคผนวก ช.

ตัวอย่างโปรแกรมภาษาโคบอลที่ผ่านการตรวจสอบ

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15.30.27

NOV 25, 1987

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00001 IDENTIFICATION DIVISION. SAN00040
00002 PROGRAM-ID. TEST2. SAN00050
00003 AUTHOR. JANPEN. SAN00060
00004 INSTALLATION. CHULALONGKORN UNIVERSITY. SAN00070
00005 DATE-WRITTEN. 09 SEPTEMBER 87. SAN00080
00006 DATE-COMPILED. NOV 25, 1987. SAN00090
00007 ENVIRONMENT DIVISION. SAN00100
00008 CONFIGURATION SECTION. SAN00120
00009 SOURCE-COMPUTER. IBM-370. SAN00130
00010 OBJECT-COMPUTER. IBM-370. SAN00140
00011 SPECIAL-NAMES. CO1 IS NEXT-PAGE. SAN00150
00012 SAN00160
00013 SAN00170
00014 INPUT-OUTPUT SECTION. SAN00180
00015 FILE-CONTROL. SAN00190
00016 SELECT RATE-INPUT-FILE SAN00200
00017 ASSIGN TO UR-2540F-S-SYSIN. SAN00210
00018 SELECT RATE-REPORT-FILE SAN00220
00019 ASSIGN TO JR-1403-S-SYSPRINT. SAN00230
00020 DATA DIVISION. SAN00240
00021 SAN00250
00022 FILE SECTION. SAN00260
00023 FD RATE-INPUT-FILE SAN00270
00024 RECORD CONTAINS 80 CHARACTERS SAN00280
00025 LABEL RECORDS ARE OMITTED SAN00290
00026 DATA RECORD IS RATE-INPUT-RECORD. SAN00300
00027 01 RATE-INPUT-RECORD. SAN00310
00028 02 DIVISION-INPUT PIC X(02). SAN00320
00029 02 DEPT-INPUT PIC X(03). SAN00330
00030 02 NAME-INPUT PIC X(15). SAN00340
00031 02 CODE-INPUT PIC X(02). SAN00350
00032 02 FILLER PIC X(07). SAN00360
00033 02 YEARLY-SALARY PIC 9(05)V99. SAN00370
00034 02 FILLER PIC X(144). SAN00380
00035 FD RATE-REPORT-FILE SAN00390
00036 RECORD CONTAINS 133 CHARACTERS SAN00400
00037 LABEL RECORD ARE OMITTED SAN00410
00038 DATA RECORD IS RATE-REPORT-RECORD. SAN00420
00039 01 RATE-REPORT-RECORD PIC X(132). SAN00430
00040 WORKING-STORAGE SECTION. SAN00440
00041 01 PROGRAM-INDICATORS. SAN00450
00042 02 ARE-THERE-MORE-RECORDS PIC X(03) VALUE 'YES'. SAN00460
00043 88 THERE-IS-A-RECORD VALUE 'YES'. SAN00470
00044 88 THERE-ARE-NO-MORE-RECORDS VALUE 'NO '. SAN00480
00045 02 WAS-THERE-A-DIVISION-CHANGE PIC X(03) VALUE 'NO '. SAN00490
00046 88 THERE-WAS-A-DIVISION-CHANGE VALUE 'YES'. SAN00500
00047 02 WAS-THERE-A-DEPARTMENT-CHANGE PIC X(03) VALUE 'NO '. SAN00510
00048 88 THERE-WAS-A-DEPARTMENT-CHANGE VALUE 'YES'. SAN00520
00049 02 ALL-TOTAL-SCORE PIC 9(06) VALUE ZERO. SAN00530
00050 01 PROGRAM-COMPARE-AREAS. SAN00540
00051

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Code	Description	Code	Value	Code
00052	02 PREVIOUS-DIVISION	PIC X(10).		SAN00550
00053	02 PREVIOUS-DEPARTMENT	PIC X(10).		SAN00560
00054	02 PREVIOUS-FACULTY	PIC 9(02).		SAN00570
00055	02 PREVIOUS-DIVISION-ID	PIC 9(02).		SAN00580
00056	02 PREVIOUS-DEPT	PIC 999.		SAN00590
00057	01 TOTAL1-ACCUMULATORS.			SAN00600
00058	02 TEACHING-HOURS-1	PIC 9(02)	VALUE ZERO.	SAN00610
00059	02 RESEARCH-HOURS-1	PIC 9(02)	VALUE ZERO.	SAN00620
00060	02 SALARY-TEACHING-1	PIC 9(06)V99	VALUE ZERO.	SAN00630
00061	02 SALARY-RESEARCH-1	PIC 9(06)V99	VALUE ZERO.	SAN00640
00062	02 TEACHING-HOURS-2	PIC 9(03)	VALUE ZERO.	SAN00650
00063	02 RESEARCH-HOURS-2	PIC 9(03)	VALUE ZERO.	SAN00660
00064	02 YEARLY-SALARY-2	PIC 9(07)V99	VALUE ZERO.	SAN00670
00065	02 SALARY-TEACHING-2	PIC 9(07)V99	VALUE ZERO.	SAN00680
00066	02 SALARY-RESEARCH-2	PIC 9(07)V99	VALUE ZERO.	SAN00690
00067	02 TEACHING-HOURS-3	PIC 9(05)	VALUE ZERO.	SAN00700
00068	02 RESEARCH-HOURS-3	PIC 9(05)	VALUE ZERO.	SAN00710
00069	02 YEARLY-SALARY-3	PIC 9(07)V99	VALUE ZERO.	SAN00720
00070	02 SALARY-TEACHING-3	PIC 9(07)V99	VALUE ZERO.	SAN00730
00071	02 SALARY-RESEARCH-3	PIC 9(07)V99	VALUE ZERO.	SAN00740
00072	01 TOTAL2-ACCUMULATORS.			SAN00750
00073	02 TOTAL-FACULTY-4	PIC 9(03)	VALUE ZERO.	SAN00760
00074	02 INSTRUCTORS-4	PIC 9(03)	VALUE ZERO.	SAN00770
00075	02 ASSI-PROFESSORS-4	PIC 9(03)	VALUE ZERO.	SAN00780
00076	02 ASSO-PROFESSORS-4	PIC 9(03)	VALUE ZERO.	SAN00790
00077	02 PROFESSORS-4	PIC 9(03)	VALUE ZERO.	SAN00800
00078	02 TEACHING-HOURS-4	PIC 9(04)	VALUE ZERO.	SAN00810
00079	02 RESEARCH-HOURS-4	PIC 9(04)	VALUE ZERO.	SAN00820
00080	02 TOTAL-HOURS-4	PIC 9(04)	VALUE ZERO.	SAN00830
00081	02 SALARY-TEACHING-4	PIC 9(09)V99	VALUE ZERO.	SAN00840
00082	02 SALARY-RESEARCH-4	PIC 9(09)V99	VALUE ZERO.	SAN00850
00083	02 TOTAL-SALARY-4	PIC 9(09)V99	VALUE ZERO.	SAN00860
00084	02 YEARLY-SALARY-4	PIC 9(09)V99	VALUE ZERO.	SAN00870
00085	02 TOTAL-SALARIES-4	PIC 9(09)V99	VALUE ZERO.	SAN00880
00086	01 DEPARTMENT-TABLE.			SAN00890
00087	05 DEPARTMENT-CONSTANTS.			SAN00900
00088	10 FILLER	PIC X(13)	VALUE	SAN00910
00089		'030ACCOUNTING'		SAN00920
00090	10 FILLER	PIC X(13)	VALUE	SAN00930
00091		'041ART'		SAN00940
00092	10 FILLER	PIC X(13)	VALUE	SAN00950
00093		'048ANATOMY'		SAN00960
00094	10 FILLER	PIC X(13)	VALUE	SAN00970
00095		'053BIOLOGY'		SAN00980
00096	10 FILLER	PIC X(13)	VALUE	SAN00990
00097		'057BOTANY'		SAN01000
00098	10 FILLER	PIC X(13)	VALUE	SAN01010
00099		'065CHEMISTRY'		SAN01020
00100	10 FILLER	PIC X(13)	VALUE	SAN01030
00101		'071JOURNALISM'		SAN01040
00102	10 FILLER	PIC X(13)	VALUE	SAN01050
00103		'073LITERATURE'		SAN01060
00104	10 FILLER	PIC X(13)	VALUE	SAN01070

3

TEST2

15.36.27

NOV 23, 1987

00105		'07HISTORY	'.	SAN01080
00106	10 FILLER	PIC X(13)	VALUE	SAN01090
00107		'08MARKETING	'.	SAN01100
00108	10 FILLER	PIC X(13)	VALUE	SAN01110
00109		'08MATH	'.	SAN01120
00110	10 FILLER	PIC X(13)	VALUE	SAN01130
00111		'09MUSIC	'.	SAN01140
00112	10 FILLER	PIC X(13)	VALUE	SAN01150
00113		'10PHILOSOPHY	'.	SAN01160
00114	10 FILLER	PIC X(13)	VALUE	SAN01170
00115		'11PHYSICS	'.	SAN01180
00116	10 FILLER	PIC X(13)	VALUE	SAN01190
00117		'14MANAGEMENT	'.	SAN01200
00118	05 DEPARTMENT-TABLES	REDEFINES DEPARTMENT-CONSTANTS		SAN01210
00119		OCCURS 15 TIMES		SAN01220
00120		ASCENDING KEY IS DP-TABLE		SAN01230
00121		INDEXED BY CLASS-INO.		SAN01240
00122	10 DP-TABLE	PIC 9(03).		SAN01250
00123	10 DEPARTMENT-NAME-TABLE	PIC X(10).		SAN01260
00124	01 FACULTY-TITLE-TABLE.			SAN01270
00125	05 FACULTY-CONSTANTS.			SAN01280
00126	10 FILLER	PIC X(27)	VALUE	SAN01290
00127		'01INSTRUCTOR	100000'.	SAN01300
00128	10 FILLER	PIC X(27)	VALUE	SAN01310
00129		'02ASSISTANT PROFESSOR	00020'.	SAN01320
00130	10 FILLER	PIC X(27)	VALUE	SAN01330
00131		'03ASSISTANT PROFESSOR	060040'.	SAN01340
00132	10 FILLER	PIC X(27)	VALUE	SAN01350
00133		'04PROFESSOR	040060'.	SAN01360
00134	05 FACULTY-TITLE-TABLES	REDEFINES FACULTY-CONSTANTS		SAN01370
00135		OCCURS 4 TIMES		SAN01380
00136		ASCENDING KEY IS FL-TABLE		SAN01390
00137		INDEXED BY FACULTY-INDEX.		SAN01400
00138	10 FL-TABLE	PIC 9(02).		SAN01410
00139	10 FACULTY-TITLE	PIC X(19).		SAN01420
00140	10 TIME-SPENT-CLASS	PIC 9V99.		SAN01430
00141	10 TIME-RESEARCH	PIC 9V99.		SAN01440
00142	01 DIVISION-NAME-TABLE.			SAN01450
00143	05 DIVISION-CONSTANTS.			SAN01460
00144	10 FILLER	PIC X(15)	VALUE	SAN01470
00145		'01BUSINESS	040'.	SAN01480
00146	10 FILLER	PIC X(15)	VALUE	SAN01490
00147		'02ENGLISH	030'.	SAN01500
00148	10 FILLER	PIC X(15)	VALUE	SAN01510
00149		'03FINE ARTS	030'.	SAN01520
00150	10 FILLER	PIC X(15)	VALUE	SAN01530
00151		'04HUMANITIES	030'.	SAN01540
00152	10 FILLER	PIC X(15)	VALUE	SAN01550
00153		'05SCIENCE	050'.	SAN01560
00154	05 DIVISION-NAME-TABLES	REDEFINES DIVISION-CONSTANTS		SAN01570
00155		OCCURS 5 TIMES		SAN01580
00156		ASCENDING KEY IS DV-TABLE		SAN01590
00157		INDEXED BY DIVISION-INDEX.		SAN01600

TEST2

19.36.27

NOV 23,1987

00158	10	DN-TABLE	PIC 9(02).	SAN01610
00159	10	DIVISION-NAME	PIC X(10).	SAN01620
00160	10	RESEAKCH-PERCENTAGE	PIC 9V99.	SAN01630
00161	*A FACULTY COST DISTRIBUTION REPORT			SAN01640
00162	01	OUTPUT-SALARY.		SAN01650
00163	02	FILLER	PIC X.	SAN01660
00164	02	DIVISION-NAME-REPORT	PIC X(10).	SAN01670
00165	02	FILLER	PIC X(02) VALUE SPACES.	SAN01680
00166	02	DEPARTMENT-NAME-REPORT	PIC X(10).	SAN01690
00167	02	FILLER	PIC X(04) VALUE SPACES.	SAN01700
00168	02	FACULTY-NAME-OUTPUT	PIC X(15).	SAN01710
00169	02	FILLER	PIC X(03) VALUE SPACES.	SAN01720
00170	02	FACULTY-TITLE-OUTPUT	PIC X(19).	SAN01730
00171	02	FILLER	PIC X(05) VALUE SPACES.	SAN01740
00172	02	TEACHING-HOURS-OUTPUT	PIC Z9.	SAN01750
00173	02	FILLER	PIC X(08) VALUE SPACES.	SAN01760
00174	02	RESEARCH-HOURS-OUTPUT	PIC Z9.	SAN01770
00175	02	FILLER	PIC X(06) VALUE SPACES.	SAN01780
00176	02	YEARLY-SALARY-OUTPUT	PIC ZZ,ZZZ.99.	SAN01790
00177	02	FILLER	PIC X(04) VALUE SPACES.	SAN01800
00178	02	SALARY-TEACHING-OUTPUT	PIC ZZ,ZZ9.99.	SAN01810
00179	02	FILLER	PIC X(04) VALUE SPACES.	SAN01820
00180	02	SALARY-RESEARCH-OUTPUT	PIC ZZ,ZZ9.99.	SAN01830
00181	02	FILLER	PIC X(11) VALUE SPACES.	SAN01840
00182	01	TOTAL-LINES.		SAN01850
00183	02	DEPARTMENT-TOTAL-LINE.		SAN01860
00184	10	FILLER	PIC X(34) VALUE SPACES.	SAN01870
00185	10	FILLER	PIC X(20) VALUE	SAN01880
00186			'DEPARTMENT TOTAL - '	SAN01890
00187	10	DEPARTMENT-NAME-OUTPUT	PIC X(10).	SAN01900
00188	10	FILLER	PIC X(04) VALUE SPACES.	SAN01910
00189	10	TOTAL-DEP-TEACHING-HOURS	PIC ZZ9.	SAN01920
00190	10	FILLER	PIC X(07) VALUE SPACES.	SAN01930
00191	10	TOTAL-DEP-RESEARCH-HOURS	PIC ZZ9.	SAN01940
00192	10	FILLER	PIC X(05) VALUE SPACES.	SAN01950
00193	10	TOTAL-DEP-YEARLY-SALARY	PIC ZZZ,ZZZ.99.	SAN01960
00194	10	FILLER	PIC X(03) VALUE SPACES.	SAN01970
00195	10	TOTAL-DEP-SALARY-TEACHING	PIC ZZZ,ZZZ.99.	SAN01980
00196	10	FILLER	PIC X(03) VALUE SPACES.	SAN01990
00197	10	TOTAL-DEP-SALARY-RESEARCH	PIC ZZZ,ZZZ.99.	SAN02000
00198	10	FILLER	PIC X(11) VALUE SPACES.	SAN02010
00199	02	DIVISION-TOTAL-LINE.		SAN02020
00200	10	FILLER	PIC X(36) VALUE SPACES.	SAN02030
00201	10	FILLER	PIC X(18) VALUE	SAN02040
00202			'DIVISION TOTALS - '	SAN02050
00203	10	DIVISION-NAME-OUTPUT	PIC X(12).	SAN02060
00204	10	TOTAL-DIVI-TEACHING-HOURS	PIC Z,ZZ9.	SAN02070
00205	10	FILLER	PIC X(05) VALUE SPACES.	SAN02080
00206	10	TOTAL-DIVI-RESEARCH-HOURS	PIC Z,ZZ9.	SAN02090
00207	10	FILLER	PIC X(05) VALUE SPACES.	SAN02100
00208	10	TOTAL-DIVI-YEARLY-SALARY	PIC ZZZ,ZZZ.99.	SAN02110
00209	10	FILLER	PIC X(03) VALUE SPACES.	SAN02120
00210	10	TOTAL-DIVI-SALARY-TEACHING	PIC ZZZ,ZZZ.99.	SAN02130

5

TEST2

19.30.27

NOV 23, 1987

00211	10	FILLER	PIC X(03)	VALUE SPACES.	SAN02140
00212	10	TOTAL-DIVI-SALARY-RESEARCH	PIC ZZZ,ZZZ.99.		SAN02150
00213	10	EXCEEDS-RESEARCH-PERCENT	PIC X(11).		SAN02160
00214	# A SCHOOL SUMMARY REPORT				SAN02170
00215	01	OUTPUT-TOTAL.			SAN02180
00216	02	FILLER	PIC X(03)	VALUE SPACES.	SAN02190
00217	02	TOTAL-FACULTY	PIC ZZ9.		SAN02200
00218	02	FILLER	PIC X(03)	VALUE SPACES.	SAN02210
00219	02	INSTRUCTORS	PIC ZZ9.		SAN02220
00220	02	FILLER	PIC X(09)	VALUE SPACES.	SAN02230
00221	02	ASSI-PROFESSOR	PIC ZZ9.		SAN02240
00222	02	FILLER	PIC X(09)	VALUE SPACES.	SAN02250
00223	02	ASSO-PROFESSOR	PIC ZZ9.		SAN02260
00224	02	FILLER	PIC X(09)	VALUE SPACES.	SAN02270
00225	02	PROFESSORS	PIC ZZ9.		SAN02280
00226	02	FILLER	PIC X(07)	VALUE SPACES.	SAN02290
00227	02	TEACHING-HOURS	PIC Z,ZZ9.		SAN02300
00228	02	FILLER	PIC X(05)	VALUE SPACES.	SAN02310
00229	02	RESEARCH-HOURS	PIC Z,ZZ9.		SAN02320
00230	02	FILLER	PIC X(05)	VALUE SPACES.	SAN02330
00231	02	TOTAL-HOURS	PIC Z,ZZ9.		SAN02340
00232	02	FILLER	PIC X(02)	VALUE SPACES.	SAN02350
00233	02	TEACHING-SALARIES	PIC \$\$\$,\$\$\$.		SAN02360
00234	02	FILLER	PIC XX	VALUE SPACES.	SAN02370
00235	02	RESEARCH-SALARIES	PIC \$\$\$,\$\$\$.		SAN02380
00236	02	FILLER	PIC XX	VALUE SPACES.	SAN02390
00237	02	TOTAL-SALARIES	PIC \$\$\$,\$\$\$.		SAN02400
00238	02	FILLER	PIC X	VALUE SPACES.	SAN02410
00239	01	PRINTER-CONTROL.			SAN02420
00240	02	PROPER-SPACING	PIC 9.		SAN02430
00241	02	SPACE-ONE-LINE	PIC 9	VALUE 1.	SAN02440
00242	02	SPACE-TWO-LINE	PIC 9	VALUE 2.	SAN02450
00243	02	LINES-PRINTED	PIC 999	VALUE 0.	SAN02460
00244	02	PAGE-SIZE	PIC 999	VALUE 40.	SAN02470
00245	02	PAGE-COUNT	PIC 999	VALUE 1.	SAN02480
00246	02	88 FIRST-PAGE		VALUE 1.	SAN02490
00247	01	REPORT-HEADINGS.			SAN02500
00248	02	FIRST-HEADING1-LINE.			SAN02510
00249	05	CARRIAGE-CONTROL	PIC X.		SAN02520
00250	05	DATE-HEADING1	PIC X(08).		SAN02530
00251	05	FILLER	PIC X(38)	VALUE SPACES.	SAN02540
00252	05	FILLER	PIC X(25)	VALUE	SAN02550
00253		'FACULTY COST DISTRIBUTION'.			SAN02560
00254	05	FILLER	PIC X(41)	VALUE SPACES.	SAN02570
00255	05	FILLER	PIC X(05)	VALUE 'PAGE'	SAN02580
00256	05	PAGE-HEADING1	PIC ZZ9.		SAN02590
00257	05	FILLER	PIC X(12)	VALUE SPACES.	SAN02600
00258	02	SECOND-HEADING1-LINE.			SAN02610
00259	05	CARRIAGE-CONTROL	PIC X.		SAN02620
00260	05	FILLER	PIC X(12)	VALUE	SAN02630
00261		'DIVISION'			SAN02640
00262	05	FILLER	PIC X(10)	VALUE	SAN02650
00263		'DEPARTMENT'			SAN02660

6

TEST2

19.36.27

NOV 23, 1987

00264	05	FILLER	PIC X(08)	VALUE SPACES.	SAN02670
00265	05	FILLER	PIC X(07)	VALUE	SAN0268J
00266			'FACULTY'.		SAN02690
00267	05	FILLER	PIC X(13)	VALUE SPACES.	SAN02700
00268	05	FILLER	PIC X(07)	VALUE	SAN02710
00269			'FACULTY'.		SAN02720
00270	05	FILLER	PIC X(08)	VALUE SPACES.	SAN02730
00271	05	FILLER	PIC X(10)	VALUE	SAN02740
00272			'TEACHING '.		SAN02750
00273	05	FILLER	PIC X(13)	VALUE	SAN02760
00274			'RESEARCH '.		SAN02770
00275	05	FILLER	PIC X(13)	VALUE	SAN02780
00276			'YEARLY '.		SAN02790
00277	05	FILLER	PIC X(12)	VALUE	SAN02800
00278			'SALARY '.		SAN02810
00279	05	FILLER	PIC X(06)	VALUE	SAN02820
00280			'SALARY'.		SAN02830
00281	05	FILLER	PIC X(13)	VALUE SPACES.	SAN02840
00282	02	THIRD-HEADING1-LINE.			SAN02850
00283	05	CARRIAGE-CONTROL	PIC X.		SAN02860
00284	05	FILLER	PIC X(07)	VALUE	SAN02870
00285			'NAME'.		SAN02880
00286	05	FILLER	PIC X(12)	VALUE	SAN02890
00287			'NAME'.		SAN02900
00288	05	FILLER	PIC X(16)	VALUE	SAN02910
00289			'NAME'.		SAN02920
00290	05	FILLER	PIC X(16)	VALUE SPACES.	SAN02930
00291	05	FILLER	PIC X(05)	VALUE 'TITLE'.	SAN02940
00292	05	FILLER	PIC X(11)	VALUE SPACES.	SAN02950
00293	05	FILLER	PIC X(05)	VALUE 'HOURS'.	SAN02960
00294	05	FILLER	PIC X(10)	VALUE	SAN02970
00295			'HOURS'.		SAN02980
00296	05	FILLER	PIC X(12)	VALUE	SAN02990
00297			'SALARY'.		SAN03000
00298	05	FILLER	PIC X(14)	VALUE	SAN03010
00299			'TEACHING'.		SAN03020
00300	05	FILLER	PIC X(12)	VALUE	SAN03030
00301			'RESEARCH'.		SAN03040
00302	05	FILLER	PIC X(12)	VALUE SPACES.	SAN03050
00303	02	FIRST-HEADING2-LINE.			SAN03060
00304					SAN03070
00305					SAN03080
00306	05	CARRIAGE-CONTROL	PIC X.		SAN03090
00307	05	DATE-HEADING2	PIC X(09).		SAN03100
00308	05	FILLER	PIC X(44)	VALUE SPACES.	SAN03110
00309	05	FILLER	PIC X(14)	VALUE	SAN03120
00310			'SCHCOL-SAMMARY'.		SAN03130
00311	05	FILLER	PIC X(47)	VALUE SPACES.	SAN03140
00312	05	FILLER	PIC X(05)	VALUE 'PAGE '.	SAN03150
00313	05	PAGE-HEADING2	PIC Z9.		SAN03160
00314	05	FILLER	PIC X(12)	VALUE SPACES.	SAN03170
00315	02	SECOND-HEADING2-LINE.			SAN03180
00316	05	CARRIAGE-CONTROL	PIC X.		SAN03190

7

TEST2

19.36.27

NOV 23,1987

00317	05 FILLER	PIC X(07) VALUE ' TOTAL'.	SAN03200
00318	05 FILLER	PIC X(16) VALUE SPACES.	SAN03210
00319	05 FILLER	PIC X(12) VALUE	SAN03220
00320		'ASSISTANT '.	SAN03230
00321	05 FILLER	PIC X(09) VALUE	SAN03240
00322		'ASSOCIATE'.	SAN03250
00323	05 FILLER	PIC X(15) VALUE SPACES.	SAN03260
00324	05 FILLER	PIC X(10) VALUE	SAN03270
00325		'TEACHING '.	SAN03280
00326	05 FILLER	PIC X(11) VALUE	SAN03290
00327		'RESEARCH '.	SAN03300
00328	05 FILLER	PIC X(10) VALUE	SAN03310
00329		'TOTAL '.	SAN03320
00330	05 FILLER	PIC X(15) VALUE	SAN03330
00331		'TEACHING '.	SAN03340
00332	05 FILLER	PIC X(16) VALUE	SAN03350
00333		'RESEARCH '.	SAN03360
00334	05 FILLER	PIC X(11) VALUE	SAN03370
00335		'TOTAL '.	SAN03380
00336	02 THIRD-HEADING-LINE.		SAN03390
00337	05 CARRIAGE-CONTROL	PIC X.	SAN03400
00338	05 FILLER	PIC X(08) VALUE	SAN03410
00339		' FACULTY'.	SAN03420
00340	05 FILLER	PIC X(13) VALUE	SAN03430
00341		' UNSTRUCTORS'.	SAN03440
00342	05 FILLER	PIC X(11) VALUE	SAN03450
00343		' PROFESSOR'.	SAN03460
00344	05 FILLER	PIC X(11) VALUE	SAN03470
00345		' PROFESSOR'.	SAN03480
00346	05 FILLER	PIC X(11) VALUE	SAN03490
00347		' PROFESSOR'.	SAN03500
00348	05 FILLER	PIC X(12) VALUE	SAN03510
00349		' HOURS'.	SAN03520
00350	05 FILLER	PIC X(10) VALUE	SAN03530
00351		' HOURS'.	SAN03540
00352	05 FILLER	PIC X(10) VALUE	SAN03550
00353		' HOURS'.	SAN03560
00354	05 FILLER	PIC X(13) VALUE	SAN03570
00355		' SALARIES'.	SAN03580
00356	05 FILLER	PIC X(15) VALUE	SAN03590
00357		' SALARIES'.	SAN03600
00358	05 FILLER	PIC X(15) VALUE	SAN03610
00359		' SALARIES'.	SAN03620
00360	01 AREA-ACCUM.		SAN03630
00361	05 NUM-1	PIC 99999 VALUE ZERO.	SAN03640
00362	05 NUM-2	PIC 9V99 VALUE ZERO.	SAN03650
00363	PROCEDURE DIVISION.		SAN03660
00364			SAN03670
00365		*****	SAN03680
00366	*		*SAN03690
00367	* THIS MODULE OPEN FILE AND OBTAIN DATAS FOR PROCESS IN		*SAN03700
00368	* PROCEDURE DIVISION AND READ INPUT FILE AT END THEN PRINTS		*SAN03710
00369	* REPORT AND CLOSE FILE.		*SAN03720

6 TEST2 19.36.27 NOV 23,1987

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00370 *
00371 *****
00372
00373 A000-COST-DISTRIBUTION-REPORT.
00374 OPEN INPUT RATE-INPUT-FILE
00375 OUTPUT RATE-REPORT-FILE.
00376 READ RATE-INPUT-FILE
00377 AT END
00378 MOVE 'NO ' TO ARE-THERE-MORE-RECORDS.
00379 IF THERE-IS-A-RECORD
00380 MOVE DIVISION-INPUT TO PREVIOUS-DIVISION-ID.
00381 MOVE DEPT-INPUT TO PREVIOUS-DEPT.
00382 PERFORM A001-PROCESS-AND-READ
00383 UNTIL THERE-ARE-NO-MORE-RECORDS.
00384 PERFORM C000-PROCESS-DEPARTMENT-CHANGE.
00385 PERFORM C010-PROCESS-DIVISION-CHANGE.
00386 PERFORM F010-SCHOOL-SUMMARY.
00387 CLOSE RATE-INPUT-FILE
00388 RATE-REPORT-FILE.
00389 STOP RUN.
00390 A001-PROCESS-AND-READ.
00391 PERFORM A000-PREVIOUS.
00392 PERFORM A020-SEARCH-DEPARTMENT.
00393 PERFORM A030-SEARCH-DIVISION.
00394 PERFORM B010-PROCESS-DETAIL-RECORDS.
00395 READ RATE-INPUT-FILE
00396 AT END
00397 MOVE 'NO ' TO ARE-THERE-MORE-RECORDS.
00398 B010-PROCESS-DETAIL-RECORDS.
00399 MOVE SPACE TO OUTPUT-SALARY.
00400 IF LINES-PRINTED IS EQUAL TO PAGE-SIZE OR
00401 IS GREATER THAN PAGE-SIZE OR FIRST-PAGE
00402 PERFORM G000-PRINT-HEADINGS1
00403 MOVE SPACES TO OUTPUT-SALARY
00404 MOVE PREVIOUS-DEPARTMENT TO DEPARTMENT-NAME-REPORT
00405 MOVE PREVIOUS-DIVISION TO DIVISION-NAME-REPORT.
00406 IF THERE-WAS-A-DIVISION-CHANGE
00407 MOVE DEPARTMENT-NAME-TABLE(CLASS-IND)
00408 TO DEPARTMENT-NAME-REPORT
00409 MOVE DIVISION-NAME(DIVISION-INDEX)
00410 TO DIVISION-NAME-REPORT
00411 MOVE 'NO ' TO WAS-THERE-A-DIVISION-CHANGE
00412 ELSE
00413 IF THERE-WAS-A-DEPARTMENT-CHANGE
00414 MOVE DEPARTMENT-NAME-TABLE(CLASS-IND) TO
00415 DEPARTMENT-NAME-REPORT
00416 MOVE 'NO ' TO WAS-THERE-A-DEPARTMENT-CHANGE.
00417 PERFORM A010-SEARCH-FACULTY.
00418 WRITE RATE-REPORT-RECORD FROM OUTPUT-SALARY
00419 AFTER PROPER-SPACING.
00420 ADD PROPER-SPACING TO LINES-PRINTED.
00421 MOVE SPACE-ONE-LINE TO PROPER-SPACING.
00422 ADD 1 TO TOTAL-FACULTY-4.

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*SAN03730
SAN03740
SAN03750
SAN03760
SAN03770
SAN03780
SAN03790
SAN03800
SAN03810
SAN03820
SAN03830
SAN03840
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SAN03940
SAN03950
SAN03960
SAN03970
SAN03980
SAN03990
SAN04000
SAN04010
SAN04020
SAN04030
SAN04040
SAN04050
SAN04060
SAN04070
SAN04080
SAN04090
SAN04100
SAN04110
SAN04120
SAN04130
SAN04140
SAN04150
SAN04160
SAN04170
SAN04180
SAN04190
SAN04200
SAN04210
SAN04220
SAN04230
SAN04240
SAN04250

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10 TEST2 19.36.27 NOV 23,1987

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00476 ***** SAN04790
00477 = * SAN04800
00478 * THIS MODULE SEARCHES DIVISION TABLE. * SAN04810
00479 * * SAN04820
00480 ***** SAN04830
00481 SAN04840
00482 A030-SEARCH-DIVISION. SAN04850
00483 SEARCH ALL DIVISION-NAME-TABLES SAN04860
00484 AT END SAN04870
00485 MOVE 'UNKNOWN' TO DIVISION-NAME-REPORT SAN04880
00486 WHEN DN-TABLE(DIVISION-INDEX) = DIVISION-INPUT SAN04890
00487 MOVE DIVISION-NAME(DIVISION-INDEX) SAN04900
00488 TO PREVIOUS-DIVISION. SAN04910
00489 B000-PREVIOUS. SAN04920
00490 IF DIVISION-INPUT NOT = PREVIOUS-DIVISION-ID SAN04930
00491 PERFORM C000-PROCESS-DEPARTMENT-CHANGE SAN04940
00492 PERFORM C010-PROCESS-DIVISION-CHANGE SAN04950
00493 MOVE 'YES' TO WAS-THERE-A-DIVISION-CHANGE SAN04960
00494 ELSE IF DEPT-INPUT NOT = PREVIOUS-DEPT SAN04970
00495 PERFORM C000-PROCESS-DEPARTMENT-CHANGE SAN04980
00496 MOVE 'YES' TO WAS-THERE-A-DEPARTMENT-CHANGE. SAN04990
00497 SAN05000
00498 ***** SAN05010
00499 = * SAN05020
00500 * THIS MODULE PRINTS FACULTY DISTRIBUTION REPORT IF DEPARTMENT * SAN05030
00501 * CHANGE AND CALCULATES SUM FOR DIVISION CHANGE. * SAN05040
00502 = * SAN05050
00503 ***** SAN05060
00504 SAN05070
00505 C000-PROCESS-DEPARTMENT-CHANGE. SAN05080
00506 MOVE TEACHING-HOURS-2 TO TOTAL-DEP-TEACHING-HOURS. SAN05090
00507 MOVE PREVIOUS-DEPARTMENT TO DEPARTMENT-NAME-OUTPUT. SAN05100
00508 MOVE RESEARCH-HOURS-2 TO TOTAL-DEP-RESEARCH-HOURS. SAN05110
00509 MOVE YEARLY-SALARY-2 TO TOTAL-DEP-YEARLY-SALARY. SAN05120
00510 MOVE SALARY-TEACHING-2 TO TOTAL-DEP-SALARY-TEACHING. SAN05130
00511 MOVE SALARY-RESEARCH-2 TO TOTAL-DEP-SALARY-RESEARCH. SAN05140
00512 WRITE RATE-REPORT-RECORD FROM DEPARTMENT-TOTAL-LINE SAN05150
00513 AFTER ADVANCING 2 LINES. SAN05160
00514 ADD TEACHING-HOURS-2 TO TEACHING-HOURS-3. SAN05170
00515 ADD RESEARCH-HOURS-2 TO RESEARCH-HOURS-3. SAN05180
00516 ADD YEARLY-SALARY-2 TO YEARLY-SALARY-3. SAN05190
00517 ADD SALARY-TEACHING-2 TO SALARY-TEACHING-3. SAN05200
00518 ADD SALARY-RESEARCH-2 TO SALARY-RESEARCH-3. SAN05210
00519 MOVE 0 TO TEACHING-HOURS-2 SAN05220
00520 RESEARCH-HOURS-2 SAN05230
00521 YEARLY-SALARY-2 SAN05240
00522 SALARY-TEACHING-2 SAN05250
00523 SALARY-RESEARCH-2. SAN05260
00524 IF THERE-IS-A-RECORD SAN05270
00525 MOVE DEPT-INPUT TO PREVIOUS-DEPT. SAN05280
00526 ADD 2 TO LINES-PRINTED. SAN05290
00527 MOVE SPACE-TWO-LINE TO PROPER-SPACING. SAN05300
00528 SAN05310

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11 TEST2 15.30.27 NOV 23,1987

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00529 =====* SAN05320
00530 = * SAN05330
00531 * THIS MODULE PRINTS FACULTY DISTRIBUTION REPORT IF DIVISION * SAN05340
00532 * CHANGE AND CALCULATES SUM OF ALL VALUES FOR SUMMARY REPORT. * SAN05350
00533 = * SAN05360
00534 =====* SAN05370
00535 * SAN05380
00536 C010-PROCESS-DIVISION-CHANGE. * SAN05390
00537 MOVE PREVIOUS-DIVISION TO DIVISION-NAME-OUTPUT. * SAN05400
00538 MOVE TEACHING-HOURS-3 TO TOTAL-DIVI-TEACHING-HOURS. * SAN05410
00539 MOVE RESEARCH-HOURS-3 TO TOTAL-DIVI-RESEARCH-HOURS. * SAN05420
00540 MOVE YEARLY-SALARY-3 TO TOTAL-DIVI-YEARLY-SALARY. * SAN05430
00541 MOVE SALARY-TEACHING-3 TO TOTAL-DIVI-SALARY-TEACHING. * SAN05440
00542 MOVE SALARY-RESEARCH-3 TO TOTAL-DIVI-SALARY-RESEARCH. * SAN05450
00543 PERFORM 0000-EXCEEDS-RESEARCH-PERCENT. * SAN05460
00544 WRITE RATE-REPORT-RECORD FROM DIVISION-TOTAL-LINE * SAN05470
00545 AFTER ADVANCING 3 LINES. * SAN05480
00546 ADD TEACHING-HOURS-3 TO TEACHING-HOURS-4. * SAN05490
00547 ADD RESEARCH-HOURS-3 TO RESEARCH-HOURS-4. * SAN05500
00548 ADD YEARLY-SALARY-3 TO YEARLY-SALARY-4. * SAN05510
00549 ADD SALARY-TEACHING-3 TO SALARY-TEACHING-4. * SAN05520
00550 ADD SALARY-RESEARCH-3 TO SALARY-RESEARCH-4. * SAN05530
00551 MOVE 0 TO TEACHING-HOURS-3 * SAN05540
00552 RESEARCH-HOURS-3 * SAN05550
00553 YEARLY-SALARY-3 * SAN05560
00554 SALARY-TEACHING-3 * SAN05570
00555 SALARY-RESEARCH-3. * SAN05580
00556 IF THERE-IS-A-RECORD * SAN05590
00557 MOVE DIVISION-INPUT TO PREVIOUS-DIVISION-ID. * SAN05600
00558 ADD 4 TO LINES-PRINTED. * SAN05610
00559 MOVE SPACE-TWO-LINE TO PROPER-SPACING. * SAN05620
00560 G000-PRINT-HEADINGS 1. * SAN05630
00561 MOVE CURRENT-DATE TO DATE-HEADING1. * SAN05640
00562 MOVE PAGE-COUNT TO PAGE-HEADING1. * SAN05650
00563 WRITE RATE-REPORT-RECORD FROM FIRST-HEADING1-LINE * SAN05660
00564 AFTER ADVANCING NEXT-PAGE. * SAN05670
00565 ADD 1 TO PAGE-COUNT. * SAN05680
00566 WRITE RATE-REPORT-RECORD FROM SECOND-HEADING1-LINE * SAN05690
00567 AFTER ADVANCING 2 LINES. * SAN05700
00568 WRITE RATE-REPORT-RECORD FROM THIRD-HEADING1-LINE * SAN05710
00569 AFTER ADVANCING 1 LINES. * SAN05720
00570 MOVE SPACE-TWO-LINE TO PROPER-SPACING. * SAN05730
00571 MOVE 0 TO LINES-PRINTED. * SAN05740
00572 * SAN05750
00573 =====* SAN05760
00574 = *SAN05770
00575 * THIS MODULE COUNTS NUMBER OF EACH FACULTY. *SAN05780
00576 = *SAN05790
00577 =====*SAN05800
00578 *SAN05810
00579 E010-FACULTY-TOTAL-COUNT. *SAN05820
00580 IF CODE-INPUT = 01 *SAN05830
00581 ADD 1 TO INSTRUCTORS-4 *SAN05840

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12

TEST2

19.30.27

NOV 23, 1987

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00582                ELSE                                SAN05850
00583                IF CODE-INPUT = 02                SAN05860
00584                ADD 1 TO ASSI-PROFESSORS-4        SAN05870
00585                ELSE                                SAN05880
00586                IF CODE-INPUT = 03                SAN05890
00587                ADD 1 TO ASSO-PROFESSORS-4        SAN05900
00588                ELSE                                SAN05910
00589                ADD 1 TO PROFESSORS-4.            SAN05920
00590                                                        SAN05930
00591                *****                            SAN05940
00592                *                                  * SAN05950
00593                * THIS MODULE SHOWS WORDS EXCEED IF RESEARCH HOURS EXCEED HOURS * SAN05960
00594                * IN DIVISION TABLE.            * SAN05970
00595                *                                  * SAN05980
00596                *****                            SAN05990
00597                *****                            SAN06000
00598                DDDD-EXCEEDS-RESEARCH-PERCENT.    SAN06010
00599                COMPUTE NUM-1 ROUNDED = TEACHING-HOURS-3 + RESEARCH-HOURS-3. SAN06020
00600                COMPUTE NUM-2 ROUNDED              SAN06030
00601                = ( NUM-1 * RESEARCH-PERCENTAGE(DIVISION-INDEX) ) / 100. SAN06040
00602                *****                            SAN06050
00603                IF NUM-2 > RESEARCH-PERCENTAGE(DIVISION-INDEX) SAN06060
00604                MOVE 'EXC.RSKH.' TO EXCEEDS-RESEARCH-PERCENT SAN06070
00605                ELSE                                SAN06080
00606                MOVE SPACES TO EXCEEDS-RESEARCH-PERCENT. SAN06090
00607                *****                            SAN06100
00608                *****                            SAN06110
00609                *                                  * SAN06120
00610                * THESE MODULES PRINT HEADINGS FOR FACULTY DISTRIBUTION REPORT * SAN06130
00611                * AND SUMMARY REPORT.            * SAN06140
00612                *                                  * SAN06150
00613                *****                            SAN06160
00614                *****                            SAN06170
00615                GDDD-PRINT-HEADINGS2.             SAN06180
00616                MOVE CURRENT-DATE TO DATE-HEADING2. SAN06190
00617                MOVE 1 TO PAGE-HEADING2.          SAN06200
00618                WRITE RATE-REPORT-RECORD FROM FIRST-HEADING2-LINE SAN06210
00619                AFTER ADVANCING NEXT-PAGE.         SAN06220
00620                WRITE RATE-REPORT-RECORD FROM SECOND-HEADING2-LINE SAN06230
00621                AFTER 1 LINES.                     SAN06240
00622                WRITE RATE-REPORT-RECORD FROM THIRD-HEADING2-LINE SAN06250
00623                AFTER ADVANCING 1 LINES.           SAN06260
00624                MOVE SPACE-TWO-LINE TO PROPER-SPACING. SAN06270
00625                MOVE ZERO TO LINES-PRINTED.       SAN06280
00626                FD10-SCHOOL-SUMMARY.              SAN06290
00627                ADD SALARY-TEACHING-4 , SALARY-RESEARCH-4 TO SAN06300
00628                TOTAL-SALARIES-4.                  SAN06310
00629                MOVE TOTAL-FACULTY-4 TO TOTAL-FACULTY. SAN06320
00630                MOVE INSTRUCTORS-4 TO INSTRUCTORS. SAN06330
00631                MOVE ASSI-PROFESSORS-4 TO ASSI-PROFESSOR. SAN06340
00632                MOVE ASSO-PROFESSORS-4 TO ASSO-PROFESSOR. SAN06350
00633                MOVE PROFESSORS-4 TO PROFESSORS.  SAN06360
00634                MOVE TEACHING-HOURS-4 TO TEACHING-HOURS. SAN06370

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13	TEST2	19.36.27	NOV 23,1987	
00635		MOVE RESEARCH-HOURS-4	TO RESEARCH-HOURS.	SAN06380
00636		MOVE TOTAL-HOURS-4	TO TOTAL-HOURS.	SAN06390
00637		MOVE SALARY-TEACHING-4	TO TEACHING-SALARIES.	SAN06400
00638		MOVE SALARY-RESEARCH-4	TO RESEARCH-SALARIES.	SAN06410
00639		MOVE TOTAL-SALARIES-4	TO TOTAL-SALARIES.	SAN06420
00640		PERFORM GOOD-PRINT-HEADINGS2.		SAN06430
00641		WRITE RATE-REPORT-RECORD	FROM OUTPUT-TOTAL	SAN06440
00642		AFTER 2 LINES.		SAN06450
00643		MOVE 2 TO LINES-PRINTED.		SAN06460

15 TEST2 19.30.27 NOV 23,1987

CARD ERROR MESSAGE

19	IKF2146I-C	RECORD SIZE IN RECORD-CONTAINS CLAUSE DISAGREES WITH COMPUTED RECORD SIZE. 00132 ASSUMED.
291	IKF1007I-n	TITLE NOT PRECEDED BY A SPACE. ASSUME SPACE.
293	IKF1007I-n	HOURS NOT PRECEDED BY A SPACE. ASSUME SPACE.
452	IKF5011I-n	AN INTERMEDIATE RESULT OR A SENDING FIELD MIGHT HAVE ITS HIGH ORDER DIGIT POSITION TRUNCATED.
453	IKF5011I-n	AN INTERMEDIATE RESULT OR A SENDING FIELD MIGHT HAVE ITS HIGH ORDER DIGIT POSITION TRUNCATED.
509	IKF5011I-n	AN INTERMEDIATE RESULT OR A SENDING FIELD MIGHT HAVE ITS HIGH ORDER DIGIT POSITION TRUNCATED.
510	IKF5011I-n	AN INTERMEDIATE RESULT OR A SENDING FIELD MIGHT HAVE ITS HIGH ORDER DIGIT POSITION TRUNCATED.
511	IKF5011I-n	AN INTERMEDIATE RESULT OR A SENDING FIELD MIGHT HAVE ITS HIGH ORDER DIGIT POSITION TRUNCATED.
538	IKF5011I-n	AN INTERMEDIATE RESULT OR A SENDING FIELD MIGHT HAVE ITS HIGH ORDER DIGIT POSITION TRUNCATED.
539	IKF5011I-n	AN INTERMEDIATE RESULT OR A SENDING FIELD MIGHT HAVE ITS HIGH ORDER DIGIT POSITION TRUNCATED.
540	IKF5011I-n	AN INTERMEDIATE RESULT OR A SENDING FIELD MIGHT HAVE ITS HIGH ORDER DIGIT POSITION TRUNCATED.
541	IKF5011I-n	AN INTERMEDIATE RESULT OR A SENDING FIELD MIGHT HAVE ITS HIGH ORDER DIGIT POSITION TRUNCATED.
542	IKF5011I-n	AN INTERMEDIATE RESULT OR A SENDING FIELD MIGHT HAVE ITS HIGH ORDER DIGIT POSITION TRUNCATED.
637	IKF5011I-n	AN INTERMEDIATE RESULT OR A SENDING FIELD MIGHT HAVE ITS HIGH ORDER DIGIT POSITION TRUNCATED.
638	IKF5011I-n	AN INTERMEDIATE RESULT OR A SENDING FIELD MIGHT HAVE ITS HIGH ORDER DIGIT POSITION TRUNCATED.
639	IKF5011I-n	AN INTERMEDIATE RESULT OR A SENDING FIELD MIGHT HAVE ITS HIGH ORDER DIGIT POSITION TRUNCATED.

CHULALONGKORN UNIVERSITY. CU-Computer Service Centre.

PAGE 0001

0001	IDENTIFICATION DIVISION.		SA
0002	PROGRAM-ID. TEST2.		SA
0003	AUTHOR. JANPEN.		SA
0004	INSTALLATION. CHULALONGKORN UNIVERSITY.		SA
0005	DATE-WRITTEN. 09 SEPTEMBER 87.		SA
0006	DATE-COMPILED.		SA
0007			SA
0008	ENVIRONMENT DIVISION.		SA
0009	CONFIGURATION SECTION.		SA
0010	SOURCE-COMPUTER. IBM-370.		SA
0011	OBJECT-COMPUTER. IBM-370.		SA
0012	SPECIAL-NAMES. C01 IS NEXT-PAGE.		SA
0013			SA
0014	INPUT-OUTPUT SECTION.		SA
0015	FILE-CONTROL.		SA
0016	SELECT RATE-INPUT-FILE		SA
0017	ASSIGN TO UR-2540R-S-SYSIN.		SA
0018	SELECT RATE-REPORT-FILE		SA
0019	ASSIGN TO UR-1403-S-SYSPRINT.		SA
0020	DATA DIVISION.		SA
0021			SA
0022	FILE SECTION.		SA
0023	FD RATE-INPUT-FILE		SA
0024	RECORD CONTAINS 80 CHARACTERS		SA
0025	LABEL RECORDS ARE OMITTED		SA
0026	DATA RECORD IS RATE-INPUT-RECORD.		SA
0027	01 RATE-INPUT-RECORD.		SA
0028	02 DIVISION-INPUT	PIC X(02).	SA
0029	02 DEPT-INPUT	PIC X(03).	SA
0030	02 NAME-INPUT	PIC X(15).	SA
0031	02 CODE-INPUT	PIC X(02).	SA
0032	02 FILLER	PIC X(07).	SA
0033	02 YEARLY-SALARY	PIC 9(05)V99.	SA
0034	02 FILLER	PIC X(44).	SA
0035	FD RATE-REPORT-FILE		SA
0036	RECORD CONTAINS 133 CHARACTERS		SA
0037	LABEL RECORD ARE OMITTED		SA
0038	DATA RECORD IS RATE-REPORT-RECORD.		SA
0039	01 RATE-REPORT-RECORD	PIC X(132).	SA
0040	WORKING-STORAGE SECTION.		SA
0041	01 PROGRAM-INDICATORS.		SA
0042	02 ARE-THERE-MORE-RECORDS	PIC X(03) VALUE 'YES'.	SA
0043	88 THERE-IS-A-RECORD	VALUE 'YES'.	SA
0044	88 THERE-ARE-NO-MORE-RECORDS	VALUE 'NO '.	SA
0045	02 WAS-THERE-A-DIVISION-CHANGE	PIC X(03) VALUE 'NO '.	SA
0046	88 THERE-WAS-A-DIVISION-CHANGE	VALUE 'YES'.	SA
0047	02 WAS-THERE-A-DEPARTMENT-CHANGE	PIC X(03) VALUE 'NO '.	SA
0048	88 THERE-WAS-A-DEPARTMENT-CHANGE	VALUE 'YES'.	SA
0049	02 ALL-TOTAL-SCORE	PIC 9(06) VALUE ZERO.	SA
0050	01 PROGRAM-COMPARE-AREAS.		SA

0051	02	PREVIOUS-DIVISION	PIC X(10).		SA
0052	02	PREVIOUS-DEPARTMENT	PIC X(10).		SA
0053	02	PREVIOUS-FACULTY	PIC 9(02).		SA
0054	02	PREVIOUS-DIVISION-ID	PIC 9(02).		SA
0055	02	PREVIOUS-DEPT	PIC 999.		SA
0056	01	TOTAL1-ACCUMULATORS.			SA
0057	02	TEACHING-HOURS-1	PIC 9(02)	VALUE ZERO.	SA
0058	02	RESEARCH-HOURS-1	PIC 9(02)	VALUE ZERO.	SA
0059	02	SALARY-TEACHING-1	PIC 9(06)V99	VALUE ZERO.	SA
0060	02	SALARY-RESEARCH-1	PIC 9(06)V99	VALUE ZERO.	SA
0061	02	TEACHING-HOURS-2	PIC 9(03)	VALUE ZERO.	SA
0062	02	RESEARCH-HOURS-2	PIC 9(03)	VALUE ZERO.	SA
0063	02	YEARLY-SALARY-2	PIC 9(07)V99	VALUE ZERO.	SA
0064	02	SALARY-TEACHING-2	PIC 9(07)V99	VALUE ZERO.	SA
0065	02	SALARY-RESEARCH-2	PIC 9(07)V99	VALUE ZERO.	SA
0066	02	TEACHING-HOURS-3	PIC 9(05)	VALUE ZERO.	SA
0067	02	RESEARCH-HOURS-3	PIC 9(05)	VALUE ZERO.	SA
0068	02	YEARLY-SALARY-3	PIC 9(07)V99	VALUE ZERO.	SA
0069	02	SALARY-TEACHING-3	PIC 9(07)V99	VALUE ZERO.	SA
0070	02	SALARY-RESEARCH-3	PIC 9(07)V99	VALUE ZERO.	SA
0071	01	TOTAL2-ACCUMULATORS.			SA
0072	02	TOTAL-FACULTY-4	PIC 9(03)	VALUE ZERO.	SA
0073	02	INSTRUCTORS-4	PIC 9(03)	VALUE ZERO.	SA
0074	02	ASSI-PROFESSORS-4	PIC 9(03)	VALUE ZERO.	SA
0075	02	ASSO-PROFESSORS-4	PIC 9(03)	VALUE ZERO.	SA
0076	02	PROFESSORS-4	PIC 9(03)	VALUE ZERO.	SA
0077	02	TEACHING-HOURS-4	PIC 9(04)	VALUE ZERO.	SA
0078	02	RESEARCH-HOURS-4	PIC 9(04)	VALUE ZERO.	SA
0079	02	TOTAL-HOURS-4	PIC 9(04)	VALUE ZERO.	SA
0080	02	SALARY-TEACHING-4	PIC 9(09)V99	VALUE ZERO.	SA
0081	02	SALARY-RESEARCH-4	PIC 9(09)V99	VALUE ZERO.	SA
0082	02	TOTAL-SALARY-4	PIC 9(09)V99	VALUE ZERO.	SA
0083	02	YEARLY-SALARY-4	PIC 9(09)V99	VALUE ZERO.	SA
0084	02	TOTAL-SALARIES-4	PIC 9(09)V99	VALUE ZERO.	SA
0085	01	DEPARTMENT-TABLE.			SA
0086	05	DEPARTMENT-CONSTANTS.			SA
0087	10	FILLER	PIC X(13)	VALUE	SA
0088			'030ACCOUNTING'		SA
0089	10	FILLER	PIC X(13)	VALUE	SA
0090			'041ART'		SA
0091	10	FILLER	PIC X(13)	VALUE	SA
0092			'048ANATOMY'		SA
0093	10	FILLER	PIC X(13)	VALUE	SA
0094			'053BIOLOGY'		SA
0095	10	FILLER	PIC X(13)	VALUE	SA
0096			'057BOTANY'		SA
0097	10	FILLER	PIC X(13)	VALUE	SA
0098			'065CHEMISTRY'		SA
0099	10	FILLER	PIC X(13)	VALUE	SA
0100			'071JOURNALISM'		SA
0101	10	FILLER	PIC X(13)	VALUE	SA

0102			'073LITERATURE'.	SA
0103	10	FILLER	PIC X(13) VALUE	SA
0104			'077HISTORY'.	SA
0105	10	FILLER	PIC X(13) VALUE	SA
0106			'082MARKETING'.	SA
0107	10	FILLER	PIC X(13) VALUE	SA
0108			'088MATH'.	SA
0109	10	FILLER	PIC X(13) VALUE	SA
0110			'099MUSIC'.	SA
0111	10	FILLER	PIC X(13) VALUE	SA
0112			'101PHILOSOPHY'.	SA
0113	10	FILLER	PIC X(13) VALUE	SA
0114			'111PHYSICS'.	SA
0115	10	FILLER	PIC X(13) VALUE	SA
0116			'140MANAGEMENT'.	SA
0117	05	DEPARTMENT-TABLES	REDEFINES DEPARTMENT-CONSTANTS	SA
0118			OCCURS 15 TIMES	SA
0119			ASCENDING KEY IS DP-TABLE	SA
0120			INDEXED BY CLASS-IND.	SA
0121	10	DP-TABLE	PIC 9(03).	SA
0122	10	DEPARTMENT-NAME-TABLE	PIC X(10).	SA
0123	01	FACULTY-TITLE-TABLE.		SA
0124	05	FACULTY-CONSTANTS.		SA
0125	10	FILLER	PIC X(27) VALUE	SA
0126			'01INSTRUCTOR 100000'.	SA
0127	10	FILLER	PIC X(27) VALUE	SA
0128			'02ASSISTANT PROFESSOR080020'.	SA
0129	10	FILLER	PIC X(27) VALUE	SA
0130			'03ASSISTANT PROFESSOR060040'.	SA
0131	10	FILLER	PIC X(27) VALUE	SA
0132			'04PROFESSOR 040060'.	SA
0133	05	FACULTY-TITLE-TABLES	REDEFINES FACULTY-CONSTANTS	SA
0134			OCCURS 4 TIMES	SA
0135			ASCENDING KEY IS FL-TABLE	SA
0136			INDEXED BY FACULTY-INDEX.	SA
0137	10	FL-TABLE	PIC 9(02).	SA
0138	10	FACULTY-TITLE	PIC X(19).	SA
0139	10	TIME-SPENT-CLASS	PIC 9V99.	SA
0140	10	TIME-RESEARCH	PIC 9V99.	SA
0141	01	DIVISION-NAME-TABLE.		SA
0142	05	DIVISION-CONSTANTS.		SA
0143	10	FILLER	PIC X(15) VALUE	SA
0144			'01BUSINESS 040'.	SA
0145	10	FILLER	PIC X(15) VALUE	SA
0146			'02ENGLISH 030'.	SA
0147	10	FILLER	PIC X(15) VALUE	SA
0148			'03FINE ARTS 030'.	SA
0149	10	FILLER	PIC X(15) VALUE	SA
0150			'04HUMANITIES030'.	SA
0151	10	FILLER	PIC X(15) VALUE	SA
0152			'05SCIENCE 050'.	SA

0153	05	DIVISION-NAME-TABLES	REDEFINES	DIVISION-CONSTANTS	SA
0154				OCCURS 5 TIMES	SA
0155			ASCENDING	KEY IS DN-TABLE	SA
0156			INDEXED	BY DIVISION-INDEX.	SA
0157	10	DN-TABLE		PIC 9(02).	SA
0158	10	DIVISION-NAME		PIC X(10).	SA
0159	10	RESEARCH-PERCENTAGE		PIC 9V99.	SA
0160		*A FACULTY COST DISTRIBUTION REPORT			SA
0161	01	OUTPUT-SALARY.			SA
0162	02	FILLER		PIC X.	SA
0163	02	DIVISION-NAME-REPORT		PIC X(10).	SA
0164	02	FILLER		PIC X(02)	VALUE SPACES.SA
0165	02	DEPARTMENT-NAME-REPORT		PIC X(10).	SA
0166	02	FILLER		PIC X(04)	VALUE SPACES.SA
0167	02	FACULTY-NAME-OUTPUT		PIC X(15).	SA
0168	02	FILLER		PIC X(03)	VALUE SPACES.SA
0169	02	FACULTY-TITLE-OUTPUT		PIC X(19).	SA
0170	02	FILLER		PIC X(05)	VALUE SPACES.SA
0171	02	TEACHING-HOURS-OUTPUT		PIC Z9.	SA
0172	02	FILLER		PIC X(08)	VALUE SPACES.SA
0173	02	RESEARCH-HOURS-OUTPUT		PIC Z9.	SA
0174	02	FILLER		PIC X(06)	VALUE SPACES.SA
0175	02	YEARLY-SALARY-OUTPUT		PIC ZZ,ZZZ.99.	SA
0176	02	FILLER		PIC X(04)	VALUE SPACES.SA
0177	02	SALARY-TEACHING-OUTPUT		PIC ZZ,ZZ9.99.	SA
0178	02	FILLER		PIC X(04)	VALUE SPACES.SA
0179	02	SALARY-RESEARCH-OUTPUT		PIC ZZ,ZZ9.99.	SA
0180	02	FILLER		PIC X(11)	VALUE SPACES.SA
0181	01	TOTAL-LINES.			SA
0182	02	DEPARTMENT-TOTAL-LINE.			SA
0183	10	FILLER		PIC X(34)	VALUE SPACES.SA
0184	10	FILLER		PIC X(20)	VALUE SA
0185				'DEPARTMENT TOTAL - '.	SA
0186	10	DEPARTMENT-NAME-OUTPUT		PIC X(10).	SA
0187	10	FILLER		PIC X(04)	VALUE SPACES.SA
0188	10	TOTAL-DEP-TEACHING-HOURS		PIC ZZ9.	SA
0189	10	FILLER		PIC X(07)	VALUE SPACES.SA
0190	10	TOTAL-DEP-RESEARCH-HOURS		PIC ZZ9.	SA
0191	10	FILLER		PIC X(05)	VALUE SPACES.SA
0192	10	TOTAL-DEP-YEARLY-SALARY		PIC <u>ZZZ,ZZZ.99.</u>	SA
0193	10	FILLER		PIC X(03)	VALUE SPACES.SA
0194	10	TOTAL-DEP-SALARY-TEACHING		PIC <u>ZZZ,ZZZ.99.</u>	SA
0195	10	FILLER		PIC X(03)	VALUE SPACES.SA
0196	10	TOTAL-DEP-SALARY-RESEARCH		PIC <u>ZZZ,ZZZ.99.</u>	SA
0197	10	FILLER		PIC X(11)	VALUE SPACES.SA
0198	02	DIVISION-TOTAL-LINE.			SA
0199	10	FILLER		PIC X(36)	VALUE SPACES.SA
0200	10	FILLER		PIC X(18)	VALUE SA
0201				'DIVISION TOTALS - '.	SA
0202	10	DIVISION-NAME-OUTPUT		PIC X(12).	SA
0203	10	TOTAL-DIVI-TEACHING-HOURS		PIC Z,ZZ9.	SA

0204	10	FILLER	PIC X(05)	VALUE SPACES.	SA
0205	10	TOTAL-DIVI-RESEARCH-HOURS	PIC Z,ZZ9.		SA
0206	10	FILLER	PIC X(05)	VALUE SPACES.	SA
0207	10	TOTAL-DIVI-YEARLY-SALARY	PIC ZZZ,ZZZ.99.		SA
0208	10	FILLER	PIC X(03)	VALUE SPACES.	SA
0209	10	TOTAL-DIVI-SALARY-TEACHING	PIC ZZZ,ZZZ.99.		SA
0210	10	FILLER	PIC X(03)	VALUE SPACES.	SA
0211	10	TOTAL-DIVI-SALARY-RESEARCH	PIC ZZZ,ZZZ.99.		SA
0212	10	EXCEEDS-RESEARCH-PERCENT	PIC X(11).		SA
0213		* A SCHOOL SUMMRY REPORT			SA
0214	01	OUTPUT-TOTAL.			SA
0215	02	FILLER	PIC X(03)	VALUE SPACES.	SA
0216	02	TOTAL-FACULTY	PIC ZZ9.		SA
0217	02	FILLER	PIC X(08)	VALUE SPACES.	SA
0218	02	INSTRUCTORS	PIC ZZ9.		SA
0219	02	FILLER	PIC X(09)	VALUE SPACES.	SA
0220	02	ASSI-PROFESSOR	PIC ZZ9.		SA
0221	02	FILLER	PIC X(09)	VALUE SPACES.	SA
0222	02	ASSO-PROFESSOR	PIC ZZ9.		SA
0223	02	FILLER	PIC X(09)	VALUE SPACES.	SA
0224	02	PROFESSORS	PIC ZZ9.		SA
0225	02	FILLER	PIC X(07)	VALUE SPACES.	SA
0226	02	TEACHING-HOURS	PIC Z,ZZ9.		SA
0227	02	FILLER	PIC X(05)	VALUE SPACES.	SA
0228	02	RESEARCH-HOURS	PIC Z,ZZ9.		SA
0229	02	FILLER	PIC X(05)	VALUE SPACES.	SA
0230	02	TOTAL-HOURS	PIC Z,ZZ9.		SA
0231	02	FILLER	PIC X(02)	VALUE SPACES.	SA
0232	02	TEACHING-SALARIES	PIC \$\$,\$\$\$,\$\$\$99.		SA
0233	02	FILLER	PIC XX	VALUE SPACES.	SA
0234	02	RESEARCH-SALARIES	PIC \$\$,\$\$\$,\$\$\$99.		SA
0235	02	FILLER	PIC XX	VALUE SPACES.	SA
0236	02	TOTAL-SALARIES	PIC \$\$,\$\$\$,\$\$\$99.		SA
0237	02	FILLER	PIC X	VALUE SPACES.	SA
0238	01	PRINTER-CONTROL.			SA
0239	02	PROPER-SPACING	PIC 9.		SA
0240	02	SPACE-ONE-LINE	PIC 9	VALUE 1.	SA
0241	02	SPACE-TWO-LINE	PIC 9	VALUE 2.	SA
0242	02	LINES-PRINTED	PIC 999	VALUE 0.	SA
0243	02	PAGE-SIZE	PIC 999	VALUE 40.	SA
0244	02	PAGE-COUNT	PIC 999	VALUE 1.	SA
0245	88	FIRST-PAGE		VALUE 1.	SA
0246	01	REPORT-HEADINGS.			SA
0247	02	FIRST-HEADING1-LINE.			SA
0248	05	CARRIAGE-CONTROL	PIC X.		SA
0249	05	DATE-HEADING1	PIC X(08).		SA
0250	05	FILLER	PIC X(38)	VALUE SPACES.	SA
0251	05	FILLER	PIC X(25)	VALUE	SA
0252		'FACULTY COST DISTRIBUTION'.			SA
0253	05	FILLER	PIC X(41)	VALUE SPACES.	SA
0254	05	FILLER	PIC X(05)	VALUE 'PAGE '.	SA

0255	05	PAGE-HEADING1	PIC ZZ9.	SA
0256	05	FILLER	PIC X(12) VALUE SPACES.	SA
0257	02	SECOND-HEADING1-LINE.		SA
0258	05	CARRIAGE-CONTROL	PIC X.	SA
0259	05	FILLER	PIC X(12) VALUE	SA
0260			' DIVISION '	SA
0261	05	FILLER	PIC X(10) VALUE	SA
0262			'DEPARTMENT'.	SA
0263	05	FILLER	PIC X(08) VALUE SPACES.	SA
0264	05	FILLER	PIC X(07) VALUE	SA
0265			'FACULTY'.	SA
0266	05	FILLER	PIC X(13) VALUE SPACES.	SA
0267	05	FILLER	PIC X(07) VALUE	SA
0268			'FACULTY'.	SA
0269	05	FILLER	PIC X(08) VALUE SPACES.	SA
0270	05	FILLER	PIC X(10) VALUE	SA
0271			'TEACHING '	SA
0272	05	FILLER	PIC X(13) VALUE	SA
0273			'RESEARCH '	SA
0274	05	FILLER	PIC X(13) VALUE	SA
0275			'YEARLY '	SA
0276	05	FILLER	PIC X(12) VALUE	SA
0277			'SALARY '	SA
0278	05	FILLER	PIC X(06) VALUE	SA
0279			'SALARY'.	SA
0280	05	FILLER	PIC X(13) VALUE SPACES.	SA
0281	02	THIRD-HEADING1-LINE.		SA
0282	05	CARRIAGE-CONTROL	PIC X.	SA
0283	05	FILLER	PIC X(07) VALUE	SA
0284			' NAME'.	SA
0285	05	FILLER	PIC X(12) VALUE	SA
0286			' NAME'.	SA
0287	05	FILLER	PIC X(16) VALUE	SA
0288			' NAME'.	SA
0289	05	FILLER	PIC X(16) VALUE SPACES.	SA
0290	05	FILLER	PIC X(05) VALUE 'TITLE'.	SA
0291	05	FILLER	PIC X(11) VALUE SPACES.	SA
0292	05	FILLER	PIC X(05) VALUE 'HOURS'.	SA
0293	05	FILLER	PIC X(10) VALUE	SA
0294			' HOURS'.	SA
0295	05	FILLER	PIC X(12) VALUE	SA
0296			' SALARY'.	SA
0297	05	FILLER	PIC X(14) VALUE	SA
0298			' TEACHING'.	SA
0299	05	FILLER	PIC X(12) VALUE	SA
0300			' RESEARCH'.	SA
0301	05	FILLER	PIC X(12) VALUE SPACES.	SA
0302	02	FIRST-HEADING2-LINE.		SA
0303				SA
0304				SA
0305	05	CARRIAGE-CONTROL	PIC X.	SA

0306	05	DATE-HEADING2	PIC X(08).	SA
0307	05	FILLER	PIC X(44) VALUE SPACES.	SA
0308	05	FILLER	PIC X(14) VALUE	SA
0309			'SCHOOL-SAMMARY'.	SA
0310	05	FILLER	PIC X(47) VALUE SPACES.	SA
0311	05	FILLER	PIC X(05) VALUE 'PAGE '.	SA
0312	05	PAGE-HEADING2	PIC Z9.	SA
0313	05	FILLER	PIC X(12) VALUE SPACES.	SA
0314	02	SECOND-HEADING2-LINE.		SA
0315	05	CARRIAGE-CONTROL	PIC X.	SA
0316	05	FILLER	PIC X(07) VALUE ' TOTAL'.	SA
0317	05	FILLER	PIC X(16) VALUE SPACES.	SA
0318	05	FILLER	PIC X(12) VALUE	SA
0319			'ASSISTANT '.	SA
0320	05	FILLER	PIC X(09) VALUE	SA
0321			'ASSOCIATE'.	SA
0322	05	FILLER	PIC X(15) VALUE SPACES.	SA
0323	05	FILLER	PIC X(10) VALUE	SA
0324			'TEACHING '.	SA
0325	05	FILLER	PIC X(11) VALUE	SA
0326			'RESEARCH '.	SA
0327	05	FILLER	PIC X(10) VALUE	SA
0328			'TOTAL '.	SA
0329	05	FILLER	PIC X(15) VALUE	SA
0330			'TEACHING '.	SA
0331	05	FILLER	PIC X(16) VALUE	SA
0332			'RESEARCH '.	SA
0333	05	FILLER	PIC X(11) VALUE	SA
0334			'TOTAL '.	SA
0335	02	THIRD-HEADING2-LINE.		SA
0336	05	CARRIAGE-CONTROL	PIC X.	SA
0337	05	FILLER	PIC X(08) VALUE	SA
0338			' FACULTY'.	SA
0339	05	FILLER	PIC X(13) VALUE	SA
0340			' UNSTRUCTORS'.	SA
0341	05	FILLER	PIC X(11) VALUE	SA
0342			' PROFESSOR'.	SA
0343	05	FILLER	PIC X(11) VALUE	SA
0344			' PROFESSOR'.	SA
0345	05	FILLER	PIC X(11) VALUE	SA
0346			' PROFESSOR'.	SA
0347	05	FILLER	PIC X(12) VALUE	SA
0348			' HOURS'.	SA
0349	05	FILLER	PIC X(10) VALUE	SA
0350			' HOURS'.	SA
0351	05	FILLER	PIC X(10) VALUE	SA
0352			' HOURS'.	SA
0353	05	FILLER	PIC X(13) VALUE	SA
0354			' SALARIES'.	SA
0355	05	FILLER	PIC X(15) VALUE	SA
0356			' SALARIES'.	SA

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0357          05 FILLER          PIC X(15) VALUE          SA
0358          '          SALARIES'.          SA
0359          01 AREA-ACCUM.          SA
0360          05 NUM-1          PIC 99999 VALUE ZERO.          SA
0361          05 NUM-2          PIC 9999 VALUE ZERO.          SA
0362          PROCEDURE DIVISION.          SA
0363          SA
0364          *****SA
0365          *          *SA
0366          * THIS MODULE OPEN FILE AND OBTAIN DATAS FOR PROCESS IN          *SA
0367          * PROCEDURE DIVISION AND READ INPUT FILE AT END THEN PRINTS          *SA
0368          * REPORT AND CLOSE FILE.          *SA
0369          *          *SA
0370          *****SA
0371          SA
0372          A000-COST-DISTRIBUTION-REPORT.          SA
0373          OPEN INPUT RATE-INPUT-FILE          SA
0374          OUTPUT RATE-REPORT-FILE.          SA
0375          READ RATE-INPUT-FILE          SA
0376          AT END          SA
0377          MOVE 'NO ' TO ARE-THERE-MORE-RECORDS.          SA
0378          IF THERE-IS-A-RECORD          SA
0379          MOVE DIVISION-INPUT TO PREVIOUS-DIVISION-ID.          SA
0380          MOVE DEPT-INPUT TO PREVIOUS-DEPT.          SA
0381          PERFORM A001-PROCESS-AND-READ          SA
0382          UNTIL THERE-ARE-NO-MORE-RECORDS.          SA
0383          PERFORM C000-PROCESS-DEPARTMENT-CHANGE.          SA
0384          PERFORM C010-PROCESS-DIVISION-CHANGE.          SA
0385          PERFORM F010-SCHOOL-SUMMARY.          SA
0386          CLOSE RATE-INPUT-FILE          SA
0387          RATE-REPORT-FILE.          SA
0388          STOP RUN.          SA
0389          A001-PROCESS-AND-READ.          SA
0390          PERFORM B000-PREVIOUS.          SA
0391          PERFORM A020-SEARCH-DEPARTMENT.          SA
0392          PERFORM A030-SEARCH-DIVISION.          SA
0393          PERFORM B010-PROCESS-DETAIL-RECORDS.          SA
0394          READ RATE-INPUT-FILE          SA
0395          AT END          SA
0396          MOVE 'NO ' TO ARE-THERE-MORE-RECORDS.          SA
0397          B010-PROCESS-DETAIL-RECORDS.          SA
0398          MOVE SPACE TO OUTPUT-SALARY.          SA
0399          IF LINES-PRINTED IS EQUAL TO PAGE-SIZE OR          SA
0400          IS GREATER THAN PAGE-SIZE OR FIRST-PAGE          SA
0401          PERFORM G000-PRINT-HEADINGS1          SA
0402          MOVE SPACES TO OUTPUT-SALARY          SA
0403          MOVE PREVIOUS-DEPARTMENT TO DEPARTMENT-NAME-REPORT          SA
0404          MOVE PREVIOUS-DIVISION TO DIVISION-NAME-REPORT.          SA
0405          IF THERE-WAS-A-DIVISION-CHANGE          SA
0406          MOVE DEPARTMENT-NAME-TABLE(CLASS-IND)          SA
0407          TO DEPARTMENT-NAME-REPORT          SA

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0408             MOVE DIVISION-NAME(DIVISION-INDEX)                SA
0409                 TO DIVISION-NAME-REPORT                        SA
0410             MOVE 'NO ' TO WAS-THERE-A-DIVISION-CHANGE          SA
0411             ELSE                                              SA
0412             IF THERE-WAS-A-DEPARTMENT-CHANGE                    SA
0413                 MOVE DEPARTMENT-NAME-TABLE(CLASS-IND) TO        SA
0414                 DEPARTMENT-NAME-REPORT                          SA
0415                 MOVE 'NO ' TO WAS-THERE-A-DEPARTMENT-CHANGE.    SA
0416                 PERFORM A010-SEARCH-FACULTY.                    SA
0417                 WRITE RATE-REPORT-RECORD FROM OUTPUT-SALARY    SA
0418                 AFTER PROPER-SPACING.                            SA
0419                 ADD PROPER-SPACING TO LINES-PRINTED.            SA
0420                 MOVE SPACE-ONE-LINE TO PROPER-SPACING.          SA
0421                 ADD 1 TO TOTAL-FACULTY-4.                        SA
0422                                                     SA
0423             *****SA
0424             *                                                  *SA
0425             * THIS MODULE SEARCHES FACULTY TITLE TABLE AND CALCULATES TEACH *SA
0426             * AND RESEARCH HOURS, TEACHING AND RESEARCH SALARIES FOR EACH *SA
0427             * ONE. THEN CALCULATES SUM OF ALL VALUES FOR DEPARTMENT. *SA
0428             *                                                  *SA
0429             *****SA
0430                                                     SA
0431             A010-SEARCH-FACULTY.                                  SA
0432             SEARCH ALL FACULTY-TITLE-TABLES                      SA
0433             AT END                                              SA
0434                 MOVE 'UNKNOWN' TO FACULTY-TITLE-OUTPUT          SA
0435             WHEN FL-TABLE(FACULTY-INDEX) = CODE-INPUT            SA
0436                 PERFORM E010-FACULTY-TOTAL-COUNT                SA
0437                 MOVE FACULTY-TITLE(FACULTY-INDEX)                SA
0438                 TO FACULTY-TITLE-OUTPUT.                          SA
0439             COMPUTE TEACHING-HOURS-1 = TIME-SPENT-CLASS(FACULTY-INDEX) SA
0440                 * 15.                                             SA
0441             COMPUTE RESEARCH-HOURS-1 = TIME-RESEARCH(FACULTY-INDEX) SA
0442                 * 15.                                             SA
0443             COMPUTE SALARY-TEACHING-1 = TIME-SPENT-CLASS(FACULTY-INDEX) SA
0444                 * YEARLY-SALARY.                                  SA
0445             COMPUTE SALARY-RESEARCH-1 = TIME-RESEARCH(FACULTY-INDEX) SA
0446                 * YEARLY-SALARY.                                  SA
0447             MOVE NAME-INPUT TO FACULTY-NAME-OUTPUT.              SA
0448             MOVE YEARLY-SALARY TO YEARLY-SALARY-OUTPUT.          SA
0449             MOVE TEACHING-HOURS-1 TO TEACHING-HOURS-OUTPUT.      SA
0450             MOVE RESEARCH-HOURS-1 TO RESEARCH-HOURS-OUTPUT.      SA
0451             MOVE SALARY-TEACHING-1 TO SALARY-TEACHING-OUTPUT.    SA
0452             MOVE SALARY-RESEARCH-1 TO SALARY-RESEARCH-OUTPUT.    SA
0453             ADD TEACHING-HOURS-1 TO TEACHING-HOURS-2              SA
0454             ADD RESEARCH-HOURS-1 TO RESEARCH-HOURS-2              SA
0455             ADD YEARLY-SALARY TO YEARLY-SALARY-2                  SA
0456                                                     SA
0457             ADD SALARY-TEACHING-1 TO SALARY-TEACHING-2            SA
0458             ADD SALARY-RESEARCH-1 TO SALARY-RESEARCH-2            SA

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#####  
#  
# COBOL Pre-Compiler Scanning Result. #  
# By CU-Computer Service Centre #  
# Chulalongkorn university #  
#  
#####
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```
0017 System device is not UT-S-SYSIN or UT-S-SYSPRINT.  
0019 System device is not UT-S-SYSIN or UT-S-SYSPRINT.  
0290 Non-numeric literal not preceded by a space.  
0292 Non-numeric literal not preceded by a space.  
0451 Sending field is bigger than recieving field.  
0452 Sending field is bigger than recieving field.  
0508 Sending field is bigger than recieving field.  
0509 Sending field is bigger than recieving field.  
0510 Sending field is bigger than recieving field.  
0537 Sending field is bigger than recieving field.  
0538 Sending field is bigger than recieving field.  
0539 Sending field is bigger than recieving field.  
0540 Sending field is bigger than recieving field.  
0541 Sending field is bigger than recieving field.  
0636 Sending field is bigger than recieving field.  
0637 Sending field is bigger than recieving field.  
0638 Sending field is bigger than recieving field.
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0017 ERROR DETECTED
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0001 IDENTIFICATION DIVISION.
0002 PROGRAM-ID. THESIS04.
0003 REMARKS. VALID PROGRAM TO SHOW VERIFICATION.
0004
0005 ENVIRONMENT DIVISION.
0006 CONFIGURATION SECTION.
0007 SOURCE-COMPUTER. IBM-3031.
0008 OBJECT-COMPUTER. IBM-3031.
0009 INPUT-OUTPUT SECTION.
0010 FILE-CONTROL.
0011     SELECT INPUT-FILE ASSIGN TO UT-S-SYSIN.
0012     SELECT OUTPUT-FILE ASSIGN TO UT-S-SYSPRINT.
0013
0014 DATA DIVISION.
0015 FILE SECTION.
0016 FD INPUT-FILE LABEL RECORD IS OMITTED
0017     DATA RECORD IS INPUT-RECORD.
0018 01 INPUT-RECORD PIC X(80).
0019
0020 FD OUTPUT-FILE LABEL RECORD IS OMITTED
0021     DATA RECORD IS OUTPUT-RECORD.
0022 01 OUTPUT-RECORD PIC X(132).
0023
0024 WORKING-STORAGE SECTION.
0025 01 PROGRAM-VARIABLES.
0026     03 VARIABLE-1 PIC X(132).
0027     03 VARIABLE-2 PIC 9(03) VALUE ZERO.
0028     03 VARIABLE-22 PIC 9(03) VALUE ZERO.
0029     03 VARIABLE-3 OCCURS 3 TIMES.
0030     05 VARIABLE-4 OCCURS 3 TIMES PIC X(10).
0031
0032 PROCEDURE DIVISION.
0033 MAIN-ROUTINE.
0034     OPEN INPUT INPUT-FILE
0035         OUTPUT OUTPUT-FILE.
0036     MOVE SPACE TO VARIABLE-1.
0037     READ INPUT-FILE AT END MOVE ALL 'X' TO VARIABLE-1.
0038     PERFORM MOVE-SPACE VARYING VARIABLE-2 FROM 1 BY 1
0039         UNTIL VARIABLE-2 IS GREATER THAN 3
0040         AFTER VARIABLE-22 FROM 1 BY 1
0041         UNTIL VARIABLE-22 IS GREATER THAN 3.
0042     WRITE OUTPUT-RECORD FROM VARIABLE-1 AFTER ADVANCING 2 LINES.
0043     CLOSE INPUT-FILE OUTPUT-FILE.
0044     STOP RUN.
0045
0046 MOVE-SPACE.
0047     MOVE SPACE TO VARIABLE-4 (VARIABLE-2, VARIABLE-22).

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#####  
#  
# COBOL Pre-Compiler Scanning Result. #  
# By CU-Computer Service Centre #  
# Chulalongkorn university #  
#  
#####
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NO ERROR DETECTED



ภาคผนวก ณ.

โปรแกรมตัวตรวจสอบไวยากรณ์ภาษาโคบอล

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0001      EXTRN  INIVAR, SNGDRV, DRVSEL, CHKDSK, COPYPRN, DMA
          SET, DSMRD
0002      EXTRN  OPEN, CBLSK3, COL7, CLBUF3, LEXIC, CLBUF4, BU
          FFER, COMNT
0003      EXTRN  PARSER
0004      ENTRY  IBMBUF, CBLSK1, CBLSK4, IBMNAM
(0080)    0005 DMA   EQU   080H
(005C)    0006 FCB   EQU   05CH
(0005)    0007 BDOS  EQU   05H
(005D)    0008 FNAME EQU   05DH
(0015)    0009 WRITE EQU   015H
(0000)    0010 WBOOT: EQU   00H      ; WARM BOOT OR RESET SYSTEM
(0001)    0011 CONRDR: EQU   01H      ; READ CONSOLE CHARACTER
(0002)    0012 CONOUT: EQU   02H      ; WRITE CONSOLE CHARACTER
(0002)    0013 CONWRT: EQU   02H      ; WRITE CONSOLE CHARACTER
(0005)    0014 LSTWRT: EQU   05H      ; WRITE LIST CHARACTER
(0009)    0015 PRTSTR: EQU   09H      ; WRITE CONSOLE BUFFER
(0009)    0016 BUFWRT: EQU   09H      ; WRITE CONSOLE BUFFER
(000A)    0017 BUFRDR: EQU   0AH      ; READ CONSOLE BUFFER
(000B)    0018 CONST: EQU   0BH      ; READ CONSOLE STATUS
(000F)    0019 CPMOPN: EQU   0FH      ; OPEN FILE
(0010)    0020 CPMCLS: EQU   10H      ; CLOSE FILE
(0011)    0021 SEARCH: EQU   11H      ; SEARCH FOR FIRST OCCURRENCE
(0012)    0022 SRCNXT: EQU   12H      ; SEARCH NEXT OCCURRENCE
(0013)    0023 DELETE: EQU   13H      ; DELETE FILE FROM DIRECTORY
(0014)    0024 RDRFLE: EQU   14H      ; READ SEQUENTIAL FILE
(0015)    0025 WRTFLE: EQU   15H      ; WRITE SEQUENTIAL FILE
(0016)    0026 CREATE: EQU   16H      ; CREATE FILE
(0017)    0027 RENFLE: EQU   17H      ; RENAME FILE
(001A)    0028 STDMA: EQU   1AH      ; SET DMA ADDRESS
(001B)    0029 GTALOC: EQU   1BH      ; GET ADDRESS OF ALLOCATION
(001F)    0030 GTBLK: EQU   1FH      ; GET ADDRESS OF DISK PARAMETER

(0020)    0031 GTUSER: EQU   20H      ; GET OR SET USER CODE
(0021)    0032 RDRRND: EQU   21H      ; READ RANDOM FILE
(0022)    0033 WRTRND: EQU   22H      ; WRITE RANDOM FILE
(0023)    0034 CPFLSZ: EQU   23H      ; COMPUTE FILE SIZE
(0024)    0035 STRND: EQU   24H      ; SET RANDOM RECORD POINTER
(0025)    0036 RSTDRV: EQU   25H      ; RESET DRIVE
(0028)    0037 WRTRDZ: EQU   28H      ; WRITE RANDOM WITH ZERO FILL
0038 ;
0039 ;
0040      REL
0000' ED739207' 0041 SCAN: LD   (OLDSP), SP
0004' 319408'   0042      LD   SP, STKTOP
0007' 1E1B      0043      LD   E, 01BH
0009' 0E02      0044      LD   C, CONWRT
000B' CD0500    0045      CALL  BDOS
000E' 1E4A      0046      LD   E, 'J'
0010' 0E02      0047      LD   C, CONWRT
0012' CD0500    0048      CALL  BDOS
0015' 11C301'   0049      LD   DE, CMDERR
0018' 3A8000    0050      LD   A, (DMA)
001B' B7        0051      OR   A, A
          0052 ;      JP   Z, EXITX      ; FILE NAME EXPECTED
001C' CC3401'   0053      CALL  Z, SCREEN
001F' 0600      0054      LD   B, 0

```

```

0021' 0E08          0055          LD          C,8
0023' 215D00       0056          LD          HL,FNAME
0026' 11E101'     0057          LD          DE,IBMNAM
0029' EDB0         0058          LDIR                          ; TRANSFER FILE NAME
                          0059 ;
002B' 0608         0060          LD          B,8
002D' 21E101'     0061          LD          HL,IBMNAM
0030' C5           0062 XX:      PUSH         BC
0031' E5           0063          PUSH        HL
0032' 7E           0064          LD          A,(HL)
0033' 5F           0065          LD          E,A
0034' 0E02         0066          LD          C,CONOUT
                          0067 ;
0036' E1           0068          POP         HL
0037' C1           0069          POP         BC
0038' 23           0070          INC         HL
0039' 10F5         0071          DJNZ        XX
                          0072 ;
003B' 11FC01'     0073          LD          DE,CBLSK1
003E' 0E11         0074          LD          C,SEARCH
0040' CD0500       0075          CALL        BDOS
0043' 3C           0076          INC         A
0044' 2808         0077          JR          Z,PHASE0
0046' 11FC01'     0078          LD          DE,CBLSK1
0049' 0E13         0079          LD          C,DELETE
004B' CD0500       0080          CALL        BDOS
004E' 110000#     0081 PHASE0: LD          DE,CBLSK3
0051' 0E11         0082          LD          C,SEARCH
0053' CD0500       0083          CALL        BDOS
0056' 3C           0084          INC         A
0057' 2808         0085          JR          Z,PHASE1
0059' 114F00#     0086          LD          DE,CBLSK3
005C' 0E13         0087          LD          C,DELETE
005E' CD0500       0088          CALL        BDOS
0061' 112002'     0089 PHASE1: LD          DE,CBLSK4
0064' 0E11         0090          LD          C,SEARCH
0066' CD0500       0091          CALL        BDOS
0069' 3C           0092          INC         A
006A' 2808         0093          JR          Z,PHASE2
006C' 112002'     0094          LD          DE,CBLSK4
006F' 0E13         0095          LD          C,DELETE
0071' CD0500       0096          CALL        BDOS
0074' 11FC01'     0097 PHASE2: LD          DE,CBLSK1
0077' 0E16         0098          LD          C,CREATE
0079' CD0500       0099          CALL        BDOS                          ; CREATE CBLSK1
007C' 115A00#     0100          LD          DE,CBLSK3
007F' 0E16         0101          LD          C,CREATE
0081' CD0500       0102          CALL        BDOS                          ; CREATE CBLSK3
0084' 112002'     0103          LD          DE,CBLSK4
0087' 0E16         0104          LD          C,CREATE
0089' CD0500       0105          CALL        BDOS                          ; CREATE CBLSK4
008C' CD0000#     0106          CALL        INIVAR                          ; INITIAL ROUTINE
008F' 3E00         0107          LD          A,0
0091' 320000#     0108          LD          (SNGDRV),A                      ; SELECT DUAL DRIVE
0094' 3E01         0109          LD          A,01H                          ; IBM FORMAT DRIVE
0096' CD0000#     0110          CALL        DRVSEL
0099' CD0000#     0111          CALL        CHKDSK                          ; SELECT DRIVE & CHECK

```

```

                                DISK
009C' 11C402'      0112      LD      DE,NOTFIND
009F' 21E001'      0113      LD      HL,IBMFCB
00A2' CD0000#      0114      CALL   OPEN
00A5' DA2801'      0115      JP      C,EXITX
0116 ;*****
0117 ;
0118 ; INITIATE BUFFER ROUTINE
0119 ;
0120 ;*****
00A8' D5           0121      PUSH   DE
00A9' C5           0122      PUSH   BC
00AA' F5           0123      PUSH   AF
00AB' 0680         0124      LD      B,128
00AD' 110000#      0125      LD      DE,BUFFER
00B0' 3EFF         0126      LD      A,OFFH
00B2' 12           0127 LOOPC1: LD      (DE),A
00B3' 13           0128      INC    DE
00B4' 10FC         0129      DJNZ  LOOPC1
00B6' F1           0130      POP    AF
00B7' C1           0131      POP    BC
00B8' D1           0132      POP    DE
0133 ;*****
0134 ;
0135 ;*****
00B9' 214402'      0136 READI: LD      HL,IBMBUF
00BC' 220000#      0137      LD      (DMASET),HL ; SET DMA TO LOCAL
00BF' FD21E001'    0138      LD      IY,IBMFCB
00C3' AF           0139      XOR    A
00C4' CD0000#      0140      CALL   DSMRD ; READ 1 SECTOR
00C7' 11D502'      0141      LD      DE,IOER
00CA' DA2801'      0142      JP      C,EXITX
00CD' 3C           0143      INC    A
00CE' CAEB00'      0144      JP      Z,EXIT
00D1' E5           0145      PUSH   HL ; UPDATE RECORD NUMBER
00D2' 2AF401'      0146      LD      HL,(IBMREC)
00D5' 23           0147      INC    HL
00D6' 22F401'      0148      LD      (IBMREC),HL
00D9' E1           0149      POP    HL
00DA' CD0000#      0150      CALL   COPYPRN ; COPY TO PRINT FILE
00DD' CD0000#      0151      CALL   COL7 ; CHECK FOR COLUMN 7
0152 ;
0153 ;
00E0' 110000#      0154      LD      DE,COMNT
00E3' 1A           0155      LD      A,(DE)
00E4' FEFF         0156      CP     A,OFFH
00E6' C40000#      0157      CALL   NZ,LEXIC ; LEXICAL ANALYZER PASS
                                1
0158 ;
0159 ;
00E9' 18CE         0160      JR     READI
00EB' 11FC01'      0161 EXIT:  LD      DE,CBLSK1
00EE' 0E10         0162      LD      C,CPMCLS
00F0' CD0500       0163      CALL   BDOS
00F3' CD0000#      0164      CALL   CLBUF3
00F6' 117D00#      0165      LD      DE,CBLSK3
00F9' 0E10         0166      LD      C,CPMCLS

```



```

0173' 1E1B          0223          LD          E,01BH          ; LOCATE 18,10
0175' 0E02          0224          LD          C,CONWRT
0177' CD0500        0225          CALL        BDOS
017A' 1E59          0226          LD          E,'Y'
017C' 0E02          0227          LD          C,CONWRT
017E' CD0500        0228          CALL        BDOS
0181' 1E30          0229          LD          E,30H
0183' 0E02          0230          LD          C,CONWRT
0185' CD0500        0231          CALL        BDOS
0188' 1E29          0232          LD          E,29H
018A' 0E02          0233          LD          C,CONWRT
018C' CD0500        0234          CALL        BDOS
018F' 111203'       0235          LD          DE,PROMPT
0192' 0E09          0236          LD          C,BUFWRT
0194' CD0500        0237          CALL        BDOS
0197' 1E1B          0238          LD          E,01BH          ; LOCATE 18,5
0199' 0E02          0239          LD          C,CONWRT
019B' CD0500        0240          CALL        BDOS
019E' 1E59          0241          LD          E,'Y'
01A0' 0E02          0242          LD          C,CONWRT
01A2' CD0500        0243          CALL        BDOS
01A5' 1E30          0244          LD          E,30H
01A7' 0E02          0245          LD          C,CONWRT
01A9' CD0500        0246          CALL        BDOS
01AC' 1E24          0247          LD          E,24H
01AE' 0E02          0248          LD          C,CONWRT
01B0' CD0500        0249          CALL        BDOS
01B3' DDE1          0250          POP        IX
01B5' C1            0251          POP        BC
01B6' D1            0252          POP        DE
01B7' E1            0253          POP        HL
01B8' C9            0254          RET
                        0255          ; DATA
01B9' 0800          0256 CONBUF: DB          08H,00H
01BB' 20202020      0257 BUFCON: DB          ' '
                        20202020
01C3' 0D0A4649      0258 CMDERR: DB          0DH,0AH,'FILE NAME TO SCAN EXPECTED$'
                        4C45204E
                        414D4520
                        544F2053
                        43414E20
                        45585045
                        43544544
                        24
01E0' 01            0259 IBMFCB: DB          01H
01E1' 20202020      0260 IBMNAM: DB          ' '
                        20202020
01E9' 5000          0261 IBMLen: DW          050H
01EB' (0009)        0262          DS          9
01F4' 0100          0263 IBMREC: DB          01H,00H
01F6' 30303030      0264          DB          30H,30H,30H,30H,30H,30H
                        3030
01FC' 0143424C      0265 CBLSK1: DB          01H,'CBLSK1 PRN',00H,00H,00H,00H
                        534B3120
                        2050524E
                        00000000
020C' (0010)        0266          DS          16

```

021C'	00000000	0267	DB	00H,00H,00H,00H
0220'	0143424C 534B3420 20544B4E 00000000	0268	CBLSK4: DB	01H,'CBLSK4 TKN',00H,00H,00H,00H
0230'	(0010)	0269	DS	16
0240'	00000000	0270	DB	00H,00H,00H,00H
0244'	(0080)	0271	IBMBUF DS	128
02C4'	0D0A4649 4C45204E 4F542046 4F554E44 24	0272	NOTFIND: DB	0DH,0AH,'FILE NOT FOUND\$'
02D5'	0D0A492D 4F204552 524F5224	0273	IOER: DB	0DH,0AH,'I-O ERROR\$'
02E1'	434F424F 4C205072 652D436F 6D70696C 65722050 68617365 20492063 6F6D706C 6574656C 79207465 726D696E 61746564 24	0274	EOF: DB terminated\$'	'COBOL Pre-Compiler Phase I completely terminated\$'
0312'	5265636F 72647320 70726F63 65737365 6420696E 20506861 73652049 24	0275	PROMPT: DB	'Records processed in Phase I\$'
032F'	0D0A	0276	SCR: DB	0DH,0AH
0331'	20818181 81818181 8181	0277	DB	' ',129,129,129,129,129,129,129,129,129
033B'	81818181 81818181 8181	0278	DB	129,129,129,129,129,129,129,129,129,129
0345'	81818181 81818181 8181	0279	DB	129,129,129,129,129,129,129,129,129,129
034F'	81818181 81818181 8181	0280	DB	129,129,129,129,129,129,129,129,129,129
0359'	81818181 81818181 8181	0281	DB	129,129,129,129,129,129,129,129,129,129
0363'	81818181	0282	DB	129,129,129,129,129,129,129,129,129,129

```
81818181
8181
036D' 81818181 0283 DB 129,129,129,129,129,129,129,129,129,129
81818181
8181
0377' 81818181 0284 DB 129,129,129,129,129,129,129,129,0DH,0AH
81818181
000A
0381' 20812020 0285 DB ' ',129,'
20202020
20202020
20202020
20202020
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20202020
20202020
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20202020
03B5' 20202020 0286 DB ' ',129,0DH,0AH
20202020
20202020
20202020
20202020
20202020
20810D0A
03D1' 20812020 0287 DB ' ',129,'
20202020
20202020
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20202020
20202020
20202020
20202020
20202020
0405' 20202020 0288 DB ' ',129,0DH,0AH
20202020
20202020
20202020
20202020
20202020
20202020
20810D0A
0421' 20812020 0289 DB ' ',129,' CHUL
ALONGKORN UNIVERSITY'
20202020
20202020
20202020
20202020
20202020
```



```

20202020
4348554C
414C4F4E
474B4F52
4E20554E
49564552
53495459
0455' 20202020      0290      DB      '      ,129,0DH,0AH
20202020
20202020
20202020
20202020
20202020
20810D0A
0471' 20812020      0291      DB      ' ',129,'
20202020
20202020
20202020
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20202020
20202020
20202020
20202020
04A5' 20202020      0292      DB      '      ,129,0DH,0AH
20202020
20202020
20202020
20202020
20810D0A
04C1' 20812020      0293      DB      ' ',129,'      CU-Co
      mputer Service Centr'
20202020
20202020
20202020
20202020
20202020
20202043
552D436F
6D707574
65722053
65727669
63652043
656E7472
04F5' 65202020      0294      DB      'e      ,129,0DH,0AH
20202020
20202020
20202020
20202020
20202020
20810D0A
0511' 20812020      0295      DB      ' ',129,'

```

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20202020
20202020
20202020
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20202020
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20202020
0545' 20202020      0296      DB      '      ',129,0DH,0AH
20202020
20202020
20202020
20202020
20202020
20810D0A
0561' 20812020      0297      DB      ' ',129,'      CO
      BOL Pre-Compiler
20202020
20202020
20202020
20202020
20202020
20202020
2020434F
424F4C20
5072652D
436F6D70
696C6572
20202020
0595' 20202020      0298      DB      '      ',129,0DH,0AH
20202020
20202020
20202020
20202020
20202020
20810D0A
05B1' 20812020      0299      DB      ' ',129,'
20202020
20202020
20202020
20202020
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20202020
20202020
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20202020
20202020
20202020
05E5' 20202020      0300      DB      '      ',129,0DH,0AH
20202020

```

```

20202020
20202020
20202020
20202020
20810D0A
0601' 20812020      0301      DB      ' ',129,'
                20202020
                20202020
                20202020
                20202020
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                20202020
                20202020
                20202020
                20202020
                20202020
                20202020
                20202020
0635' 20202020      0302      DB      ' ',129,0DH,0AH
                20202020
                20202020
                20202020
                20202020
                20202020
                20810D0A
0651' 20812049      0303      DB      ' ',129,' IBM File name to Pre-Compile
                424D2046
                696C6520
                6E616D65
                20746F20
                5072652D
                436F6D70
                696C6520
                3A202020
                20202020
                20202020
                20202020
                20202020
0685' 20202020      0304      DB      ' ',129,0DH,0AH
                20202020
                20202020
                20202020
                20202020
                20202020
                20810D0A
                0305 ;      DB      ' ',129,'
                0306 ;      DB      ' ',129,0DH,0AH
                0307 ;      DB      ' ',129,'
                0308 ;      DB      ' ',129,0DH,0AH
                0309 ;      DB      ' ',129,'
                0310 ;      DB      ' ',129,0DH,0AH
                0311 ;      DB      ' ',129,'

```

```

06A1' 20812020      0312 ;      DB      '      ' ,129,0DH,0AH
                   0313      DB      ' ' ,129,'
                   20202020
                   20202020
                   20202020
                   20202020
                   20202020
                   20202020
                   20202020
                   20202020
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                   20202020
                   20202020
06D5' 20202020      0314      DB      '      ' ,129,0DH,0AH
                   20202020
                   20202020
                   20202020
                   20202020
                   20810D0A
06F1' 20812020      0315      DB      ' ' ,129,'
                   20202020
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                   20202020
                   20202020
0725' 20202020      0316      DB      '      ' ,129,0DH,0AH
                   20202020
                   20202020
                   20202020
                   20202020
                   20202020
                   20810D0A
0741' 20818181      0317      DB      ' ' ,129,129,129,129,129,129,129,129,129
                   81818181
                   8181
074B' 81818181      0318      DB      129,129,129,129,129,129,129,129,129,129
                   81818181
                   8181
0755' 81818181      0319      DB      129,129,129,129,129,129,129,129,129,129
                   81818181
                   8181
075F' 81818181      0320      DB      129,129,129,129,129,129,129,129,129,129
                   81818181
                   8181

```

```
0769' 81818181      0321      DB      129,129,129,129,129,129,129,129,129,129
      81818181
      8181
0773' 81818181      0322      DB      129,129,129,129,129,129,129,129,129,129
      81818181
      8181
077D' 81818181      0323      DB      129,129,129,129,129,129,129,129,129,129
      81818181
      8181
0787' 81818181      0324      DB      129,129,129,129,129,129,129,129,0DH,0AH
      81818181
      0D0A
0791' 24            0325      DB      '$'
0792' (0002)         0326 OLDSP: DS      2
0794' (0100)         0327      DS      256
      (0894')         0328 STKTOP EQU    $
0894' (0000')         0329      END     SCAN
```

Errors 0

Program Length 0894 (2196)

```

0001      EXTRN  CPMOPN,STDMA,CPMCLS
0002      EXTRN  IBMBUF,CBLSK1,SEQGEN,COUNT1,COUNTE
0003      ENTRY  COPYPRN
(0011)    0004 SEARCH EQU    011H
(0013)    0005 DELETE EQU   013H
(0015)    0006 WRITE EQU    015H
(0016)    0007 CREATE EQU   016H
(0005)    0008 BDOS  EQU     05H
(0080)    0009 DMA   EQU     080H
(0002)    0010 CONWRT EQU    02H
(0009)    0011 BUFVRT EQU    09H
0012      REL
0013 ;
0014 ;
0015 ;
0000' 0600    0016 COPYPR: LD      B,0
0002' 0E7A    0017      LD      C,122
0004' 210000# 0018      LD      HL,IBMBUF
0007' 118000  0019      LD      DE,DMA
000A' 13      0020      INC     DE
000B' 13      0021      INC     DE
000C' 13      0022      INC     DE
000D' 13      0023      INC     DE
000E' 13      0024      INC     DE
000F' 13      0025      INC     DE
0010' EDB0    0026      LDIR
0012' CD0000# 0027      CALL   SEQGEN
0015' 1E1B    0028      LD      E,01BH      ; LOCATE 18,5
0017' 0E02    0029      LD      C,CONWRT
0019' CD0500  0030      CALL   BDOS
001C' 1E59    0031      LD      E,'Y'
001E' 0E02    0032      LD      C,CONWRT
0020' CD0500  0033      CALL   BDOS
0023' 1E30    0034      LD      E,30H
0025' 0E02    0035      LD      C,CONWRT
0027' CD0500  0036      CALL   BDOS
002A' 1E24    0037      LD      E,24H
002C' 0E02    0038      LD      C,CONWRT
002E' CD0500  0039      CALL   BDOS
0031' 0600    0040      LD      B,0
0033' 0E04    0041      LD      C,4
0035' 210000# 0042      LD      HL,COUNT1
0038' 118000  0043      LD      DE,DMA
003B' EDB0    0044      LDIR
003D' 3E20    0045      LD      A,' '
003F' 12      0046      LD      (DE),A
0040' 13      0047      INC     DE
0041' 12      0048      LD      (DE),A
0042' 110000# 0049      LD      DE,CBLSK1
0045' 0E15    0050      LD      C,WRITE
0047' CD0500  0051      CALL   BDOS
004A' 0604    0052      LD      B,04      ; SHOW ONLY LINE NUMBER
004C' 0E02    0053      LD      C,02
004E' 218000  0054      LD      HL,DMA
0051' C5      0055 LOOP: PUSH   BC
0052' E5      0056      PUSH   HL
0053' 5E      0057      LD      E,(HL)

```

```
0054' CD0500      0058      CALL    BDOS
0057' E1          0059      POP     HL
0058' 23          0060      INC     HL
0059' C1          0061      POP     BC
005A' 10F5        0062      DJNZ   LOOP
005C' C9          0063      RET
005D' 5265636F   0064 PROMPT: DB      'Records processed in Phase I$'
      72647320
      70726F63
      65737365
      6420696E
      20506861
      73652049
      24
      0065 ;      DATA
      0066 ;CBLSK1: DB      00H,'CBLSK1 PRN',00H,' ',00H
      0067 ;      DS      16
      0068 ;      DB      00H,00H,00H,00H
```

Errors 0

Program Length 007A (122)

```

                                0001      EXTRN  COUNT1
                                0002      ENTRY  ERROR,CBLSK3,CLBUF3,ERRCD
                                0003 ;
                                0004 ;
      (0009) 0005 PRTSTR EQU    009H
      (001A) 0006 STDMA EQU    01AH
      (0005) 0007 BDOS  EQU    05H
      (0015) 0008 WRITE EQU    015H
      (0080) 0009 DMA   EQU    080H
                                0010      REL
0000' D5      0011 ERROR: PUSH  DE
0001' E5      0012      PUSH  HL
0002' DDE5    0013      PUSH  IX
0004' FDE5    0014      PUSH  IY
0006' C5      0015      PUSH  BC
0007' 11DF00' 0016      LD     DE,BUFFER
000A' 0E1A    0017      LD     C,STDMA
000C' CD0500 0018      CALL  BDOS
                                0019 ;
                                0020 ;
                                0021 ;
000F' CD8F00' 0022      CALL  STRBUF
0012' 3E20    0023      LD     A,' '
0014' 12      0024      LD     (DE),A
0015' 13      0025      INC   DE
0016' 12      0026      LD     (DE),A      ; FIRST 2 BYTE TO BE BL
                                ANK
0017' 13      0027      INC   DE
0018' C5      0028      PUSH  BC
0019' 015F01' 0029      LD     BC,ERRCD
001C' 0A      0030      LD     A,(BC)
001D' 12      0031      LD     (DE),A      ; CONTENT FROM CALLING
                                ROUTINE
001E' 13      0032      INC   DE
001F' 03      0033      INC   BC
0020' 0A      0034      LD     A,(BC)
0021' 12      0035      LD     (DE),A      ; CONTENT FROM CALLING
                                ROUTINE
0022' C1      0036      POP   BC
0023' 13      0037      INC   DE
0024' 0600    0038      LD     B,0
0026' 0E04    0039      LD     C,4
0028' 210000# 0040      LD     HL,COUNT1      ; LINE NUMBER
002B' EDB0    0041      LDIR
002D' 11DE00' 0042      LD     DE,ELEMNT
0030' 1A      0043      LD     A,(DE)
0031' 3C      0044      INC   A
0032' 12      0045      LD     (DE),A      ; COUNT FOR NUMBER OF E
                                LEMENT
0033' CDA600' 0046      CALL  CHKBUF
                                0047 ;
                                0048 ;
0036' 118000 0049      LD     DE,DMA
0039' 0E1A    0050      LD     C,STDMA
003B' CD0500 0051      CALL  BDOS
003E' C1      0052      POP   BC
003F' FDE1    0053      POP   IY

```



```

0041' DDE1          0054          POP      IX
0043' E1            0055          POP      HL
0044' D1            0056          POP      DE
0045' C9            0057          RET
0046' D5            0058 CLBUF3: PUSH    DE
0047' F5            0059          PUSH    AF
0048' C5            0060          PUSH    BC
0049' 11DE00'      0061          LD      DE,ELEMNT
004C' 1A            0062          LD      A,(DE)
004D' FE00         0063          CP      A,00H
004F' 283A         0064          JR      Z,RET
0051' CD8F00'      0065          CALL   STRBUF
                   0066 ;          PUSH    BC
0054' D5            0067          PUSH    DE
0055' 11DE00'      0068          LD      DE,ELEMNT
0058' 1A            0069          LD      A,(DE)
0059' D1            0070          POP      DE
005A' 47            0071          LD      B,A
005B' 3E10         0072          LD      A,010H
005D' 90            0073          SUB     A,B
005E' 47            0074          LD      B,A
005F' 3E2A         0075          LD      A,'*'
0061' 12            0076 LOOP3: LD      (DE),A
0062' 13            0077          INC     DE
0063' 12            0078          LD      (DE),A
0064' 13            0079          INC     DE
0065' 12            0080          LD      (DE),A
0066' 13            0081          INC     DE
0067' 12            0082          LD      (DE),A
0068' 13            0083          INC     DE
0069' 12            0084          LD      (DE),A
006A' 13            0085          INC     DE
006B' 12            0086          LD      (DE),A
006C' 13            0087          INC     DE
006D' 12            0088          LD      (DE),A
006E' 13            0089          INC     DE
006F' 12            0090          LD      (DE),A
0070' 13            0091          INC     DE
0071' 10EE         0092          DJNZ   LOOP3
0073' 11DF00'      0093          LD      DE,BUFFER ; SET NEW BUFFER TO LOC
                   AL
0076' 0E1A         0094          LD      C,STDMA
0078' CD0500       0095          CALL   BDOS
007B' 11BA00'      0096          LD      DE,CBLSK3 ; CALL BDOS TO SET DMA
007E' 0E15         0097          LD      C,WRITE
0080' CD0500       0098          CALL   BDOS
0083' 118000       0099          LD      DE,DMA
0086' 0E1A         0100          LD      C,STDMA
0088' CD0500       0101          CALL   BDOS ; SET DMA TO DMA DEFAULT
                   T
                   0102 ;          POP      BC
008B' C1           0103 RET:    POP      BC
008C' F1           0104          POP      AF
008D' D1           0105          POP      DE
008E' C9           0106          RET
                   0107 ;
                   0108 ;

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008F' 11DE00'      0109 STRBUF: LD      DE,ELEMNT
0092' 1A           0110          LD      A,(DE)
0093' 47           0111          LD      B,A           ; TIMES TO INDEX
0094' 11DF00'      0112          LD      DE,BUFFER
0097' FE00         0113          CP      A,00H
0099' 280A         0114          JR      Z,RET1
009B' 13           0115 LOOP:   INC     DE
009C' 13           0116          INC     DE
009D' 13           0117          INC     DE
009E' 13           0118          INC     DE
009F' 13           0119          INC     DE
00A0' 13           0120          INC     DE
00A1' 13           0121          INC     DE
00A2' 13           0122          INC     DE
00A3' 10F6         0123          DJNZ   LOOP
00A5' C9           0124 RET1:   RET
00A6' 11DE00'      0125 CHKBUF: LD      DE,ELEMNT
00A9' 1A           0126          LD      A,(DE)
00AA' FE10         0127          CP      A,10H       ; 16 ELEMENT OR NOT
00AC' 200B         0128          JR      NZ,RET2
00AE' 3E00         0129          LD      A,00H
00B0' 12           0130          LD      (DE),A     ; CLEAR ELEMENT FOR NEW
                   BUFFER
00B1' 11BA00'      0131          LD      DE,CBLSK3
00B4' 0E15         0132          LD      C,WRITE
00B6' CD0500       0133          CALL   BDOS
00B9' C9           0134 RET2:   RET
                   0135 ;
                   0136 ;
                   0137 ;
                   0138 ;
                   0139 ;
00BA' 0043424C     0140 CBLSK3: DB      00H,'CBLSK3 ERR',00H,' ',00H
                   534B3320
                   20455252
                   00202000
00CA' (0010)       0141          DS      16
00DA' 00000000     0142          DB      00H,00H,00H,00H
                   0143 ;ERRORM:  DB      0DH,0AH,'ERROR DETECTED$'
00DE' 00           0144 ELEMNT: DB      00H           ; COUNT FOR EL
                   EMENT IN BUFFER
00DF' (0080)       0145 BUFFER: DS      128
015F' 0000         0146 ERRCD:  DB      00H,00H
0161' (0000)       0147          END

```

Errors 0

Program Length 0161 (353)

```

0001          EXTRN  ERROR,ERRCD
0002          ENTRY  COL7,COMNT,CNTFLG
0003 ;
0004 ;
(0080) 0005 DMA     EQU     080H
0006          REL
0000' E5      0007 COL7:  PUSH   HL
0001' C5      0008          PUSH   BC
0002' D5      0009          PUSH   DE
0010 ;*****
0011 ;
0012 ;          ROUTINE FOR INITIAL COMMENT FLAG
0013 ;
0014 ;*****
0003' 11C500' 0015          LD     DE,COMNT
0006' 3E20    0016          LD     A,' '
0008' 12      0017          LD     (DE),A
0018 ;*****
0019 ;
0020 ;*****
0009' CD4D00' 0021          CALL   CHKSEQ
000C' 118000  0022          LD     DE,DMA
000F' 060C    0023          LD     B,12
0011' 13      0024 INIT:   INC     DE           ; SKIP FOR SEQUENCE NUM
BER
0012' 10FD    0025          DJNZ  INIT           ; DE POINT COLUMN 7
0014' 1A      0026          LD     A,(DE)
0015' FE20    0027          CP     A,' '           ; NORMAL LINE
0017' 2830    0028          JR     Z,OK
0019' FE2A    0029          CP     A,'*'
001B' 2819    0030          JR     Z,COMNT        ; COMMENT LINE
001D' FE2D    0031          CP     A,'-'        ; CONTINUATION LINE
001F' 2821    0032          JR     Z,CONT
0021' FE2F    0033          CP     A,'/'        ; EJECT PAGE LINE

0023' 2824    0034          JR     Z,OK
0025' C5      0035          PUSH  BC
0026' 010000# 0036          LD     BC,ERRCD
0029' 3E00    0037          LD     A,00H
002B' 02      0038          LD     (BC),A
002C' 03      0039          INC   BC
002D' 3E01    0040          LD     A,01H           ; CODE 01 = ERROR CHAR
COL 7
002F' 02      0041          LD     (BC),A
0030' C1      0042          POP   BC
0031' CD0000# 0043          CALL   ERROR
0044 ;
0034' 1813    0045          JR     OK
0046 ;
0047 ;*****
0048 ;
0049 ;          ROUTINE FOR FLAG COMMENT LINE
0050 ;
0051 ;*****
0036' D5      0052 COMNT:  PUSH  DE
0037' F5      0053          PUSH  AF
0038' 11C500' 0054          LD     DE,COMNT

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003B' 3EFF          0055          LD      A,OFFH
003D' 12            0056          LD      (DE),A
003E' F1            0057          POP     AF
003F' D1            0058          POP     DE
0040' 1807          0059          JR      OK
                    0060 ;*****
                    0061 ;
                    0062 ;*****
0042' F5            0063 CONT:  PUSH   AF
0043' 3EFF          0064          LD      A,OFFH
0045' 32C600'       0065          LD      (CNTFLG),A
0048' F1            0066          POP     AF
0049' D1            0067 OK:    POP     DE
004A' C1            0068          POP     BC
004B' E1            0069          POP     HL
004C' C9            0070          RET
                    0071 ;
                    0072 ;
004D' 118000        0073 CHKSEQ: LD      DE,DMA
0050' 0606          0074          LD      B,6
0052' 13            0075 LOOP:  INC     DE
0053' 10FD          0076          DJNZ   LOOP          ; DE POINT START SEQ
0055' 0606          0077          LD      B,6
0057' 21BE00'       0078          LD      HL,OLD
005A' 1A            0079 LOOP1: LD      A,(DE)
005B' BE            0080          CP      A,(HL)
005C' FA6800'       0081          JP      M,SEQ
005F' F2AC00'       0082          JP      P,RETURN
0062' 23            0083          INC     HL
0063' 13            0084          INC     DE
0064' 10F4          0085          DJNZ   LOOP1
0066' 1819          0086          JR      BLANK
0068' D5            0087 OSEQ:  PUSH   DE
0069' 11C400'       0088          LD      DE,COUNT
006C' 1A            0089          LD      A,(DE)
006D' 3C            0090          INC     A
006E' 12            0091          LD      (DE),A          ; COUNT FOR SEQUENCE ER
                    ROR
006F' D1            0092          POP     DE
0070' C5            0093          PUSH   BC
0071' 012700#       0094          LD      BC,ERRCD
0074' 3E00          0095          LD      A,00H
0076' 02            0096          LD      (BC),A
0077' 03            0097          INC     BC
0078' 3E02          0098          LD      A,02H          ; CODE 02 = INVALID SEQ
                    UENCE
007A' 02            0099          LD      (BC),A
007B' C1            0100          POP     BC
007C' CD3200#       0101          CALL   ERROR
007F' 182B          0102          JR      RETURN
0081' 218000        0103 BLANK: LD      HL,DMA
0084' 0606          0104          LD      B,6
0086' 23            0105 B1:    INC     HL
0087' 10FD          0106          DJNZ   B1
0089' 0606          0107          LD      B,6
008B' 7E            0108 B2:    LD      A,(HL)
008C' FE20          0109          CP      A,' '

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008E' 2005      0110      JR      NZ,B3
0090' 23        0111      INC     HL
0091' 10F8      0112      DJNZ   B2
0093' 1817      0113      JR      RETURN
0095' C5        0114 B3:    PUSH   BC
0096' 017200#  0115      LD      BC,ERRCD
0099' 3E00      0116      LD      A,00H
009B' 02        0117      LD      (BC),A
009C' 03        0118      INC     BC
009D' 3E03      0119      LD      A,03H      ; CODE 03 = DUPLICATE S
                        EQUENCE
009F' 02        0120      LD      (BC),A
00A0' D5        0121      PUSH   DE
00A1' 11C400'  0122      LD      DE,COUNT
00A4' 1A        0123      LD      A,(DE)
00A5' 3C        0124      INC     A
00A6' 12        0125      LD      (DE),A      ; COUNT FOR SEQUENCE ER
                        ROR
00A7' D1        0126      POP     DE
00A8' C1        0127      POP     BC
00A9' CD7D00#  0128      CALL   ERROR
00AC' 218000    0129 RETURN: LD      HL,DMA
00AF' 0606      0130      LD      B,6
00B1' 23        0131 RETI:   INC     HL
00B2' 10FD      0132      DJNZ   RETI
00B4' 11BE00'  0133      LD      DE,OLD
00B7' 0600      0134      LD      B,00H
00B9' 0E04      0135      LD      C,4
00BB' EDB0      0136      LDIR
00BD' C9        0137      RET
0138 ;
0139 ;
00BE' 00000000 0140 OLD:   DB      00H,00H,00H,00H,00H,00H
0000
00C4' 00        0141 COUNT:  DB      00H      ; COUNT FOR NUMBER OF E
RROR OCCUR
00C5' (0001)    0142 COMNT: DS      1
00C6' (0001)    0143 CNTFLG: DS     1      ; FLAG FOR - IN COLUMN
7
00C7' (0000)    0144      END

Errors          0

Program Length 00C7 (199)

```

```

0001          ENTRY  SEQGEN,COUNT1,COUNT2
0002 ;
0003 ;
0004          REL
0005 SEQGEN: PUSH  IX
0006          PUSH  IY
0007          LD    IY,COUNT2
0008          LD    A,(IY)
0009          INC  A
0010          DAA
0011          LD    (IY),A
0012          LD    A,00H
0013          ADC  A,(IY+1)
0014          DAA
0015          LD    (IY+1),A
0016          LD    B,2
0017          LD    IX,COUNT4
0018 LOOP:   LD    A,(IY)
0019          AND  0FH
0020          OR   030H
0021          LD    (IX),A
0022          LD    A,(IY)
0023          AND  0FH
0024          SRL  A
0025          SRL  A
0026          SRL  A
0027          SRL  A
0028          OR   030H
0029          LD    (IX-1),A
0030          INC  IY
0031          DEC  IX
0032          DEC  IX
0033          DJNZ LOOP
0034          POP  IY
0035          POP  IX
0036          RET
0037 ;
0038 ;
0039 COUNT2: DB  00H,00H
0040 COUNT1: DB  030H
0041 COUNT2: DB  030H
0042 COUNT3: DB  030H
0043 COUNT4: DB  030H
0044          END
0045' DDE1
0046' C9
0047' C9
0048' 0000
0049' 30
004A' 30
004B' 30
004C' 30
004D' 30
004E' (0000)

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Errors 0

Program Length 004E (78)



```

0001      EXTRN  CBLSK4,COUNT1,ERRCD,ERROR
0002      ENTRY  LEXIC,BUFFER,CLBUF4
(0080)    0003 DMA   EQU   080H
(008D)    0004 AREAA EQU   08DH
(0005)    0005 BDOS  EQU   05H
(0015)    0006 WRITE EQU   015H
(001A)    0007 SETDMA EQU   01AH
0008 ;
0009 ;
0010      REL
0000' DDE5   0011 LEXIC: PUSH  IX
0002' FDE5   0012      PUSH  IY
0004' C5     0013      PUSH  BC
0005' F5     0014      PUSH  AF
0006' E5     0015      PUSH  HL
0007' D5     0016      PUSH  DE
0008' 113402' 0017      LD    DE,FSYMBL
000B' 3E00   0018      LD    A,00H
000D' 12     0019      LD    (DE),A
000E' 213002' 0020      LD    HL,COLUMN
0011' 3E08   0021      LD    A,08H
0013' 77     0022      LD    (HL),A
0023 ;*****
0024 ;
0025 ;      ROUTINE FOR SKIP BLANK LINE
0026 ;
0027 ;*****
0014' 218D00 0028      LD    HL,AREAA
0017' CD0401' 0029      CALL  FSTNB
001A' 3A3002' 0030      LD    A,(COLUMN)
001D' FE48   0031      CP    A,072
001F' F2BB00' 0032      JP    P,RETMN
0022' 213002' 0033      LD    HL,COLUMN
0025' 3E08   0034      LD    A,08H
0027' 77     0035      LD    (HL),A
0036 ;*****
0037 ;
0038 ;      ROUTINE FOR PADDING LINE NUMBER OF TOKEN
0039 ;
0040 ;      USING 00H FOR BEING FLAG THAT IS LINE NUMBER
0041 ;      INFORMATION PROVIDING
0042 ;
0043 ;*****
0028' C5     0044      PUSH  BC
0029' E5     0045      PUSH  HL
002A' D5     0046      PUSH  DE
002B' 3E05   0047      LD    A,05H
002D' 323102' 0048      LD    (LENGTH),A
0030' CDC400' 0049      CALL  STRBUF
0033' 3E00   0050      LD    A,00H
0035' 12     0051      LD    (DE),A      ; FLAG LINE NO.
0036' 13     0052      INC   DE
0037' 0E04   0053      LD    C,04H
0039' 0600   0054      LD    B,00H
003B' 210000# 0055      LD    HL,COUNT1
003E' EDB0   0056      LDIR
0040' D1     0057      POP   DE

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0041' E1          0058          POP      HL
0042' C1          0059          POP      BC
                   0060 ;
                   0061 ;
0043' 218D00     0062          LD       HL,AREAA
0046' CD0401'    0063 LOOPX1: CALL    FSTNB
0049' 3A3002'    0064          LD       A,(COLUMN)
004C' FE48       0065          CP       A,072
004E' F2BB00'    0066          JP       P,RETMN
0051' CD1501'    0067          CALL    FLNGTH
0054' 113102'    0068          LD       DE,LENGTH
0057' 1A         0069          LD       A,(DE)
0058' FE00       0070          CP       A,00H
005A' 2825       0071          JR       Z,UNGTKN
005C' CDC400'    0072          CALL    STRBUF
005F' 3A3002'    0073          LD       A,(COLUMN)
0062' 12         0074          LD       (DE),A
0063' 13         0075          INC     DE
0064' 3A3102'    0076          LD       A,(LENGTH)
                   0077 ;*****
0078 ;          PUSH    AF
0079 ;          LD       A,(FSYMBL)
0080 ;          CP       A,OFFH
0081 ;          JR       NZ,LDLNTH
0082 ;          POP     AF
0083 ;          DEC     A
0084 ;          JR       LDLNTH
0085 ; LDLNTH POP    AF
0086 ;*****
0067' 12         0087 LDLNTH: LD       (DE),A
0068' 13         0088          INC     DE
                   0089 ;
                   0090 ;
0069' D5         0091          PUSH    DE
006A' E5         0092          PUSH    HL
006B' F5         0093          PUSH    AF
006C' 113102'    0094          LD       DE,LENGTH
006F' 1A         0095          LD       A,(DE)
0070' 47         0096          LD       B,A
0071' 213002'    0097          LD       HL,COLUMN
0074' 34         0098 LOOPCL: INC    (HL)
0075' 10FD       0099          DJNZ   LOOPCL
0077' F1         0100          POP     AF
0078' E1         0101          POP     HL
0079' D1         0102          POP     DE
                   0103 ;
                   0104 ;
007A' 4F         0105          LD       C,A
007B' 0600       0106          LD       B,0
007D' EDB0       0107          LDIR
007F' 1811       0108          JR       PTKN
                   0109 ;*****
0110 ;
0111 ;          ROUTINE FOR KEEP PUNCTUATION TOKEN
0112 ;
0113 ;*****
0081' C5         0114 UNGTKN: PUSH    BC

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0082' F5          0115          PUSH    AF
0083' 010000#    0116          LD      BC,ERRCD
0086' 3E00       0117          LD      A,00H
0088' 02         0118          LD      (BC),A
0089' 03         0119          INC     BC
008A' 3E04       0120          LD      A,04H
008C' 02         0121          LD      (BC),A
008D' CD0000#    0122          CALL   ERROR
0090' F1         0123          POP     AF
0091' C1         0124          POP     BC
0092' 3A3402'    0125 PTKN: LD      A,(FSYMBL)
0095' FEFF       0126          CP      A,OFFH
0097' 2020       0127          JR      NZ,GOLOOP
0099' 3E01       0128          LD      A,01H
009B' 323102'    0129          LD      (LENGTH),A
009E' CDC400'    0130          CALL   STRBUF
00A1' 3A3002'    0131          LD      A,(COLUMN)
00A4' 12         0132          LD      (DE),A
00A5' 13         0133          INC     DE
00A6' 3C         0134          INC     A
00A7' 323002'    0135          LD      (COLUMN),A
00AA' 3E01       0136          LD      A,01H
00AC' 12         0137          LD      (DE),A
00AD' 13         0138          INC     DE
00AE' 3A3302'    0139          LD      A,(USYMBL)
00B1' 12         0140          LD      (DE),A
00B2' 13         0141          INC     DE
00B3' 3E00       0142          LD      A,00H
00B5' 323402'    0143          LD      (FSYMBL),A
00B8' 23         0144          INC     HL
0145 ;*****
0146 ;
0147 ;*****
00B9' 188B       0148 GOLOOP: JR      LOOPX1
0149 ;
0150 ;
00BB' D1         0151 RETMN: POP     DE
00BC' E1         0152          POP     HL
00BD' F1         0153          POP     AF
00BE' C1         0154          POP     BC
00BF' FDE1       0155          POP     IY
00C1' DDE1       0156          POP     IX
00C3' C9         0157          RET
0158 ;
0159 ;
00C4' E5         0160 STRBUF: PUSH   HL
00C5' 113202'    0161          LD      DE,COL
00C8' 3E01       0162          LD      A,01H
00CA' 12         0163          LD      (DE),A
00CB' 21B001'    0164          LD      HL,BUFFER
00CE' 7E         0165 LOOPF1: LD      A,(HL)
00CF' FEFF       0166          CP      A,OFFH
00D1' 2806       0167          JR      Z,STABUF
00D3' 1A         0168          LD      A,(DE)
00D4' 3C         0169          INC     A
00D5' 12         0170          LD      (DE),A
00D6' 23         0171          INC     HL

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00D7' 18F5      0172      JR      LOOPF1
00D9' EB        0173 STABUF: EX      DE,HL
00DA' CDDF00'   0174      CALL     CHKBUF
00DD' E1        0175      POP      HL
00DE' C9        0176      RET
                0177 ;
                0178 ;
00DF' DDE5      0179 CHKBUF: PUSH     IX
00E1' C5        0180      PUSH     BC
00E2' F5        0181      PUSH     AF
00E3' 213202'   0182      LD       HL,COL
00E6' DD213102' 0183      LD       IX,LENGTH
00EA' 7E        0184      LD       A,(HL)
00EB' 47        0185      LD       B,A
00EC' FE7D      0186      CP       A,125
00EE' F2FC00'   0187      JP       P,WRTB
00F1' 3E7E      0188      LD       A,126
00F3' 90        0189      SUB     A,B
00F4' DDBE00    0190      CP       A,(IX)
00F7' FC6601'   0191      CALL    M,WRITEB
00FA' 1803      0192      JR       RETCHK
00FC' CD6601'   0193 WRTB:  CALL    WRITEB
00FF' F1        0194 RETCHK: POP     AF
0100' C1        0195      POP     BC
0101' DDE1      0196      POP     IX
0103' C9        0197      RET
                0198 ;
                0199 ;
0104' 7E        0200 FSTNB: LD       A,(HL)
0105' FE20      0201      CP       A,' '
0107' C0        0202      RET     NZ
0108' 23        0203      INC     HL
0109' E5        0204      PUSH    HL
010A' 213002'   0205      LD       HL,COLUMN
010D' 34        0206      INC     (HL)
010E' 7E        0207      LD       A,(HL)
010F' E1        0208      POP     HL
0110' FE48      0209      CP       A,072
0112' F0        0210      RET     P
0113' 18EF      0211      JR       FSTNB
                0212 ;
                0213 ;
0115' E5        0214 FLNGTH: PUSH    HL
0116' 3A3002'   0215      LD       A,(COLUMN)
0119' 47        0216      LD       B,A
011A' EB        0217      EX      DE,HL
011B' 213102'   0218      LD       HL,LENGTH
011E' 3600      0219      LD       (HL),00H
0120' 1A        0220 LOOPL1: LD      A,(DE)
0121' FE20      0221      CP       A,' '
0123' 283F      0222      JR       Z,RETURN
                0223 ;
                0224      INC     (HL)
0125' FE2C      0224      CP       A,' , '
0127' 2813      0225      JR       Z,UNGET1
0129' FE2E      0226      CP       A,' . '
012B' 281D      0227      JR       Z,UNGET2
012D' FE3B      0228      CP       A,' ; '

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012F' 2827      0229      JR      Z, UNGET3
0131' 34        0230      INC     (HL)
0132' 13        0231      INC     DE
0133' 04        0232      INC     B
0134' 78        0233      LD      A, B
0135' FE48      0234      CP      A, 072
0137' F26401'   0235      JP      P, RETURN
013A' 18E4      0236      JR      LOOP1
0237 ;*****
0238 ;
0239 ;      UNGET ROUTINE FOR PUNCTUATION
0240 ;
0241 ;*****
013C' F5        0242 UNGET1: PUSH  AF
013D' 3E2C      0243      LD      A, ','
013F' 323302'   0244      LD      (USYMBL), A
0142' 3EFF      0245      LD      A, OFFH
0144' 323402'   0246      LD      (FSYMBL), A
0147' F1        0247      POP     AF
0148' 181A      0248      JR      RETURN
014A' F5        0249 UNGET2: PUSH  AF
014B' 3E2E      0250      LD      A, '.'
014D' 323302'   0251      LD      (USYMBL), A
0150' 3EFF      0252      LD      A, OFFH
0152' 323402'   0253      LD      (FSYMBL), A
0155' F1        0254      POP     AF
0156' 180C      0255      JR      RETURN
0158' F5        0256 UNGET3: PUSH  AF
0159' 3E3B      0257      LD      A, ';'
015B' 323302'   0258      LD      (USYMBL), A
015E' 3EFF      0259      LD      A, OFFH
0160' 323402'   0260      LD      (FSYMBL), A
0163' F1        0261      POP     AF
0262 ;*****
0263 ;
0264 ;*****
0164' E1        0265 RETURN: POP   HL
0165' C9        0266      RET
0267 ;
0268 ;
0166' E5        0269 WRITEB: PUSH  HL
0167' C5        0270      PUSH   BC
0168' 11B001'   0271      LD      DE, BUFFER
016B' 0E1A      0272      LD      C, SETDMA
016D' CD0500    0273      CALL   BDOS
0170' 110000#   0274      LD      DE, CBLSK4
0173' 0E15      0275      LD      C, WRITE
0175' CD0500    0276      CALL   BDOS
0178' 118000    0277      LD      DE, DMA
017B' 0E1A      0278      LD      C, SETDMA
017D' CD0500    0279      CALL   BDOS
0180' 0680      0280      LD      B, 128
0182' 3EFF      0281      LD      A, OFFH
0184' 11B001'   0282      LD      DE, BUFFER
0187' 12        0283 LOOPW1: LD    (DE), A
0188' 13        0284      INC     DE
0189' 10FC      0285      DJNZ   LOOPW1

```

018B'	11B001'	0286	LD	DE,BUFFER
018E'	C1	0287	POP	BC
018F'	E1	0288	POP	HL
0190'	C9	0289	RET	
		0290 ;		
		0291 ;		
0191'	C5	0292	CLBUF4: PUSH	BC
0192'	D5	0293	PUSH	DE
0193'	E5	0294	PUSH	HL
0194'	F5	0295	PUSH	AF
0195'	11B001'	0296	LD	DE,BUFFER
0198'	0680	0297	LD	B,128
019A'	1A	0298	LOOPF4: LD	A,(DE)
019B'	FEFF	0299	CP	A,OFFH
019D'	2803	0300	JR	Z,CLEAR
019F'	13	0301	INC	DE
01A0'	10F8	0302	DJNZ	LOOPF4
01A2'	3EFF	0303	CLEAR: LD	A,OFFH
01A4'	12	0304	LD	(DE),A
01A5'	13	0305	INC	DE
01A6'	10FA	0306	DJNZ	CLEAR
01A8'	CD6601'	0307	PUTDSK: CALL	WRITEB
01AB'	F1	0308	POP	AF
01AC'	E1	0309	POP	HL
01AD'	D1	0310	POP	DE
01AE'	C1	0311	POP	BC
01AF'	C9	0312	RET	
		0313 ;		
		0314 ;		
01B0'	(0080)	0315	BUFFER: DS	128
0230'	00	0316	COLUMN: DB	00H
0231'	00	0317	LENGTH: DB	00H
0232'	(0001)	0318	COL: DS	1
0233'	(0001)	0319	USYMBL: DS	1
0234'	(0001)	0320	FSYMBL: DS	1

Errors 0

Program Length 0235 (565)



```

0001 ;-----
0002 ;
0003 ;      COMPARE : ROUTINE FOR COMPARE 2 OPERANDS
0004 ;
0005 ;
0006 ;-----
0007      ENTRY   COMPAR
0008      REL
0000' DDE5      0009 COMPAR: PUSH   IX
0002' FDE5      0010      PUSH   IY
0004' C5        0011      PUSH   BC
0005' D5        0012      PUSH   DE
0006' E5        0013      PUSH   HL
0014 ;
0015 ;      DE POINT FIELD1
0016 ;      HL POINT FIELD2
0017 ;      B   CONTAIN LENGTH TO COMPARE
0018 ;
0019 ;      RETURN VALUE OF EQUAL "T"      NOT EQUAL "F" IN
          A
0020 ;
0007' 1A        0021 LOOPCP: LD     A,(DE)
0008' BE        0022      CP     A,(HL)
0009' 2008      0023      JR     NZ,NOTEQ      ; IF NOT EQUAL GO TO NO
          T EQUAL
000B' 13        0024      INC   DE
000C' 23        0025      INC   HL
000D' 10F8      0026      DJNZ  LOOPCP
000F' 3E54      0027 ;     LD   DE,TF
          0028      LD   A,'T'
          0029 ;     LD   (DE),A      ; FIELD1 = FIELD2 RETUR
          N TRUE
0011' 1802      0030      JR     RETURN
0013' 3E46      0031 NOTEQ: LD   A,'F'
          0032 ;     LD   (DE),A      ; FIELD1 NOT = FIELD2 R
          ETURN FALSE
0015' E1        0033 RETURN: POP   HL
0016' D1        0034      POP   DE
0017' C1        0035      POP   BC
0018' FDE1      0036      POP   IY
001A' DDE1      0037      POP   IX
001C' C9        0038      RET
          0039 ;TF:   DS    1

```

Errors 0

Program Length 001D (29)

0001 ENTRY L01, L02, L03, L04, L05, L06, L07, L08, L09, L10
 , L11, L12, L13, L14, L15
 0002 ENTRY AT, BY, CD, CF, CH, DO, FD, GO, ID, IF, IN, IS
 0003 ENTRY NO, OF, ON, OR, PF, PH, RD, RF, RH, SD, TO, UP, ADD
 , ALL, AND
 0004 ENTRY ARE, CBL, CSP, C01, C02, C03, C04, C05, C06, C07
 , C08, C09, C10
 0005 ENTRY C11, C12, DAY, DIS, EGI, EMI, END, EOP, ESI, FOR
 , IOO, KEY, NOT
 0006 ENTRY OFF, PIC, RUN, SET, SUM, S01, S02, TOP, USE, ALS
 O, AREA, CALL
 0007 ENTRY CODE, COMP, COPY, CORR, DATA, DATE, DOWN, ELSE
 , EXIT, FILE
 0008 ENTRY FROM, INTO, JUST, LAST, LEFT, LESS, LINE, LOCK
 , MODE, MOVE
 0009 ENTRY NEXT, NOTE, OPE1, PAGE, PLUS, REAL, REEL, SAME
 , SEEK, SEND
 0010 ENTRY SIGN, SIZE, SORT, STOP, SYNC, TAPE, TEXT, THAN
 , THEN, THRU
 0011 ENTRY TIME, TYPE, UNIT, UPON, WHEN, WITH, ZERO, AFTE
 R, ALTER
 0012 ENTRY APPLY, AREAS, BLAN1, BLOCK, CLOS1, COMMA, COU
 NT, DEBUG
 0013 ENTRY EJECT, ENTER, ENTRI, EQUAL, ERRO1, EVERY, FIN
 AL, FIRST
 0014 ENTRY GROUP, INDEX, INPUT, LABEL, LEAVE, LIMIT, LIN
 ES, MERGE
 0015 ENTRY NAMED, QUEUE, QUOTE, READY, RERUN, RESET, RIG
 HT, SPACE
 0016 ENTRY START, STORE, SYSIN, TABLE, TALLY, TIMES, TRA
 CE, UNTIL
 0017 ENTRY USAGE, USING, VALUE, WORDS, WRIT1, ZEROS, ACC
 EPT, ACCESS
 0018 ENTRY ACTUAL, ASSIGN, AUTHOR, BEFORE, BOTTOM, CANC
 EL, COLUMN
 0019 ENTRY COMP01, COMP02, COMP03, COMP04, DELETE, DETA
 IL, DIVIDE
 0020 ENTRY ENABLE, ENDING, EXTEND, FILLER, GIVING, INSE
 RT, LENGTH
 0021 ENTRY LIMITS, LINAGO, MEMORY, NATIVE, NUMBER, OCCU
 RS, OUTPUT
 0022 ENTRY QUOTES, RANDOM, RECOR0, RELOAD, REPOR0, RERE
 AD, RETURO
 0023 ENTRY REWIND, SEARC1, SELECO, SKIP01, SKIP02, SKIP
 03, SOURCO
 0024 ENTRY SPACES, STATUS, STRING, SYSOUT, TRACKS, UPSI
 00, UPSI01
 0025 ENTRY UPSI02, UPSI03, UPSI04, UPSI05, UPSI06, UPSI
 07, VALUES
 0026 ENTRY ZEROES, CHANGE, COMPU0, CONSOL, CONTR0, DISA
 BL, DISPLO
 0027 ENTRY DYNAMI, EXAMIN, EXHIBI, FOOTIN, GREATE, HEAD
 IN, INDEXE
 0028 ENTRY INITIO, INSPEC, INVALID, LEADIN, LINKAG, MESS
 AG, MODULE
 0029 ENTRY NOMINA, NUMERI, OMITTE, PERFOR, PICTUR, POIN

```

TE, PROCEE
0030      ENTRY  PROGRO, RECEIV, RECOR1, RELEAS, REMARK, REMO
VA, RENAME
0031      ENTRY  REPOR1, RESERV, REWRIT, ROUNDE, SECTIO, SEGM
EO, THROUG
0032      ENTRY  TOTALE, VARYIN, CODE0S, CONTAI, CONTR1, CURR
EO, DIVISI
0033      ENTRY  GENERA, INDICA, INITI1, MULTIO, MULTI1, NEGA
TI, OPTION
0034      ENTRY  OVERFL, PASSWO, POSITO, POSIT1, RELATI, REVE
RS, SECURI
0035      ENTRY  SENTEN, SEPERA, SEQUE0, STAND0, SUBTRA, SUPP
RE, SYMBOL
0036      ENTRY  SYSPUN, TALLYI, TERMIO, TOTALI, TRAILI, UNST
RI, ADVANC
0037      ENTRY  ALTERN, ASCEND, BEGINN, CHARA0, COLLAT, DEBU
GG, DELIMO
0038      ENTRY  DELIMI, DEPEND, EXCEPT, JUSTIF, LOWOVO, OTHE
RW, PROCEO
0039      ENTRY  REDEFI, REMAIN, REPLAC, REPOR2, SELEC1, TERM
I1, TRANSF
0040      ENTRY  ALPHAB, CHARA1, CORE0I, DEBUG0, DEBUG1, DEBU
G2, DESCEN
0041      ENTRY  DISPL1, DUPLIC, FILE00, HIGH00, INITI2, LOWO
V1, PROCE1
0042      ENTRY  PROCES, PROGR1, REFERE, SEQUE1, SORT00, STAN
D1, TRACK0
0043      ENTRY  WRITE0, DEBUG3, DEBUG4, DEBUG5, DESTIN, ENDO
OF, ENVIRO
0044      ENTRY  FILE01, HIGH01, IOOOCO, MORE0L, POSIT2, RETU
R1, SORTOR
0045      ENTRY  SUBOQ0, SUBOQ1, SUBOQ2, TIME00, TRACK1, CURR
E1, DATEOW
0046      ENTRY  DECLAR, FILEOC, INPUT0, INSTAL, LINEOC, ORGA
NI, PAGEOC
0047      ENTRY  SORT01, SYNCHR, COMMUN, COMPU1, CONFIG, CORR
ES, DATEOC
0048      ENTRY  DECIMA, SEGME1, SPECIA, WHENOC, DEBUG6, IDEN
TI, LINAG1
0049      ENTRY  REORG0, SORTOC, SORTOF, SORT02, COMPU2, COMP
U3, COMPU4
0050      ENTRY  COMPU5, OBJECT, RECOR2, SOURC1, WORKIN

0051 ;

0052 ;

0053      REL

0054 ;

0055 ;
(0000')
0056 L01:      EQU      $
0000' 2B0188 0057 01:      DB      '+', 01H, 88H
0003' 2D0189 0058 02:      DB      '-', 01H, 89H
0006' 2A018A 0059 03:      DB      '*', 01H, 8AH
0009' 2F018B 0060 04:      DB      '/', 01H, 8BH

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000C' 2E018C	0061 05:	DB	'.' ,01H,8CH	
000F' 3C0051	0062 06:	DB	'<' ,00H,51H	
0012' 3E00E6	0063 07:	DB	'>' ,00H,0E6H	
0015' 3D007E	0064 08:	DB	'=' ,00H,7EH	
0018' 28018D	0065 09:	DB	'(' ,01H,8DH	
001B' 29018E	0066 0A:	DB	')' ,01H,8EH	
001E' 24018F	0067 0B:	DB	'\$' ,01H,8FH	
0021' 2C0190	0068 0C:	DB	' , ,01H,90H	
0024' 270191	0069 0D:	DB	27H,01H,91H	
(0027')	0070 L02:	EQU	\$	
0027' 2A2A0009	0071 A1:	DB	'**' ,00H,09H	
002B' 41540001	0072 AT:	DB	'AT' ,00H,01H	
002F' 42590002	0073 BY:	DB	'BY' ,00H,02H	
0033' 43440003	0074 CD:	DB	'CD' ,00H,03H	
0037' 43460004	0075 CF:	DB	'CF' ,00H,04H	
003B' 43480005	0076 CH:	DB	'CH' ,00H,05H	
003F' 44450006	0077 D0:	DB	'DE' ,00H,06H	; EQUIVALENT TO DETAIL
0043' 46440007	0078 FD:	DB	'FD' ,00H,07H	
0047' 474F0008	0079 GO:	DB	'GO' ,00H,08H	
004B' 4944017A	0080 ID:	DB	'ID' ,01H,7AH	; EQUIVALENT TO IDENTIF
	ICATION			
004F' 4946000A	0081 IF:	DB	'IF' ,00H,0AH	
0053' 494E000B	0082 IN:	DB	'IN' ,00H,0BH	; EQUIVALENT TO OF
0057' 4953000C	0083 IS:	DB	'IS' ,00H,0CH	; EQUIVALENT TO ARE
005B' 4E4F000D	0084 NO:	DB	'NO' ,00H,0DH	
005F' 4F46000B	0085 OF:	DB	'OF' ,00H,0BH	; EQUIVALENT TO IN
0063' 4F4E000F	0086 ON:	DB	'ON' ,00H,0FH	
0067' 4F520010	0087 OR:	DB	'OR' ,00H,10H	; EQUIVALENT TO AND
006B' 50460011	0088 PF:	DB	'PF' ,00H,11H	; EQUIVALENT TO PAGE FO
	OTING			
006F' 50480012	0089 PH:	DB	'PH' ,00H,12H	; EQUIVALENT TO PAGE HE
	ADING			
0073' 52440013	0090 RD:	DB	'RD' ,00H,13H	
0077' 52460014	0091 RF:	DB	'RF' ,00H,14H	
007B' 52480015	0092 RH:	DB	'RH' ,00H,15H	
007F' 53440016	0093 SD:	DB	'SD' ,00H,16H	
0083' 544F0017	0094 TO:	DB	'TO' ,00H,17H	
0087' 55500018	0095 UP:	DB	'UP' ,00H,18H	
(008B')	0096 L03:	EQU	\$	
008B' 41444400	0097 ADD:	DB	'ADD' ,00H,19H	
19				
0090' 414C4C00	0098 ALL:	DB	'ALL' ,00H,1AH	
1A				

0095'	414E4400	0099 AND:	DB	'AND',00H,10H	; EQUIVALENT TO OR
	10				
009A'	41524500	0100 ARE:	DB	'ARE',00H,0CH	; EQUIVALENT TO IS
	0C				
009F'	43424C00	0101 CBL:	DB	'CBL',00H,1DH	
	1D				
00A4'	43535000	0102 CSP:	DB	'CSP',00H,1EH	
	1E				
00A9'	43303100	0103 C01:	DB	'C01',00H,1FH	
	1F				
00AE'	43303200	0104 C02:	DB	'C02',00H,1FH	
	1F				
00B3'	43303300	0105 C03:	DB	'C03',00H,1FH	
	1F				
00B8'	43303400	0106 C04:	DB	'C04',00H,1FH	
	1F				
00BD'	43303500	0107 C05:	DB	'C05',00H,1FH	
	1F				
00C2'	43303600	0108 C06:	DB	'C06',00H,1FH	
	1F				
00C7'	43303700	0109 C07:	DB	'C07',00H,1FH	
	1F				
00CC'	43303800	0110 C08:	DB	'C08',00H,1FH	
	1F				
00D1'	43303900	0111 C09:	DB	'C09',00H,1FH	
	1F				
00D6'	43313000	0112 C10:	DB	'C10',00H,1FH	
	1F				
00DB'	43313100	0113 C11:	DB	'C11',00H,1FH	
	1F				
00E0'	43313200	0114 C12:	DB	'C12',00H,1FH	
	1F				
00E5'	44415900	0115 DAY:	DB	'DAY',00H,2BH	
	2B				
00EA'	44495300	0116 DIS:	DB	'DIS',00H,2CH	
	2C				
00EF'	45474900	0117 EGI:	DB	'EGI',00H,2DH	
	2D				
00F4'	454D4900	0118 EMI:	DB	'EMI',00H,2EH	

2E	00F9' 454E4400	0119 END:	DB	'END',00H,2FH	
2F	00FE' 454F5000	0120 EOP: PAGE	DB	'EOP',00H,30H	; EQUIVALENT TO END-OF-
30	0103' 45534900	0121 ESI:	DB	'ESI',00H,31H	
31	0108' 464F5200	0122 FOR:	DB	'FOR',00H,32H	
32	010D' 492D4F00	0123 IOO:	DB	'I-O',00H,33H	
33	0112' 4B455900	0124 KEY:	DB	'KEY',00H,34H	
34	0117' 4E4F5400	0125 NOT:	DB	'NOT',00H,35H	
35	011C' 4F464600	0126 OFF:	DB	'OFF',00H,36H	
36	0121' 50494300	0127 PIC:	DB	'PIC',00H,37H	; EQUIVALENT TO PICTURE
37	0126' 52554E00	0128 RUN:	DB	'RUN',00H,38H	
38	012B' 53455400	0129 SET:	DB	'SET',00H,39H	
39	0130' 53554D00	0130 SUM:	DB	'SUM',00H,3AH	
3A	0135' 53303100	0131 S01:	DB	'S01',00H,3BH	
3B	013A' 53303200	0132 S02:	DB	'S02',00H,3CH	
3C	013F' 544F5000	0133 TOP:	DB	'TOP',00H,3DH	
3D	0144' 55534500	0134 USE:	DB	'USE',00H,3EH	
3E	(0149')	0135 L04:	EQU	\$	
	0149' 414C534F	0136 ALSO:	DB	'ALSO',00H,3FH	
003F	014F' 41524541	0137 AREA:	DB	'AREA',00H,40H	; EQUIVALENT TO AREAS
0040	0155' 43414C4C	0138 CALL:	DB	'CALL',00H,41H	
0041					

015B'	434F4445	0139	CODE:	DB	'CODE',00H,42H	
	0042					
0161'	434F4D50	0140	COMP:	DB	'COMP',00H,43H	; EQUIVALENT TO COMPUTA
	0043		TIONAL			
0167'	434F5059	0141	COPY:	DB	'COPY',00H,44H	
	0044					
016D'	434F5252	0142	CORR:	DB	'CORR',00H,45H	; EQUIVALENT TO CORRESP
	0045		ONDING			
0173'	44415441	0143	DATA:	DB	'DATA',00H,46H	
	0046					
0179'	44415445	0144	DATE:	DB	'DATE',00H,47H	
	0047					
017F'	444F574E	0145	DOWN:	DB	'DOWN',00H,48H	
	0048					
0185'	454C5345	0146	ELSE:	DB	'ELSE',00H,49H	; EQUIVALENT TO OTHERWI
	0049		SE			
018B'	45584954	0147	EXIT:	DB	'EXIT',00H,4AH	
	004A					
0191'	46494C45	0148	FILE:	DB	'FILE',00H,4BH	
	004B					
0197'	46524F4D	0149	FROM:	DB	'FROM',00H,4CH	
	004C					
019D'	494E544F	0150	INTO:	DB	'INTO',00H,4DH	
	004D					
01A3'	4A555354	0151	JUST:	DB	'JUST',00H,4EH	; EQUIVALENT TO JUSTIFI
	004E		ED			
01A9'	4C415354	0152	LAST:	DB	'LAST',00H,4FH	
	004F					
01AF'	4C454654	0153	LEFT:	DB	'LEFT',00H,50H	
	0050					
01B5'	4C455353	0154	LESS:	DB	'LESS',00H,51H	; EQUIVALENT TO <
	0051					
01BB'	4C494E45	0155	LINE:	DB	'LINE',00H,52H	
	0052					
01C1'	4C4F434B	0156	LOCK:	DB	'LOCK',00H,53H	
	0053					
01C7'	4D4F4445	0157	MODE:	DB	'MODE',00H,54H	
	0054					
01CD'	4D4F5645	0158	MOVE:	DB	'MOVE',00H,55H	

0055				
01D3'	4E455854	0159 NEXT:	DB	'NEXT',00H,56H
0056				
01D9'	4E4F5445	0160 NOTE:	DB	'NOTE',00H,57H
0057				
01DF'	4F50454E	0161 OPE1:	DB	'OPEN',00H,58H
0058				
01E5'	50414745	0162 PAGE:	DB	'PAGE',00H,59H
0059				
01EB'	504C5553	0163 PLUS:	DB	'PLUS',00H,5AH
005A				
01F1'	52454144	0164 REAL:	DB	'READ',00H,5BH
005B				
01F7'	5245454C	0165 REEL:	DB	'REEL',00H,5CH
005C				
01FD'	53414D45	0166 SAME:	DB	'SAME',00H,5DH
005D				
0203'	5345454B	0167 SEEK:	DB	'SEEK',00H,5EH
005E				
0209'	53454E44	0168 SEND:	DB	'SEND',00H,5FH
005F				
020F'	5349474E	0169 SIGN:	DB	'SIGN',00H,60H
0060				
0215'	53495A45	0170 SIZE:	DB	'SIZE',00H,61H
0061				
021B'	534F5254	0171 SORT:	DB	'SORT',00H,62H
0062				
0221'	53544F50	0172 STOP:	DB	'STOP',00H,63H
0063				
0227'	53594E43	0173 SYNC: NIZED	DB	'SYNC',00H,64H ; EQUIVALENT TO SYNCHRO
0064				
022D'	54415045	0174 TAPE:	DB	'TAPE',00H,65H
0065				
0233'	54455854	0175 TEXT:	DB	'TEXT',00H,66H
0066				
0239'	5448414E	0176 THAN:	DB	'THAN',00H,67H
0067				
023F'	5448454E	0177 THEN:	DB	'THEN',00H,68H

0068				
0245'	54485255	0178 THRU:	DB	'THRU',00H,69H ; EQUIVALENT TO THROUGH
	0069			
024B'	54494D45	0179 TIME:	DB	'TIME',00H,6AH
	006A			
0251'	54595045	0180 TYPE:	DB	'TYPE',00H,6BH
	006B			
0257'	554E4954	0181 UNIT:	DB	'UNIT',00H,6CH
	006C			
025D'	55504F4E	0182 UPON:	DB	'UPON',00H,6DH
	006D			
0263'	5748454E	0183 WHEN:	DB	'WHEN',00H,6EH
	006E			
0269'	57495448	0184 WITH:	DB	'WITH',00H,6FH
	006F			
026F'	5A45524F	0185 ZERO:	DB	'ZERO',00H,70H ; EQUIVALENT TO ZEROS,
		ZEROES		
	0070			
	(0275')	0186 L05:	EQU	\$
0275'	41465445	0187 AFTER:	DB	'AFTER',00H,71H ; EQUIVALENT TO BEFORE
	520071			
027C'	414C5445	0188 ALTER:	DB	'ALTER',00H,72H
	520072			
0283'	4150504C	0189 APPLY:	DB	'APPLY',00H,73H
	590073			
028A'	41524541	0190 AREAS:	DB	'AREAS',00H,40H ; EQUIVALENT TO AREA
	530040			
0291'	424C414E	0191 BLANK:	DB	'BLANK',00H,75H
	4B0075			
0298'	424C4F43	0192 BLOCK:	DB	'BLOCK',00H,76H
	430076			
029F'	434C4F53	0193 CLOS1:	DB	'CLOSE',00H,77H
	450077			
02A6'	434F4D4D	0194 COMMA:	DB	'COMMA',00H,78H
	410078			
02AD'	434F554E	0195 COUNT:	DB	'COUNT',00H,79H
	540079			
02B4'	44454255	0196 DEBUG:	DB	'DEBUG',00H,7AH
	47007A			
02BB'	454A4543	0197 EJECT:	DB	'EJECT',00H,7BH

54007B				
02C2'	454E5445	0198 ENTER:	DB	'ENTER',00H,7CH
52007C				
02C9'	454E5452	0199 ENTRI:	DB	'ENTRY',00H,7DH
59007D				
02D0'	45515541	0200 EQUAL:	DB	'EQUAL',00H,7EH ; EQUIVALENT TO =
4C007E				
02D7'	4552524F	0201 ERRO1:	DB	'ERROR',00H,7FH
52007F				
02DE'	45564552	0202 EVERY:	DB	'EVERY',00H,80H
590080				
02E5'	46494E41	0203 FINAL:	DB	'FINAL',00H,81H
4C0081				
02EC'	46495253	0204 FIRST:	DB	'FIRST',00H,82H
540082				
02F3'	47524F55	0205 GROUP:	DB	'GROUP',00H,83H
500083				
02FA'	494E4445	0206 INDEX:	DB	'INDEX',00H,84H
580084				
0301'	494E5055	0207 INPUT:	DB	'INPUT',00H,85H
540085				
0308'	4C414245	0208 LABEL:	DB	'LABEL',00H,86H
4C0086				
030F'	4C454156	0209 LEAVE:	DB	'LEAVE',00H,86H
450086				
0316'	4C494D49	0210 LIMIT:	DB	'LIMIT',00H,87H ; EQUIVALENT TO LIMITS
540087				
031D'	4C494E45	0211 LINES:	DB	'LINES',00H,52H ; EQUIVALENT TO LINE
530052				
0324'	4D455247	0212 MERGE:	DB	'MERGE',00H,89H
450089				
032B'	4E414D45	0213 NAMED:	DB	'NAMED',00H,8AH
44008A				
0332'	51554555	0214 QUEUE:	DB	'QUEUE',00H,8BH
45008B				
0339'	51554F54	0215 QUOTE:	DB	'QUOTE',00H,8CH
45008C				
0340'	52454144	0216 READY:	DB	'READY',00H,8DH
59008D				
0347'	52455255	0217 RERUN:	DB	'RERUN',00H,8EH

4E008E					
034E'	52455345	0218 RESET:	DB	'RESET',00H,8FH	
54008F					
0355'	52494748	0219 RIGHT:	DB	'RIGHT',00H,90H	
540090					
035C'	53504143	0220 SPACE:	DB	'SPACE',00H,91H ; EQUIVALENT TO SPACES	
450091					
0363'	53544152	0221 START:	DB	'START',00H,92H	
540092					
036A'	53544F52	0222 STORE:	DB	'STORE',00H,93H	
450093					
0371'	53595349	0223 SYSIN:	DB	'SYSIN',00H,94H	
4E0094					
0378'	5441424C	0224 TABLE:	DB	'TABLE',00H,95H	
450095					
037F'	54414C4C	0225 TALLY:	DB	'TALLY',00H,96H	
59C096					
0386'	54494D45	0226 TIMES:	DB	'TIMES',00H,6AH ; EQUIVALENT TO TIME	
53006A					
038D'	54524143	0227 TRACE:	DB	'TRACE',00H,98H	
450098					
0394'	554E5449	0228 UNTIL:	DB	'UNTIL',00H,99H	
4C0099					
039B'	55534147	0229 USAGE:	DB	'USAGE',00H,9AH	
45009A					
03A2'	5553494E	0230 USING:	DB	'USING',00H,9BH	
47009B					
03A9'	56414C55	0231 VALUE:	DB	'VALUE',00H,9CH	
45009C					
03B0'	574F5244	0232 WORDS:	DB	'WORDS',00H,9DH	
53009D					
03B7'	57524954	0233 WRIT1:	DB	'WRITE',00H,9EH	
45009E					
03BE'	5A45524F	0234 ZEROS:	DB	'ZEROS',00H,70H ; EQUIVALENT TO ZERO, ZEROES	
530070					
(03C5')		0235 LOG:	EQU	\$	
03C5'	41434345	0236 ACCEPT:	DB	'ACCEPT',00H,0A0H	
505400A0					
03CD'	41434345	0237 ACCESS:	DB	'ACCESS',00H,0A1H	

535300A1					
03D5'	41435455	0238	ACTUAL: DB	'ACTUAL',00H,0A2H	
414C00A2					
03DD'	41535349	0239	ASSIGN: DB	'ASSIGN',00H,0A3H	
474E00A3					
03E5'	41555448	0240	AUTHOR: DB	'AUTHOR',00H,0A4H	
4F5200A4					
03ED'	4245464F	0241	BEFORE: DB	'BEFORE',00H,71H	; EQUIVALENT TO
			AFTER		
52450071					
03F5'	424F5454	0242	BOTTOM: DB	'BOTTOM',00H,0A6H	
4F4D00A6					
03FD'	43414E43	0243	CANCEL: DB	'CANCEL',00H,0A7H	
454C00A7					
0405'	434F4C55	0244	COLUMN: DB	'COLUMN',00H,0A8H	
4D4E00A8					
040D'	434F4D50	0245	COMP01: DB	'COMP-1',00H,0A9H	; EQUIVALENT TO
			COMPUTATIONAL-1		
2D3100A9					
0415'	434F4D50	0246	COMP02: DB	'COMP-2',00H,0AAH	; EQUIVALENT TO
			COMPUTATIONAL-2		
2D3200AA					
041D'	434F4D50	0247	COMP03: DB	'COMP-3',00H,0ABH	; EQUIVALENT TO
			COMPUTATIONAL-3		
2D3300AB					
0425'	434F4D50	0248	COMP04: DB	'COMP-4',00H,0ACH	; EQUIVALENT TO
			COMPUTATIONAL-4		
2D3400AC					
042D'	44454C45	0249	DELETE: DB	'DELETE',00H,0ADH	
544500AD					
0435'	44455441	0250	DETAIL: DB	'DETAIL',00H,06H	; EQUIVALENT TO
			DE		
494C0006					
043D'	44495649	0251	DIVIDE: DB	'DIVIDE',00H,0AFH	
444500AF					
0445'	454E4142	0252	ENABLE: DB	'ENABLE',00H,0BOH	
4C4500B0					
044D'	454E4449	0253	ENDING: DB	'ENDING',00H,0B1H	
4E4700B1					
0455'	45585445	0254	EXTEND: DB	'EXTEND',00H,0B2H	
4E4400B2					
045D'	46494C4C	0255	FILLER: DB	'FILLER',00H,0B3H	
455200B3					
0465'	47495649	0256	GIVING: DB	'GIVING',00H,0B4H	

046D'	4E4700B4 494E5345	0257 INSERT:	DB	'INSERT',00H,0B5H	
0475'	525400B5 4C454E47	0258 LENGTH:	DB	'LENGTH',00H,0B6H	
047D'	544800B6 4C494D49	0259 LIMITS: LIMIT	DB	'LIMITS',00H,87H	; EQUIVALENT TO
0485'	54530087 4C494E41	0260 LINAGO:	DB	'LINAGE',00H,0B8H	
048D'	474500B8 4D454D4F	0261 MEMORY:	DB	'MEMORY',00H,0B9H	
0495'	525900B9 4E415449	0262 NATIVE:	DB	'NATIVE',00H,0BAH	
049D'	564500BA 4E554D42	0263 NUMBER:	DB	'NUMBER',00H,0BBH	
04A5'	455200BB 4F434355	0264 OCCURS:	DB	'OCCURS',00H,0BCH	
04AD'	525300BC 4F555450	0265 OUTPUT:	DB	'OUTPUT',00H,0BDH	
04B5'	555400BD 51554F54	0266 QUOTES: QUOTE	DB	'QUOTES',00H,8CH	; EQUIVALENT TO
04BD'	4553008C 52414E44	0267 RANDOM:	DB	'RANDOM',00H,0BFH	
04C5'	4F4D00BF 5245434F	0268 RECORO: RECORDS	DB	'RECORD',00H,0C0H	; EQUIVALENT TO
04CD'	524400C0 52454C4F	0269 RELOAD:	DB	'RELOAD',00H,0C1H	
04D5'	414400C1 5245504F	0270 REPORO:	DB	'REPORT',00H,0C2H	
04DD'	525400C2 52455245	0271 REREAD:	DB	'REREAD',00H,0C3H	
04E5'	414400C3 52455455	0272 RETURO:	DB	'RETURN',00H,0C4H	
04ED'	524E00C4 52455749	0273 REWIND:	DB	'REWIND',00H,0C5H	
04F5'	4E4400C5 53454152	0274 SEARCH:	DB	'SEARCH',00H,0C6H	
04FD'	434800C6 53454C45	0275 SELECO:	DB	'SELECT',00H,0C7H	

0505'	435400C7 534B4950	0276 SKIP01:	DB	'SKIP-1',00H,0C8H	
050D'	2D3100C8 534B4950	0277 SKIP02:	DB	'SKIP-2',00H,0C9H	
0515'	2D3200C9 534B4950	0278 SKIP03:	DB	'SKIP-3',00H,0CAH	
051D'	2D3300CA 534F5552	0279 SOURC0:	DB	'SOURCE',00H,0CBH	
0525'	434500CB 53504143	0280 SPACES: SPACE	DB	'SPACES',00H,91H	; EQUIVALENT TO
052D'	45530091 53544154	0281 STATUS:	DB	'STATUS',00H,0CDH	
0535'	555300CD 53545249	0282 STRING:	DB	'STRING',00H,0CEH	
053D'	4E4700CE 5359534F	0283 SYSOUT:	DB	'SYSOUT',00H,0CFH	
0545'	555400CF 54524143	0284 TRACKS:	DB	'TRACKS',00H,0D0H	
054D'	4B5300D0 55505349	0285 UPSI00:	DB	'UPSI-0',00H,0D1H	
0555'	2D3000D1 55505349	0286 UPSI01:	DB	'UPSI-1',00H,0D2H	
055D'	2D3100D2 55505349	0287 UPSI02:	DB	'UPSI-2',00H,0D3H	
0565'	2D3200D3 55505349	0288 UPSI03:	DB	'UPSI-3',00H,0D4H	
056D'	2D3300D4 55505349	0289 UPSI04:	DB	'UPSI-4',00H,0D5H	
0575'	2D3400D5 55505349	0290 UPSI05:	DB	'UPSI-5',00H,0D6H	
057D'	2D3500D6 55505349	0291 UPSI06:	DB	'UPSI-6',00H,0D7H	
0585'	2D3600D7 55505349	0292 UPSI07:	DB	'UPSI-7',00H,0D8H	
058D'	2D3700D8 56414C55	0293 VALUES: VALUE	DB	'VALUES',00H,9CH	; EQUIVALENT TO
0595'	4553009C 5A45524F	0294 ZEROES: ZERO, ZEROS	DB	'ZEROES',00H,70H	; EQUIVALENT TO

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    45530070
    (059D')      0295 L07:      EQU      $
059D' 4348414E  0296 CHANGE:  DB      'CHANGED',00H,0DBH
    47454400
    DB
05A6' 434F4D50  0297 COMPU0:  DB      'COMPUTE',00H,0DCH
    55544500
    DC
05AF' 434F4E53  0298 CONSOL:  DB      'CONSOLE',00H,0DEH
    4F4C4500
    DE
05B8' 434F4E54  0299 CONTR0:  DB      'CONTROL',00H,0DFH
    524F4C00
    DF
05C1' 44495341  0300 DISABL:  DB      'DISABLE',00H,0EOH
    424C4500
    EO
05CA' 44495350  0301 DISPLO:  DB      'DISPLAY',00H,0E1H
    4C415900
    E1
05D3' 44594E41  0302 DYNAMI:  DB      'DYNAMIC',00H,0E2H
    4D494300
    E2
05DC' 4558414D  0303 EXAMIN:  DB      'EXAMINE',00H,0E3H
    494E4500
    E3
05E5' 45584849  0304 EXHIBI:  DB      'EXHIBIT',00H,0E4H
    42495400
    E4
05EE' 464F4F54  0305 FOOTIN:  DB      'FOOTING',00H,0E5H
    494E4700
    E5
05F7' 47524541  0306 GREATE:  DB      'GREATER',00H,0E6H      ; EQUIVALENT TO
    54455200
    E6
0600' 48454144  0307 HEADIN:  DB      'HEADING',00H,0E7H
    494E4700
    E7
0609' 494E4445  0308 INDEXE:  DB      'INDEXED',00H,0E8H
    58454400
    E8
0612' 494E4954  0309 INITIO:  DB      'INITIAL',00H,0E9H

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	49414C00				
	E9				
061B'	494E5350	0310 INSPEC:	DB	'INSPECT',00H,0EAH	
	45435400				
	EA				
0624'	494E5641	0311 INVALID:	DB	'INVALID',00H,0EBH	
	4C494400				
	EB				
062D'	4C454144	0312 LEADIN:	DB	'LEADING',00H,0ECH	
	494E4700				
	EC				
0636'	4C494E4B	0313 LINKAG:	DB	'LINKAGE',00H,0EDH	
	41474500				
	ED				
063F'	4D455353	0314 MESSAG:	DB	'MESSAGE',00H,0EEH	
	41474500				
	EE				
0648'	4D4F4455	0315 MODULE:	DB	'MODULES',00H,0EFH	
	4C455300				
	EF				
0651'	4E4F4D49	0316 NOMINA:	DB	'NOMINAL',00H,0FOH	
	4E414C00				
	F0				
065A'	4E554D45	0317 NUMERI:	DB	'NUMERIC',00H,0F1H	
	52494300				
	F1				
0663'	4F4D4954	0318 OMITTE:	DB	'OMITTED',00H,0F2H	
	54454400				
	F2				
066C'	50455246	0319 PERFOR:	DB	'PERFORM',00H,0F3H	
	4F524D00				
	F3				
0675'	50494354	0320 PICTUR:	DB	'PICTURE',00H,37H	; EQUIVALENT TO
		PIC			
	55524500				
	37				
067E'	504F494E	0321 POINTE:	DB	'POINTER',00H,0F5H	
	54455200				
	F5				
0687'	50524F43	0322 PROCEE:	DB	'PROCEED',00H,0F6H	
	45454400				
	F6				
0690'	50524F47	0323 PROGRO:	DB	'PROGRAM',00H,0F7H	
	52414D00				

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      F7
0699' 52454345      0324 RECEIV:  DB      'RECEIVE',00H,0F8H
      49564500
      F8
06A2' 5245434F      0325 RECOR1:  DB      'RECORDS',00H,0C0H
      52445300
      C0
06AB' 52454C45      0326 RELEAS:  DB      'RELEASE',00H,0FAH
      41534500
      FA
06B4' 52454D41      0327 REMARK:  DB      'REMARKS',00H,0FBH
      524B5300
      FB
06BD' 52454D4F      0328 REMOVA:  DB      'REMOVAL',00H,0FCH
      56414C00
      FC
06C6' 52454E41      0329 RENAME:  DB      'RENAMES',00H,0FDH
      4D455300
      FD
06CF' 5245504F      0330 REPOR1:  DB      'REPORTS',00H,0C2H
      52545300
      C2
06D8' 52455345      0331 RESERV:  DB      'RESERVE',00H,0FFH
      52564500
      FF
06E1' 52455752      0332 REWRIT:  DB      'REWRITE',01H,00H
      49544501
      00
06EA' 524F554E      0333 ROUNDE:  DB      'ROUNDED',01H,01H
      44454401
      01
06F3' 53454354      0334 SECTIO:  DB      'SECTION',01H,02H
      494F4E01
      02
06FC' 5345474D      0335 SEGME0:  DB      'SEGMENT',01H,03H
      454E5401
      03
0705' 5448524F      0336 THROUG:  DB      'THROUGH',00H,69H      ; EQUIVALENT TO
      THRU
      55474800
      69
070E' 544F5441      0337 TOTALE:  DB      'TOTALED',01H,05H
      4C454401
      05

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0717'	56415259 494E4701 06 (0720')	0338 VARYIN:	DB	'VARYING',01H,06H	
		0339 L08:	EQU	\$	
0720'	434F4445 2D534554 0107	0340 CODE0S:	DB	'CODE-SET',01H,07H	
072A'	434F4E54 41494E53 0108	0341 CONTAI:	DB	'CONTAINS',01H,08H	
0734'	434F4E54 524F4C53 00DF	0342 CONTR1:	DB	'CONTROLS',00H,0DFH	
073E'	43555252 454E4359 010A	0343 CURRE0:	DB	'CURRENCY',01H,0AH	
0748'	44495649 53494F4E 010B	0344 DIVISI:	DB	'DIVISION',01H,0BH	
0752'	47454E45 52415445 010C	0345 GENERA:	DB	'GENERATE',01H,0CH	
075C'	494E4449 43415445 010D	0346 INDICA:	DB	'INDICATE',01H,0DH	
0766'	494E4954 49415445 010E	0347 INITI1:	DB	'INITIATE',01H,0EH	
0770'	4D554C54 49504C59 010F	0348 MULTIO:	DB	'MULTIPLY',01H,0FH	
077A'	4D554C54 49504C45 0110	0349 MULT11:	DB	'MULTIPLE',01H,10H	
0784'	4E454741 54495645 0111	0350 NEGATI: POSITIVE	DB	'NEGATIVE',01H,11H	; EQUIVALENT TO
078E'	4F505449 4F4E414C 0112	0351 OPTION:	DB	'OPTIONAL',01H,12H	
0798'	4F564552 464C4F57 0113	0352 OVERFL:	DB	'OVERFLOW',01H,13H	

07A2'	50415353	0353 PASSWO:	DB	'PASSWORD',01H,14H	
	574F5244				
	0114				
07AC'	504F5349	0354 POSITO:	DB	'POSITION',01H,15H	
	54494F4E				
	0115				
07B6'	504F5349	0355 POSITI:	DB	'POSITIVE',01H,11H	; EQUIVALENT TO
	54495645	NEGATIVE			
	0111				
07C0'	52454C41	0356 RELATI:	DB	'RELATIVE',01H,17H	
	54495645				
	0117				
07CA'	52455645	0357 REVERS:	DB	'REVERSED',01H,18H	
	52534544				
	0118				
07D4'	53454355	0358 SECURI:	DB	'SECURITY',01H,19H	
	52495459				
	0119				
07DE'	53454E54	0359 SENTEN:	DB	'SENTENCE',01H,1AH	
	454E4345				
	011A				
07E8'	53455045	0360 SEPERA:	DB	'SEPERATE',01H,1BH	
	52415445				
	011B				
07F2'	53455155	0361 SEQUEO:	DB	'SEQUENCE',01H,1CH	
	454E4345				
	011C				
07FC'	5354414E	0362 STANDO:	DB	'STANDARD',01H,1DH	
	44415244				
	011D				
0806'	53554254	0363 SUBTRA:	DB	'SUBTRACT',01H,1EH	
	52414354				
	011E				
0810'	53555050	0364 SUPPRE:	DB	'SUPPRESS',01H,1FH	
	52455353				
	011F				
081A'	53594D42	0365 SYMBOL:	DB	'SYMBOLIC',01H,20H	
	4F4C4943				
	0120				
0824'	53595350	0366 SYSPUN:	DB	'SYSPUNCH',01H,21H	
	554E4348				
	0121				
082E'	54414C4C	0367 TALLYI:	DB	'TALLYING',01H,22H	

59494E47 0122	0838'	5445524D	0368	TERMI0:	DB	'TERMINAL',01H,23H	
494E414C 0123	0842'	544F5441	0369	TOTALI:	DB	'TOTALING',01H,24H	
4C494E47 0124	084C'	54524149	0370	TRAILI:	DB	'TRAILING',01H,25H	
4C494E47 0125	0856'	554E5354 52494E47 0126 (0860')	0371	UNSTRI:	DB	'UNSTRING',01H,26H	
			0372	L09:	EQU	\$	
	0860'	41445641	0373	ADVANC:	DB	'ADVANCING',01H,27H	
4E43494E 470127	086B'	414C5445	0374	ALTERN:	DB	'ALTERNATE',01H,28H	
524E4154 450128	0876'	41534345	0375	ASCEND: DESCENDING	DB	'ASCENDING',01H,29H	; EQUIVALENT TO
4E44494E 470129	0881'	42454749	0376	BEGINN:	DB	'BEGINNING',01H,2AH	
4E4E494E 47012A	088C'	43484152	0377	CHARA0: CHARACTERS	DB	'CHARACTER',01H,2BH	; EQUIVALENT TO
41435445 52012B	0897'	434F4C4C	0378	COLLAT:	DB	'COLLATING',01H,2CH	
4154494E 47012C	08A2'	44454255	0379	DEBUGG:	DB	'DEBUGGING',01H,2DH	
4747494E 47012D	08AD'	44454C49	0380	DELIMO:	DB	'DELIMITED',01H,2EH	
4D495445 44012E	08B8'	44454C49	0381	DELIM1:	DB	'DELIMITER',01H,2FH	
4D495445 52012F	08C3'	44455045	0382	DEPEND:	DB	'DEPENDING',01H,30H	

4E44494E 470130 08CE' 45584345	0383 EXCEPT: DB	'EXCEPTION',01H,31H
5054494F 4E0131 08D9' 4A555354	0384 JUSTIF: DB	'JUSTIFIED',00H,4EH
49464945 44004E 08E4' 4C4F572D	0385 LOWOV0: DB	'LOW-VALUE',01H,33H
56414C55 450133 08EF' 4F544845	0386 OTHERW: DB	'OTHERWISE',00H,49H
52574953 450049 08FA' 50524F43	0387 PROCE0: DB	'PROCEDURE',01H,35H
45445552 450135 0905' 52454445	0388 REDEFI: DB	'REDEFINES',01H,36H
46494E45 530136 0910' 52454D41	0389 REMAIN: DB	'REMAINDER',01H,37H
494E4445 520137 091B' 5245504C	0390 REPLAC: DB	'REPLACING',01H,38H
4143494E 470138 0926' 5245504F	0391 REPOR2: DB	'REPORTING',01H,39H
5254494E 470139 0931' 53454C45	0392 SELEC1: DB	'SELECTIVE',01H,3AH
43544956 45013A 093C' 5445524D	0393 TERM11: DB	'TERMINATE',01H,3BH
494E4154 45013B 0947' 5452414E 53464F52 4D013C (0952')	0394 TRANSF: DB	'TRANSFORM',01H,3CH
0952' 414C5048	0395 L10: EQU	\$
41424554 494300F1 095E' 43484152	0396 ALPHAB: DB	'ALPHABETIC',00H,0F1H
	0397 CHARA1: DB	'CHARACTERS',01H,2BH

41435445			
5253012B			
096A' 434F5245	0398 CORE01:	DB	'CORE-INDEX',01H,3FH
2D494E44			
4558013F			
0976' 44454255	0399 DEBUG0:	DB	'DEBUG-ITEM',01H,40H
472D4954			
454D0140			
0982' 44454255	0400 DEBUG1:	DB	'DEBUG-LINE',01H,41H
472D4C49			
4E450141			
098E' 44454255	0401 DEBUG2:	DB	'DEBUG-NAME',01H,42H
472D4E41			
4D450142			
099A' 44455343	0402 DESCEN:	DB	'DESCENDING',01H,29H
454E4449			
4E470129			
09A6' 44495350	0403 DISPL1:	DB	'DISPLAY-ST',01H,44H
4C41592D			
53540144			
09B2' 4455504C	0404 DUPLIC:	DB	'DUPLICATES',01H,45H
49434154			
45530145			
09BE' 46494C45	0405 FILE00:	DB	'FILE-LIMIT',01H,46H
2D4C494D			
49540146			
09CA' 48494748	0406 HIGH00:	DB	'HIGH-VALUE',01H,33H
2D56414C			
55450133			
09D6' 494E4954	0407 INITI2:	DB	'INITIALIZE',01H,48H
49414C49			
5A450148			
09E2' 4C4F572D	0408 LOW0V1:	DB	'LOW-VALUES',01H,33H
56414C55			
45530133			
09EE' 50524F43	0409 PROCE1:	DB	'PROCEDURES',01H,4AH
45445552			
4553014A			
09FA' 50524F43	0410 PROCES:	DB	'PROCESSING',01H,4BH
45535349			
4E47014B			
0A06' 50524F47	0411 PROGR1:	DB	'PROGRAM-ID',01H,4CH

52414D2D 4944014C	0A12'	52454645	0412 REFERE:	DB	'REFERENCES',01H,4DH
52454E43 4553014D	0A1E'	53455155	0413 SEQUE1:	DB	'SEQUENTIAL',01H,4EH
454E5449 414C014E	0A2A'	534F5254	0414 SORT00:	DB	'SORT-MERGE',01H,4FH
2D4D4552 4745014F	0A36'	5354414E	0415 STAND1:	DB	'STANDARD-1',01H,50H
44415244 2D310150	0A42'	54524143	0416 TRACK0:	DB	'TRACK-AREA',01H,51H
4B2D4152 45410151	0A4E'	55542D53	0417 UTOSOS:	DB	'UT-S-SYSIN',01H,92H
2D535953 494E0192	0A5A'	57524954	0418 WRITE0:	DB	'WRITE-ONLY',01H,52H
452D4F4E 4C590152 (0A66')			0419 L11:	EQU	\$
0A66'	44454255	0420 DEBUG3:	DB	'DEBUG-SUB-1',01H,53H	
472D5355 422D3101 53	0A73'	44454255	0421 DEBUG4:	DB	'DEBUG-SUB-2',01H,54H
472D5355 422D3201 54	0A80'	44454255	0422 DEBUG5:	DB	'DEBUG-SUB-3',01H,55H
472D5355 422D3301 55	0A8D'	44455354	0423 DESTIN:	DB	'DESTINATION',01H,56H
494E4154 494F4E01 56	0A9A'	454E442D	0424 ENDOOF:	DB	'END-OF-PAGE',00H,30H
4F462D50 41474500 30	0AA7'	454E5649	0425 ENVIRO:	DB	'ENVIRONMENT',01H,58H

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524F4E4D
454E5401
58
0AB4' 46494C45      0426 FILE01:  DB      'FILE-LIMITS',01H,46H

2D4C494D
49545301
46
0AC1' 48494748      0427 HIGH01:  DB      'HIGH-VALUES',01H,33H

2D56414C
55455301
33
0ACE' 492D4F2D      0428 IO00CO:  DB      'I-O-CONTROL',01H,5BH

434F4E54
524F4C01
5B
0ADB' 4D4F5245      0429 MORE0L:  DB      'MORE-LABELS',01H,5CH

2D4C4142
454C5301
5C
0AEB' 504F5349      0430 POSIT2:  DB      'POSITIONING',01H,5DH

54494F4E
494E4701
5D
0AF5' 52455455      0431 RETUR1:  DB      'RETURN-CODE',01H,5EH

524E2D43
4F444501
5E
0B02' 534F5254      0432 SORT0R:  DB      'SORT-RETURN',01H,5FH

2D524554
55524E01
5F
0B0F' 5355422D      0433 SUB0Q0:  DB      'SUB-QUEUE-1',01H,60H

51554555
452D3101
60
0B1C' 5355422D      0434 SUB0Q1:  DB      'SUB-QUEUE-2',01H,61H

51554555
452D3201
61
0B29' 5355422D      0435 SUB0Q2:  DB      'SUB-QUEUE-3',01H,62H

51554555
452D3301
62
0B36' 54494D45      0436 TIME00:  DB      'TIME-OF-DAY',01H,63H

2D4F462D
44415901

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```

63
0B43' 54524143      0437 TRACK1:  DB      'TRACK-LIMIT',01H,64H
      4B2D4C49
      4D495401
      64
      (0B50')      0438 L12:      EQU      $

0B50' 43555252      0439 CURRE1:  DB      'CURRENT-DATE',01H,65H

      454E542D
      44415445
      0165
0B5E' 44415445      0440 DATEOW:  DB      'DATE-WRITTEN',01H,66H

      2D575249
      5454454E
      0166
0B6C' 4445434C      0441 DECLAR:  DB      'DECLARATIVES',01H,67H

      41524154
      49564553
      0167
0B7A' 46494C45      0442 FILEOC:  DB      'FILE-CONTROL',01H,68H

      2D434F4E
      54524F4C
      0168
0B88' 494E5055      0443 INPUT0:  DB      'INPUT-OUTPUT',00H,33H

      542D4F55
      54505554
      0033
0B96' 494E5354      0444 INSTAL:  DB      'INSTALLATION',01H,6AH

      414C4C41
      54494F4E
      016A
0BA4' 4C494F45      0445 LINEOC:  DB      'LINE-COUNTER',01H,6BH

      2D434F55
      4E544552
      016B
0BB2' 4F524741      0446 ORGANI:  DB      'ORGANIZATION',01H,6CH

      4E495A41
      54494F4E
      016C
0BC0' 50414745      0447 PAGEOC:  DB      'PAGE-COUNTER',01H,6DH

      2D434F55
      4E544552
      016D
0BCE' 534F5254      0448 SORT01:  DB      'SORT-MESSAGE',01H,6EH

      2D4D4553
      53414745
      016E

```

OBDC'	53594E43	0449 SYNCHR:	DB	'SYNCHRONIZED',00H,64H
	48524F4E			
	495A4544			
	0064			
	(OBEA')	0450 L13:	EQU	\$
OBEA'	434F4D4D	0451 COMMUN:	DB	'COMMUNICATION',01H,70H
	554E4943			
	4154494F			
	4E0170			
OBF9'	434F4D50	0452 COMPUT:	DB	'COMPUTATIONAL',00H,43H
	55544154			
	494F4E41			
	4C0043			
OC08'	434F4E46	0453 CONFIG:	DB	'CONFIGURATION',01H,72H
	49475552			
	4154494F			
	4E0172			
OC17'	434F5252	0454 CORRES:	DB	'CORRESPONDING',00H,45H
	4553504F			
	4E44494E			
	470045			
OC26'	44415445	0455 DATEOC:	DB	'DATE-COMPILED',01H,74H
	2D434F4D			
	50494C45			
	440174			
OC35'	44454349	0456 DECIMA:	DB	'DECIMAL-POINT',01H,75H
	4D414C2D			
	504F494E			
	540175			
OC44'	5345474D	0457 SEGME1:	DB	'SEGMENT-LIMIT',01H,76H
	454E542D			
	4C494D49			
	540176			
OC53'	53504543	0458 SPECIA:	DB	'SPECIAL-NAMES',01H,77H
	49414C2D			
	4E414D45			
	530177			
OC62'	55542D53	0459 UTOS01:	DB	'UT-S-SYSPRINT',01H,93H
	2D535953			
	5052494E			
	540193			
OC71'	5748454E	0460 WHENOC:	DB	'WHEN-COMPILED',01H,78H
	2D434F4D			
	50494C45			
	440178			
	(OC80')	0461 L14:	EQU	\$
OC80'	44454255	0462 DEBUG6:	DB	'DEBUG-CONTENTS',01H,79H



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472D434F
4E54454E
54530179
0C90' 4944454E      0463 IDENTI:  DB      'IDENTIFICATION',01H,7AH

54494649
43415449
4F4E017A
0CA0' 4C494E41      0464 LINAG1:  DB      'LINAGE-COUNTER',01H,7BH

47452D43
4F554E54
4552017B
0CB0' 52454F52      0465 REORG0:  DB      'REORG-CRITERIA',01H,7CH

472D4352
49544552
4941017C
0CC0' 534F5254      0466 SORT0C:  DB      'SORT-CORE-SIZE',01H,7DH

2D434F52
452D5349
5A45017D
0CD0' 534F5254      0467 SORT0F:  DB      'SORT-FILE-SIZE',01H,7EH

2D46494C
452D5349
5A45017E
0CE0' 534F5254      0468 SORT02:  DB      'SORT-MODE-SIZE',01H,7FH
2D4D4F44
452D5349
5A45017F
(0CF0')
0CF0' 434F4D50      0469 L15:     EQU      $
0470 COMPU2:  DB      'COMPUTATIONAL-1',00H,0A9H

55544154
494F4E41
4C2D3100
A9
0D01' 434F4D50      0471 COMPU3:  DB      'COMPUTATIONAL-2',00H,0AAH

55544154
494F4E41
4C2D3200
AA
0D12' 434F4D50      0472 COMPU4:  DB      'COMPUTATIONAL-3',00H,0ABH

55544154
494F4E41
4C2D3300
AB
0D23' 434F4D50      0473 COMPU5:  DB      'COMPUTATIONAL-4',00H,0ACH

55544154
494F4E41
4C2D3400

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```
AC
0D34' 4F424A45      0474 OBJECT:  DB      'OBJECT-COMPUTER',01H,84H
      43542D43
      4F4D5055
      54455201
      84
0D45' 5245434F      0475 RECOR2:  DB      'RECORD-OVERFLOW',01H,85H
      52442D4F
      56455246
      4C4F5701
      85
0D56' 534F5552      0476 SOURC1:  DB      'SOURCE-COMPUTER',01H,86H
      43452D43
      4F4D5055
      54455201
      86
0D67' 574F524B      0477 WORKIN:  DB      'WORKING-STORAGE',01H,87H
      494E472D
      53544F52
      41474501
      87
```

Errors 0

Program Length 0D78 (3448)


```

0001      ENTRY  PARSE
0002      EXTRN  L01,L02,L03,L04,L05,L06,L07,L08,L09
0003      EXTRN  L0A,L0B,L0C,L0D,L0E,L0F
0004      EXTRN  ERRCD,ERROR,COMPAR,CBLSK3,CLBUF3,COUNT1
              ,IBMNAM
0005 ;
0006 ;
(0000) 0007 WBOOT: EQU    00H    ; WARM BOOT OR RESET SYSTEM
(0001) 0008 CONRDR: EQU    01H    ; READ CONSOLE CHARACTER
(0002) 0009 CONWRT: EQU    02H    ; WRITE CONSOLE CHARACTER
(0005) 0010 LSTWRT: EQU    05H    ; WRITE LIST CHARACTER
(0009) 0011 BUFWRT: EQU    09H    ; WRITE CONSOLE BUFFER
(000A) 0012 BUFRDR: EQU    0AH    ; READ CONSOLE BUFFER
(000B) 0013 CONST: EQU    0BH    ; READ CONSOLE STATUS
(000F) 0014 CPMOPN: EQU    0FH    ; OPEN FILE
(0010) 0015 CPMCLS: EQU    10H    ; CLOSE FILE
(0011) 0016 SRCFST: EQU    11H    ; SEARCH FOR FIRST OCCURRENCE
(0012) 0017 SRCNXT: EQU    12H    ; SEARCH NEXT OCCURRENCE
(0013) 0018 DLTFLE: EQU    13H    ; DELETE FILE FROM DIRECTORY
(0014) 0019 RDRFLE: EQU    14H    ; READ SEQUENTIAL FILE
(0015) 0020 WRTFLE: EQU    15H    ; WRITE SEQUENTIAL FILE
(0016) 0021 CRTFLE: EQU    16H    ; CREATE FILE
(0017) 0022 RENFLE: EQU    17H    ; RENAME FILE
(001A) 0023 STDMA: EQU    1AH    ; SET DMA ADDRESS
(001B) 0024 GTALOC: EQU    1BH    ; GET ADDRESS OF ALLOCATION
(001F) 0025 GTBLK: EQU    1FH    ; GET ADDRESS OF DISK PARAMETER

(0020) 0026 GTUSER: EQU    20H    ; GET OR SET USER CODE
(0021) 0027 RDRRND: EQU    21H    ; READ RANDOM FILE
(0022) 0028 WRTRND: EQU    22H    ; WRITE RANDOM FILE
(0023) 0029 CPFLSZ: EQU    23H    ; COMPUTE FILE SIZE
(0024) 0030 STRND: EQU    24H    ; SET RANDOM RECORD POINTER
(0025) 0031 RSTDRV: EQU    25H    ; RESET DRIVE
(0028) 0032 WRTRDZ: EQU    28H    ; WRITE RANDOM WITH ZERO FILL
(0005) 0033 BDOS: EQU    05H    ; BDOS FUNCTION
(0080) 0034 DMA: EQU    80H    ; DMA ADDRESS
(0009) 0035 PRTSTR EQU    009H
(0014) 0036 CPMRDR EQU    014H
0037 ;
0038 ;
0039      REL
0000' ED73692A' 0040 PARSE: LD    (OLDSP),SP
0004' 31EB2A'   0041      LD    SP,STKTOP
0042 ;*****
0043 ;*
0044 ;*      INITIALIZATION
0045 ;*
0046 ;*****
0007' 0600      0047      LD    B,00H
0009' 0E08      0048      LD    C,08H
000B' 210000#   0049      LD    HL,IBMNAM
000E' 11AA28'   0050      LD    DE,TMPNAM
0011' EDB0      0051      LDIR
0052 ; ~~~~~~
0053 ; LOAD TEMP FILE NAME
0054 ; ~~~~~~
0013' DD210000# 0055      LD    IX,COUNT1

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0017' 3E30          0056          LD      A,30H
0019' DD7700       0057          LD      (IX),A
001C' DD7701       0058          LD      (IX+1),A
001F' DD7702       0059          LD      (IX+2),A
0022' DD7703       0060          LD      (IX+3),A
0061 ;
0062 ;+++++
0025' 117D28'     0063          LD      DE,CBLSK4
0028' 0E0F        0064          LD      C,CPMOPN
002A' CD0500      0065          CALL   BDOS          ; OPEN TOKEN FILE
002D' 110C26'     0066          LD      DE,OPNERR    ; ERROR MESSAGE OPEN FI
LE
0030' FEFF        0067          CP      A,OFFH
0032' CAD224'     0068          JP      Z,ENDPGM    ; IF OPEN ERROR GOTO EN
D
0069 ;
0070 ;*****
0071 ;*
0072 ;* OPEN : FOR OPEN AND CREATE CBLSK5.ERR *
0073 ;*
0074 ;*****
0035' C5          0075 OPEN:  PUSH  BC
0036' E5          0076          PUSH  HL
0037' D5          0077          PUSH  DE
0038' 110000#    0078          LD      DE,CBLSK3
003B' 21A128'    0079          LD      HL,CBLSK5
003E' 13         0080          INC   DE
003F' 0600       0081          LD      B,00H
0041' 0E08       0082          LD      C,08H
0043' EDB0       0083          LDIR          ; CHANGE ERROR FILE NAM
E TO
0045' 113900#    0084          LD      DE,CBLSK3    ; CBLSK5.ERR
0048' 0E11       0085          LD      C,SRCFST
004A' CD0500     0086          CALL   BDOS          ; SEARCH TO SEE WHETHER
EXIST
004D' 3C         0087          INC   A              ; OR NOT
004E' 2808       0088          JR      Z,CREATE
0050' 114600#    0089          LD      DE,CBLSK3
0053' 0E13       0090          LD      C,DLTFLE    ; DELETE FILE IF EXIST
0055' CD0500     0091          CALL   BDOS
0058' 115100#    0092 CREATE: LD      DE,CBLSK3
005B' 0E16       0093          LD      C,CRTFLE    ; CREATE FILE FUNCTION
005D' CD0500     0094          CALL   BDOS
0060' 115327'    0095          LD      DE,CRERR
0063' FEFF        0096          CP      A,OFFH
0065' CAD224'    0097          JP      Z,ENDPGM
0068' D1         0098          POP   DE
0069' E1         0099          POP   HL
006A' C1         0100          POP   BC
0101 ;*****
0102 ;
006B' CD5B10'    0103          CALL   READ          ; READ 1 SECTOR 128 BYT
E
0104 ;
0105 ;
006E' CDAF0D'    0106 PROC:  CALL   FRNOTE
0107 ; IF RETURN VALUE IN (NOTE) = 0FEH IT IS NOT RESERVED

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```

                                WORD
0108 ;
0109 ;*****
                                ****
0110 ;*
                                *
0111 ;* START OF CHECK FOR IDENTIFICATION DIVISION
                                *
0112 ;*
                                *
0113 ;*****
                                ****
0114 ;
0071' 3AA325' 0115 LD A,(AREA)
0074' FE41 0116 CP A,'A'
0076' 2811 0117 JR Z,IDENB
0078' DD210000# 0118 LD IX,ERRCD
007C' 3E00 0119 LD A,00H
007E' DD7700 0120 LD (IX),A
0081' 3E09 0121 LD A,09H
0083' DD7701 0122 LD (IX+1),A
0086' CD0000# 0123 CALL ERROR
0124 ;
0089' 3AA725' 0125 IDENB: LD A,(NOTE)
008C' FEFE 0126 CP A,0FEH ; IF EQUAL IT'S NOT RSW
008E' 2013 0127 JR NZ,IDEN
0090' DD217A00# 0128 LD IX,ERRCD
0094' 3E00 0129 LD A,00H
0096' DD7700 0130 LD (IX),A
0099' 3E08 0131 LD A,08H
009B' DD7701 0132 LD (IX+1),A
009E' CD8700# 0133 CALL ERROR
00A1' 1823 0134 JR IDDIV
00A3' DD21A725' 0135 IDEN: LD IX,NOTE
00A7' DD7E00 0136 LD A,(IX)
00AA' FE01 0137 CP A,01H
00AC' 2007 0138 JR NZ,NOID
00AE' DD7E01 0139 LD A,(IX+1)
00B1' FE7A 0140 CP A,07AH
00B3' 2811 0141 JR Z,IDDIV
00B5' DD219200# 0142 NOID: LD IX,ERRCD
00B9' 3E00 0143 LD A,00H
00BB' DD7700 0144 LD (IX),A
00BE' 3E07 0145 LD A,07H
00C0' DD7701 0146 LD (IX+1),A
00C3' CD9F00# 0147 CALL ERROR
00C6' 3E41 0148 IDDIV: LD A,'A'
00C8' 328D25' 0149 LD (ID),A ; SET ACTIVE DIVISION
0150 ;
0151 ; FOR WORD 'DIVISION'
0152 ;
00CB' CDAF0D' 0153 CALL FRNOTE
00CE' 3AA725' 0154 LD A,(NOTE)
00D1' FEFE 0155 CP A,0FEH ; IF EQUAL IT'S NOT RSW
00D3' 2013 0156 JR NZ,DIVI
00D5' DD21B700# 0157 LD IX,ERRCD
00D9' 3E00 0158 LD A,00H

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00DB' DD7700      0159      LD      (IX),A
00DE' 3E0A        0160      LD      A,0AH
00E0' DD7701      0161      LD      (IX+1),A
00E3' CDC400#     0162      CALL    ERROR      ; WORD 'DIVISION' MISSI
                        NG
00E6' 181F        0163      JR      DIVI1
00E8' DD21A725'  0164  DIVI:  LD      IX,NOTE
00EC' DD7E00      0165      LD      A,(IX)
00EF' FE01        0166      CP      A,01H
00F1' 2007        0167      JR      NZ,NODIVI
00F3' DD7E01      0168      LD      A,(IX+1)
00F6' FE0B        0169      CP      A,0BH
00F8' 280D        0170      JR      Z,DIVI1
00FA' 3E00        0171  NODIVI: LD      A,00H
00FC' DD7700      0172      LD      (IX),A
00FF' 3E0A        0173      LD      A,0AH
0101' DD7701      0174      LD      (IX+1),A
0104' CDE400#     0175      CALL    ERROR
                        0176 ;
0107' CDAF0D'     0177  DIVI1: CALL    FRNOTE
010A' 3AA725'     0178      LD      A,(NOTE)
010D' FEFE        0179      CP      A,0FEH      ; IF EQUAL IT'S NOT RSW
010F' 2013        0180      JR      NZ,PER1
0111' DD21D700#  0181      LD      IX,ERRCD
0115' 3E00        0182      LD      A,00H
0117' DD7700      0183      LD      (IX),A
011A' 3E0B        0184      LD      A,0BH
011C' DD7701      0185      LD      (IX+1),A
011F' CD0501#     0186      CALL    ERROR      ; '.' MISSING
0122' 1823        0187      JR      PER2
                        0188 ;
0124' DD21A725'  0189  PER1:  LD      IX,NOTE
0128' DD7E00      0190      LD      A,(IX)
012B' FE01        0191      CP      A,01H
012D' 2007        0192      JR      NZ,NOPER
012F' DD7E01      0193      LD      A,(IX+1)
0132' FE8C        0194      CP      A,08CH
0134' 2811        0195      JR      Z,PER2
0136' DD211301#  0196  NOPER: LD      IX,ERRCD
013A' 3E00        0197      LD      A,00H
013C' DD7700      0198      LD      (IX),A
013F' 3E0B        0199      LD      A,0BH
0141' DD7701      0200      LD      (IX+1),A
0144' CD2001#     0201      CALL    ERROR
                        0202 ;
0147' CDAF0D'     0203  PER2:  CALL    FRNOTE
014A' 3AA725'     0204      LD      A,(NOTE)
014D' FEFE        0205      CP      A,0FEH      ; IF EQUAL IT'S NOT RSW
014F' 2013        0206      JR      NZ,PGMID
0151' DD213801#  0207      LD      IX,ERRCD
0155' 3E00        0208      LD      A,00H
0157' DD7700      0209      LD      (IX),A
015A' 3E0C        0210      LD      A,0CH
015C' DD7701      0211      LD      (IX+1),A
015F' CD4501#     0212      CALL    ERROR      ; 'PROGRAM-ID' MISSING
0162' 1823        0213      JR      PGID
0164' DD21A725'  0214  PGMID: LD      IX,NOTE

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0168' DD7E00      0215      LD      A,(IX)
016B' FE01       0216      CP      A,01H
016D' 2007       0217      JR      NZ,NOPGID
016F' DD7E01     0218      LD      A,(IX+1)
0172' FE4C       0219      CP      A,04CH
0174' 2811       0220      JR      Z,PGID
0176' DD215301#  0221 NOPGID: LD      IX,ERRCD
017A' 3E00       0222      LD      A,00H
017C' DD7700     0223      LD      (IX),A
017F' 3E0C       0224      LD      A,0CH
0181' DD7701     0225      LD      (IX+1),A
0184' CD6001#    0226      CALL     ERROR
0227 ;
0187' CDAF0D'    0228 PGID:  CALL     FRNOTE
018A' 3AA725'    0229      LD      A,(NOTE)
018D' FEFE       0230      CP      A,0FEH      ; IF EQUAL IT'S NOT RSW
018F' 2013       0231      JR      NZ,PER3
0191' DD217801#  0232      LD      IX,ERRCD
0195' 3E00       0233      LD      A,00H
0197' DD7700     0234      LD      (IX),A
019A' 3E0B       0235      LD      A,0BH
019C' DD7701     0236      LD      (IX+1),A
019F' CD8501#    0237      CALL     ERROR      ; '.' MISSING
01A2' 1823       0238      JR      PGNAME
01A4' DD21A725'  0239 PER3:  LD      IX,NOTE
01A8' DD7E00     0240      LD      A,(IX)
01AB' FE01       0241      CP      A,01H
01AD' 2007       0242      JR      NZ,NOP3
01AF' DD7E01     0243      LD      A,(IX+1)
01B2' FE8C       0244      CP      A,08CH
01B4' 2811       0245      JR      Z,PGNAME
01B6' DD219301#  0246 NOP3:  LD      IX,ERRCD
01BA' 3E00       0247      LD      A,00H
01BC' DD7700     0248      LD      (IX),A
01BF' 3E0B       0249      LD      A,0BH
01C1' DD7701     0250      LD      (IX+1),A
01C4' CDA001#    0251      CALL     ERROR
0252 ;
0253 ;*****
    ***
0254 ;*
    *
0255 ;*      EXPECT PROGRAM-NAME TO KEEP IN SYMBOL-TABLE
    *
0256 ;*
    *
0257 ;*****
    ***
0258 ;
01C7' CDAF0D'    0259 PGNAME: CALL     FRNOTE
01CA' 3AA725'    0260      LD      A,(NOTE)
01CD' FEFE       0261      CP      A,0FEH      ; IF EQUAL IT'S NOT RSW
01CF' 2813       0262      JR      Z,PGMIDX
01D1' DD21B801#  0263      LD      IX,ERRCD
01D5' 3E00       0264      LD      A,00H
01D7' DD7700     0265      LD      (IX),A
01DA' 3E0D       0266      LD      A,0DH

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01DC' DD7701      0267      LD      (IX+1),A
01DF' CDC501#    0268      CALL     ERROR      ; USE RSW TO BE IDENTIF
                                IER
01E2' 182E      0269      JR      NEXT1
01E4' DD21EC2A'  0270 PGMIDX: LD      IX,SYMTAB
01E8' 3E00      0271      LD      A,00H
01EA' DD7700      0272      LD      (IX),A
01ED' DD23      0273      INC     IX
01EF' 3AA425'    0274      LD      A,(LENGTH)
01F2' DD7700      0275      LD      (IX),A
01F5' 0600      0276      LD      B,00H
01F7' 4F        0277      LD      C,A      ; LENGTH OF THAT NAME
01F8' D5        0278      PUSH   DE
01F9' DDE5      0279      PUSH   IX
01FB' D1        0280      POP    DE      ; EXCHANGE IX AND DE
01FC' 13        0281      INC    DE
01FD' E5        0282      PUSH   HL
01FE' 3A8725'   0283      LD      A,(HHHH)
0201' 67        0284      LD      H,A
0202' 3A8825'   0285      LD      A,(LLLL)
0205' 6F        0286      LD      L,A
0206' EDB0      0287      LDIR
0208' 7A        0288      LD      A,D
0209' 328525'   0289      LD      (DDD),A
020C' 7B        0290      LD      A,E
020D' 328625'   0291      LD      (EEE),A      ; KEEP ADDRESS OF SYMBO
                                L TABLE
0210' E1        0292      POP    HL
0211' D1        0293      POP    DE
0294 ;
0295 ;*****
0296 ;*
0297 ;*      KEEP PROGRAM-ID ALREADY
0298 ;*
0299 ;*      NEXT TOKEN EXPECTED IS PERIOD
0300 ;*
0301 ;*****
0302 ;
0212' CDAF0D'   0303 NEXT1:  CALL     FRNOTE
0215' 3AA725'   0304      LD      A,(NOTE)
0218' FEFE      0305      CP      A,OFEH      ; IF EQUAL IT'S NOT RSW
021A' 2013      0306      JR      NZ,PER4
021C' DD21D301# 0307      LD      IX,ERRCD
0220' 3E00      0308      LD      A,00H
0222' DD7700      0309      LD      (IX),A
0225' 3E0B      0310      LD      A,0BH
0227' DD7701      0311      LD      (IX+1),A
022A' CDE001#   0312      CALL     ERROR      ; '.' MISSING
022D' 1823      0313      JR      OPT1
022F' DD21A725' 0314 PER4:  LD      IX,NOTE
0233' DD7E00      0315      LD      A,(IX)
0236' FE01      0316      CP      A,01H
0238' 2007      0317      JR      NZ,NOP4
023A' DD7E01      0318      LD      A,(IX+1)
023D' FE8C      0319      CP      A,08CH
023F' 2811      0320      JR      Z,OPT1
0241' DD211E02# 0321 NOP4:  LD      IX,ERRCD

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0245' 3E00          0322      LD      A,00H
0247' DD7700        0323      LD      (IX),A
024A' 3E0B          0324      LD      A,0BH
024C' DD7701        0325      LD      (IX+1),A
024F' CD2B02#       0326      CALL    ERROR
                    0327      ;
                    0328      ;*****
0329      ;*                               *
0330      ;*      NEXT TOKEN IS EXPECTED OPTIONALLY      *
0331      ;*                               *
0332      ;*****
0333      ;
0252' CDAF0D'       0334 OPT1:   CALL    FRNOTE
0255' 3AA725'       0335 OPT11:  LD      A,(NOTE)
0258' FEFE          0336      CP      A,0FEH
025A' 2013          0337      JR      NZ,RSWOPT      ; IF EQUAL RESERVED WOR
                    D MISSING
025C' DD214302#     0338      LD      IX,ERRCD
0260' 3E00          0339      LD      A,00H
0262' DD7700        0340      LD      (IX),A
0265' 3E0E          0341      LD      A,0EH
0267' DD7701        0342      LD      (IX+1),A
026A' CD5002#       0343      CALL    ERROR
026D' 18E3          0344      JR      OPT1
026F' DD21A725'     0345 RSWOPT: LD      IX,NOTE
0273' DD7E00        0346      LD      A,(IX)
0276' FE00          0347      CP      A,00H
0278' 200E          0348      JR      NZ,CHKNXT
027A' DD7E01        0349      LD      A,(IX+1)
027D' FEA4          0350      CP      A,0A4H
027F' 2835          0351      JR      Z,AUTHOR      ; AUTHOR PARAGRAPH
0281' FEFB          0352      CP      A,0FBH
0283' 2841          0353      JR      Z,REMARK      ; PARAGRAPH REMARKS
0285' C32F04'       0354      JP      BENVIR      ; GOTO RESERVED WORD ER
                    ROR
                    0355      ;
0288' D5            0356 CHKNXT: PUSH    DE
0289' 119B26'       0357      LD      DE,LOGIC1
028C' FE01          0358      CP      A,01H
028E' C2D224'       0359      JP      NZ,ENDPGM      ; BYTE 1 NOT = 00 OR 01
                    LOGIC ERROR
0291' D1            0360      POP     DE
0292' DD7E01        0361      LD      A,(IX+1)
0295' FE6A          0362      CP      A,06AH
0297' CA3203'       0363      JP      Z,INSTAL      ; PARAGRAPH INSTALLATIO
                    N
029A' FE66          0364      CP      A,066H
029C' CA4203'       0365      JP      Z,DATEW      ; PARAGRAPH DATE-WRITE
                    N
029F' FE74          0366      CP      A,074H
02A1' CA5203'       0367      JP      Z,DATEC      ; PARAGRAPH DATE-COMPIL
                    ED
02A4' FE19          0368      CP      A,019H      ; PARAGRAPH SECURITIES
02A6' 3A7927'       0369 SECUR:  LD      A,(PI6)      ; TEST SECURITIES FLAG
02A9' FEAA          0370      CP      A,0AAH
02AB' CAB703'       0371      JP      Z,ERRPI6
02AE' 3EAA          0372      LD      A,0AAH

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02B0' 327927'      0373      LD      (PI6),A      ; FLAG SECURITIES ON
02B3' C35F03'      0374      JP      PICOM
02B6' 3A7527'      0375  AUTHOR: LD      A,(PI2)      ; TEST FLAG AUTHOR
02B9' FEAA          0376      CP      A,0AAH
02BB' CACB03'      0377      JP      Z,ERRPI2
02BE' 3EAA          0378      LD      A,0AAH
02C0' 327527'      0379      LD      (PI2),A      ; FLAG AUTHOR ON
02C3' C35F03'      0380      JP      PICOM
02C6' 3A7A27'      0381  REMARK: LD      A,(PI7)      ; TEST FLAG REMARK
02C9' FEAA          0382      CP      A,0AAH
02CB' CADF03'      0383      JP      Z,ERRPI7
02CE' 3EAA          0384      LD      A,0AAH
02D0' 327A27'      0385      LD      (PI7),A      ; FLAG REMARKS ON
02D3' 3AA325'      0386      LD      A,(AREA)
02D6' FE41          0387      CP      A,'A'
02D8' 2811          0388      JR      Z,REM2
02DA' 3E00          0389      LD      A,00H
02DC' DD215E02#    0390      LD      IX,ERRCD
02E0' DD7700        0391      LD      (IX),A
02E3' 3E09          0392      LD      A,09H
02E5' DD7701        0393      LD      (IX+1),A
02E8' CD6B02#      0394      CALL   ERROR
02EB' CDAF0D'      0395  REM2:  CALL   FRNOTE
02EE' 3AA725'      0396      LD      A,(NOTE)
02F1' FEFE          0397      CP      A,0FEH
02F3' 2013          0398      JR      NZ,REMI
02F5' DD21DE02#    0399  ERREMI: LD      IX,ERRCD
02F9' 3E00          0400      LD      A,00H
02FB' DD7700        0401      LD      (IX),A
02FE' 3E0B          0402      LD      A,0BH
0300' DD7701        0403      LD      (IX+1),A
0303' CDE902#      0404      CALL   ERROR
0306' 1812          0405      JR      LOOPRM
0308' DD21A725'    0406  REMI:  LD      IX,NOTE
030C' 3AA725'      0407      LD      A,(NOTE)
030F' FE01          0408      CP      A,01H
0311' 20E2          0409      JR      NZ,ERREMI
0313' DD7E01        0410      LD      A,(IX+1)
0316' FE8C          0411      CP      A,08CH
0318' 2CDB          0412      JR      NZ,ERREMI
031A' CDAF0D'      0413  LOOPRM: CALL   FRNOTE
031D' 3AA725'      0414      LD      A,(NOTE)
0320' FE01          0415      CP      A,01H
0322' 20F6          0416      JR      NZ,LOOPRM
0324' DD21A725'    0417      LD      IX,NOTE
0328' DD7E01        0418      LD      A,(IX+1)
032B' FE58          0419      CP      A,058H      ; UNTIL FOUND "ENVIRONM
                        ENT"
032D' 20EB          0420      JR      NZ,LOOPRM
032F' C34304'      0421      JP      ENVIRO
0332' 3A7627'      0422  INSTAL: LD      A,(PI3)      ; TEST INSTALLATION FLA
                        G
0335' FEAA          0423      CP      A,0AAH
0337' CAF303'      0424      JP      Z,ERRPI3
033A' 3EAA          0425      LD      A,0AAH
033C' 327627'      0426      LD      (PI3),A      ; FLAG INSTALLATION ON
033F' C35F03'      0427      JP      PICOM

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0342' 3A7727'    0428 DATEW: LD      A,(PI4)
0345' FEAA      0429          CP      A,0AAH          ; TEST FOR DATE-WRITTEN
                   FLAG
0347' CA0704'    0430          JP      Z,ERRPI4
034A' 3EAA      0431          LD      A,0AAH
034C' 327727'    0432          LD      (PI4),A          ; FLAG DATE-WRITTEN ON
034F' C35F03'    0433          JP      PICOM
0352' 3A7827'    0434 DATEC: LD      A,(PI5)
0355' FEAA      0435          CP      A,0AAH          ; TEST FOR DATE-COMPILE
                   D FLAG
0357' CA1B04'    0436          JP      Z,ERRPI5
035A' 3EAA      0437          LD      A,0AAH
035C' 327827'    0438          LD      (PI5),A          ; FLAG DATE-COMPILED ON
035F' 3AA325'    0439 PICOM: LD      A,(AREA)
0362' FE41      0440          CP      A,'A'          ; HEADER SHOULD BEGIN I
                   N AREA A
0364' CA7803'    0441          JP      Z,PICOM1
0367' DD21F702# 0442          LD      IX,ERRCD
036B' 3E00      0443          LD      A,00H
036D' DD7700      0444          LD      (IX),A
0370' 3E09      0445          LD      A,09H
0372' DD7701      0446          LD      (IX+1),A
0375' CD0403#    0447          CALL     ERROR
0378' CDAF0D'    0448 PICOM1: CALL     FRNOTE
037B' DD21A725' 0449          LD      IX,NOTE
037F' DD7E00      0450          LD      A,(IX)
0382' FEFE      0451          CP      A,0FEH
0384' 280B      0452          JR      Z,PERMSS
0386' FE01      0453          CP      A,01H
0388' 2007      0454          JR      NZ,PERMSS
038A' DD7E01      0455          LD      A,(IX+1)
038D' FE8C      0456          CP      A,08CH
038F' 2811      0457          JR      Z,PERFND
0391' DD216903# 0458 PERMSS: LD      IX,ERRCD
0395' 3E00      0459          LD      A,00H
0397' DD7700      0460          LD      (IX),A
039A' 3E0B      0461          LD      A,0BH          ; PERIOD EXPECTED BUT N
                   OT FOUND
039C' DD7701      0462          LD      (IX+1),A
039F' CD7603#    0463          CALL     ERROR
03A2' CDAF0D'    0464 PERFND: CALL     FRNOTE
03A5' 3AA725'    0465          LD      A,(NOTE)
03A8' FE01      0466          CP      A,01H
03AA' 20F6      0467          JR      NZ,PERFND
03AC' DD7E01      0468          LD      A,(IX+1)
03AF' FE8C      0469          CP      A,08CH
03B1' C25502'    0470          JP      NZ,OPT11          ; MAY LEAVE DATE-COMPIL
                   ED FOR SYSTEM
03B4' C35202'    0471          JP      OPT1
0472 ;
0473 ;*****
      ****
0474 ;*
      *
0475 ;*          ERROR HANDLING ROUTINE PART 1
      *
0476 ;*

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*
0477 ;*****
****
03B7' DD219303# 0478 ERRPI6: LD IX,ERRCD
03BB' 3E00 0479 LD A,00H
03BD' DD7700 0480 LD (IX),A
03C0' 3E10 0481 LD A,10H
03C2' DD7701 0482 LD (IX+1),A ; EXTRANEOUS SECURITIES
03C5' CDA003# 0483 CALL ERROR
03C8' C35F03' 0484 JP PICOM
03CB' DD21B903# 0485 ERRPI2: LD IX,ERRCD
03CF' 3E00 0486 LD A,00H
03D1' DD7700 0487 LD (IX),A
03D4' 3E11 0488 LD A,11H
03D6' DD7701 0489 LD (IX+1),A ; EXTRANEOUS AUTHOR
03D9' CDC603# 0490 CALL ERROR
03DC' C35F03' 0491 JP PICOM
03DF' DD21CD03# 0492 ERRPI7: LD IX,ERRCD
03E3' 3E00 0493 LD A,00H
03E5' DD7700 0494 LD (IX),A
03E8' 3E12 0495 LD A,012H
03EA' DD7701 0496 LD (IX+1),A ; EXTRANEOUS REMARKS
03ED' CDDA03# 0497 CALL ERROR
03F0' C35F03' 0498 JP PICOM
03F3' DD21E103# 0499 ERRPI3: LD IX,ERRCD
03F7' 3E00 0500 LD A,00H
03F9' DD7700 0501 LD (IX),A
03FC' 3E13 0502 LD A,013H
03FE' DD7701 0503 LD (IX+1),A ; EXTRANEOUS INSTALLATI
ON
0401' CDEE03# 0504 CALL ERROR
0404' C35F03' 0505 JP PICOM
0407' DD21F503# 0506 ERRPI4: LD IX,ERRCD
040B' 3E00 0507 LD A,00H
040D' DD7700 0508 LD (IX),A
0410' 3E14 0509 LD A,014H
0412' DD7701 0510 LD (IX+1),A ; EXTRANEOUS DATE-WRITT
EN
0415' CD0204# 0511 CALL ERROR
0418' C35F03' 0512 JP PICOM
041B' DD210904# 0513 ERRPI5: LD IX,ERRCD
041F' 3E00 0514 LD A,00H
0421' DD7700 0515 LD (IX),A
0424' 3E15 0516 LD A,015H
0426' DD7701 0517 LD (IX+1),A ; EXTRANEOUS DATE-COMPI
LED
0429' CD1604# 0518 CALL ERROR
042C' C35F03' 0519 JP PICOM
0520 ;*****
****
0521 ;*
*
0522 ;* ENVIRONMENT DIVISION
*
0523 ;*
*
0524 ;*****

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****
0525 ;
042F' DD211D04# 0526 ENVIR: LD IX,ERRCD
0433' 3E00 0527 LD A,00H
0435' DD7700 0528 LD (IX),A
0438' 3E16 0529 LD A,16H
043A' DD7701 0530 LD (IX+1),A
043D' CD2A04# 0531 CALL ERROR
0440' C31A03' 0532 JP LOOPRM ; SCAN FOR ENVIRONMENT

HEADER
0533 ;
0443' 3AA325' 0534 ENVIRO: LD A,(AREA)
0446' FE41 0535 CP A,'A' ; ENVIRONMENT SHOULD BE

GIN IN AREA A
0448' 2811 0536 JR Z,ENVIRI
044A' DD213104# 0537 LD IX,ERRCD
044E' 3E00 0538 LD A,00H
0450' DD7700 0539 LD (IX),A
0453' 3E09 0540 LD A,09H
0455' DD7701 0541 LD (IX+1),A
0458' CD3E04# 0542 CALL ERROR
045B' CDAF0D' 0543 ENVIR1: CALL FRNOTE
045E' DD21A725' 0544 LD IX,NOTE
0462' DD7E00 0545 LD A,(IX)
0465' FEFE 0546 CP A,0FEH
0467' 284A 0547 JR Z,DIVMSS
0469' FE01 0548 CP A,01H
046B' 2033 0549 JR NZ,BDIVM
046D' DD7E01 0550 LD A,(IX+1)
0470' FE0B 0551 CP A,0BH ; 01 0B REPRESENTS 'DIV

ISION'
0472' 202C 0552 JR NZ,BDIVM
0474' CDAF0D' 0553 ENVIR2: CALL FRNOTE
0477' DD21A725' 0554 LD IX,NOTE
047B' DD7E00 0555 LD A,(IX)
047E' FEFE 0556 CP A,0FEH
0480' 280B 0557 JR Z,ERROR1
0482' FE01 0558 CP A,01H
0484' 2007 0559 JR NZ,ERROR1
0486' DD7E01 0560 LD A,(IX+1)
0489' FE8C 0561 CP A,08CH
048B' 284C 0562 JR Z,CONFIG
048D' DD214C04# 0563 ERROR1: LD IX,ERRCD
0491' 3E00 0564 LD A,00H
0493' DD7700 0565 LD (IX),A
0496' 3E0B 0566 LD A,0BH
0498' DD7701 0567 LD (IX+1),A
049B' CD5904# 0568 CALL ERROR
049E' 1824 0569 JR LPBDVM
04A0' DD218F04# 0570 BDIVM: LD IX,ERRCD
04A4' 3E00 0571 LD A,00H
04A6' DD7700 0572 LD (IX),A
04A9' 3E0F 0573 LD A,0FH
04AB' DD7701 0574 LD (IX+1),A ; THIS WORD SHOULD NOT

APPEAR
04AE' CD9C04# 0575 CALL ERROR ; STATEMENT DISCARD
04B1' 1811 0576 JR LPBDVM

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04B3' DD21A204#    0577 DIVMSS: LD      IX,ERRCD      ; WORD 'DIVISION' MISSI
                        NG
04B7' 3E00         0578          LD      A,00H
04B9' DD7700       0579          LD      (IX),A
04BC' 3E0A         0580          LD      A,0AH
04BE' DD7701       0581          LD      (IX+1),A
04C1' CDAF04#     0582          CALL     ERROR
04C4' CDAF0D'     0583 LPBDVM: CALL     FRNOTE
04C7' DD21A725'   0584          LD      IX,NOTE
04CB' DD7E00       0585          LD      A,(IX)
04CE' FE01         0586          CP      A,01H
04D0' 20F2         0587          JR      NZ,LPBDVM      ; SCAN UNTIL PERIOD (.)
                        FOUND
04D2' DD7E01       0588          LD      A,(IX+1)
04D5' FE8C         0589          CP      A,08CH
04D7' 20EB         0590          JR      NZ,LPBDVM
04D9' CDAF0D'     0591 CONFIG: CALL     FRNOTE
04DC' DD21A725'   0592          LD      IX,NOTE
04E0' DD7E00       0593          LD      A,(IX)
04E3' FEFE         0594          CP      A,0FEH
04E5' 280B         0595          JR      Z,NOCON
04E7' FE01         0596          CP      A,01H
04E9' 205C         0597          JR      NZ,IOSEC
04EB' DD7E01       0598          LD      A,(IX+1)
04EE' FE72         0599          CP      A,072H      ; WORD 'CONFIGURATION'
04F0' 2869         0600          JR      Z,CONFGU
04F2' DD21B504#   0601 NOCON: LD      IX,ERRCD      ; IT'S NOT CONFIGURATIO
                        N SECTION
04F6' 3E00         0602          LD      A,00H      ;          INPUT-OUTPUT
                        SECTION
04F8' DD7700       0603          LD      (IX),A      ;          DATA DIVISIO
                        N
04FB' 3E17         0604          LD      A,017H      ; SCAN FOR NEXT SENTENC
                        E
04FD' DD7701       0605          LD      (IX+1),A
0500' CDC204#     0606          CALL     ERROR
0503' CDAF0D'     0607 LOOPC1: CALL     FRNOTE
0506' DD21A725'   0608          LD      IX,NOTE
050A' DD7E00       0609          LD      A,(IX)
050D' FEFE         0610          CP      A,0FEH
050F' 28F2         0611          JR      Z,LOOPC1
0511' FE00         0612          CP      A,00H
0513' 280A         0613          JR      Z,DAT1
0515' FE01         0614          CP      A,01H
0517' 2810         0615          JR      Z,PROC1
0519' 11BE26'     0616          LD      DE,LOGIC2
051C' C3D224'     0617          JP      ENDPGM
051F' DD7E01       0618 DATA1: LD      A,(IX+1)
0522' FE46         0619          CP      A,046H      ; WORD 'DATA'
0524' 20DD         0620          JR      NZ,LOOPC1
0526' C3CF24'     0621          JP      DATADV      ; GO TO 'DATA DIVISION'
                        ROUTINE
0529' DD7E01       0622 PROC1:  LD      A,(IX+1)
052C' FE35         0623          CP      A,035H
052E' 20D3         0624          JR      NZ,LOOPC1
0530' DD21F404#   0625          LD      IX,ERRCD      ; DATA DIVISION MISSING
0534' 3E00         0626          LD      A,00H      ; PARSER TERMINATED

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0536' DD7700      0627      LD      (IX),A          ; GENERATE MESSAGE
0539' 3E18        0628      LD      A,018H
053B' DD7701      0629      LD      (IX+1),A
053E' CD0105#     0630      CALL    ERROR
0541' 114626'     0631      LD      DE,NODATA
0544' C3D224'     0632      JP      ENDPGM
0547' FE00        0633 IOSEC: CP      A,00H
0549' 2806        0634      JR      Z,IOSEC1
054B' 11E526'     0635      LD      DE,LOGIC3
054E' C3D224'     0636      JP      ENDPGM
0551' DD7E01      0637 IOSEC1: LD     A,(IX+1)
0554' FE33        0638      CP      A,033H
0556' 209A        0639      JR      NZ,NOCON
0558' C3F409'     0640      JP      IOSECT          ; TO INPUT-OUTPUT SECTI
                                ON
055B' 3AA325'     0641 CONFIGU: LD     A,(AREA)
055E' FE41        0642      CP      A,'A'
0560' 2811        0643      JR      Z,CONFIG1
0562' DD213205#  0644      LD      IX,ERRCD
0566' 3E00        0645      LD      A,00H
0568' DD7700      0646      LD      (IX),A
056B' 3E09        0647      LD      A,09H
056D' DD7701      0648      LD      (IX+1),A
0570' CD3F05#     0649      CALL    ERROR
0573' CDAF0D'     0650 CONFIG1: CALL   FRNOTE
0576' DD21A725'  0651      LD      IX,NOTE
057A' DD7E00      0652      LD      A,(IX)
057D' FEFE        0653      CP      A,0FEH
057F' 2839        0654      JR      Z,SCTMSS
0581' FE01        0655      CP      A,01H
0583' 2035        0656      JR      NZ,SCTMSS
0585' DD7E01      0657      LD      A,(IX+1)          ; CHECK FOR WORD 'SECTI
                                ON'
0588' FE02        0658      CP      A,02H
058A' 202E        0659      JR      NZ,SCTMSS
058C' CDAF0D'     0660      CALL    FRNOTE
058F' DD21A725'  0661      LD      IX,NOTE
0593' DD7E00      0662      LD      A,(IX)
0596' FEFE        0663      CP      A,0FEH
0598' 2013        0664      JR      NZ,CONF2
059A' DD216405#  0665 ERR2: LD     IX,ERRCD
059E' 3E00        0666      LD      A,00H
05A0' DD7700      0667      LD      (IX),A
05A3' 3E0B        0668      LD      A,0BH
05A5' DD7701      0669      LD      (IX+1),A
05A8' CD7105#     0670      CALL    ERROR
05AB' 181E        0671      JR      LPSCT1
05AD' FE01        0672 CONF2: CP      A,01H
05AF' 20E9        0673      JR      NZ,ERR2
05B1' DD7E01      0674      LD      A,(IX+1)
05B4' FERC        0675      CP      A,08CH
05B6' 20E2        0676      JR      NZ,ERR2
05B8' 182A        0677      JR      SECT1
05BA' DD219C05#  0678 SCTMSS: LD     IX,ERRCD
05BE' 3E00        0679      LD      A,00H
05C0' DD7700      0680      LD      (IX),A
05C3' 3E19        0681      LD      A,019H

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05C5' DD7701          0682          LD      (IX+1),A
05C8' CDA905#        0683          CALL   ERROR
05CB' CDAF0D'        0684 LPSCT1: CALL   FRNOTE
05CE' DD21A725'     0685          LD      IX,NOTE
05D2' DD7E00         0686          LD      A,(IX)
05D5' FEFE           0687          CP      A,0FEH
05D7' 28F2           0688          JR      Z,LPSCT1
05D9' FE01           0689          CP      A,01H
05DB' 20EE           0690          JR      NZ,LPSCT1
05DD' DD7E01         0691          LD      A,(IX+1)
05E0' FE8C           0692          CP      A,08CH
05E2' 20E7           0693          JR      NZ,LPSCT1

0694 ; -----*
0695 ; *
0696 ;          CONFIGURATION SECTION *
0697 ; *
0698 ; -----*

05E4' CDAF0D'        0699 SECT1:  CALL   FRNOTE
05E7' DD21A725'     0700          LD      IX,NOTE
05EB' DD7E00         0701          LD      A,(IX)
05EE' FEFE           0702          CP      A,0FEH
05F0' 2013           0703          JR      NZ,OPT2
05F2' DD21BC05#     0704          LD      IX,ERRCD
05F6' 3E00           0705          LD      A,00H
05F8' DD7700         0706          LD      (IX),A
05FB' 3E0E           0707          LD      A,0EH
05FD' DD7701         0708          LD      (IX+1),A
0600' CDC905#        0709          CALL   ERROR
0603' 18DF           0710          JR      SECT1
0605' FE01           0711 OPT2:  CP      A,01H
0607' 2028           0712          JR      NZ,BIOSEC
0609' DD7E01         0713          LD      A,(IX+1)
060C' FE86           0714          CP      A,086H          ; SOURCE-COMPUTER
060E' 283A           0715          JR      Z,SCECOM
0610' FE84           0716          CP      A,084H          ; OBJECT-COMPUTER
0612' CAEF06'        0717          JP      Z,OBJCOM
0615' FE77           0718          CP      A,077H          ; SPECIAL-NAMES
0617' CAD107'        0719          JP      Z,SPECNM
061A' DD21F405#     0720 ERREN1: LD      IX,ERRCD
061E' 3E00           0721          LD      A,00H
0620' DD7700         0722          LD      (IX),A
0623' 3E1A           0723          LD      A,01AH
0625' DD7701         0724          LD      (IX+1),A
0628' CD0106#        0725          CALL   ERROR
062B' 11FC26'        0726          LD      DE,LOGIC4
062E' C3D224'        0727          JP      ENDPGM
0631' FE00           0728 BIOSEC: CP      A,00H
0633' 2806           0729          JR      Z,BIOSE1
0635' 111F27'        0730          LD      DE,LOGIC5
0638' C3D224'        0731          JP      ENDPGM
063B' DD7E01         0732 BIOSE1: LD      A,(IX+1)
063E' FE33           0733          CP      A,033H          ; INPUT-OUTPUT
0640' CAF409'        0734          JP      Z,IOSECT
0643' FE46           0735          CP      A,046H          ; DATA (DIVISION)
0645' CACF24'        0736          JP      Z,DATADV          ; GO TO DATA DIVISION
0648' 18D0           0737          JR      ERREN1
0738 ; ----- CHECK FOR SOURCE-DOMPUTER ----- *

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0788 ;
                                *
0789 ; -----*
06BE' CDAF0D' 0790 SCEC2: CALL FRNOTE
06C1' DD21A725' 0791 LD IX,NOTE
06C5' DD7E00 0792 LD A,(IX)
06C8' FEFE 0793 CP A,0FEH ; FOR NON-RESERVED WORD
06CA' 28F2 0794 JR Z,SCEC2 ; SCAN UNTIL PERIOD (.)

OR
06CC' FE01 0795 CP A,01H ; WITH DEBUGGING MODE F
OUND
06CE' 20EE 0796 JR NZ,SCEC2
06D0' DD7E01 0797 LD A,(IX+1)
06D3' FE8C 0798 CP A,08CH ; PERIOD (.) IS DETECTE
D
06D5' CAE405' 0799 JP Z,SECT1 ; FIND NEXT TOKEN UNDER
06D8' FE2D 0800 CP A,02DH ; CONFIGURATION SECTION
06DA' 20E2 0801 JR NZ,SCEC2 ; WITH DEBUGGING MODE D
EJECTED
06DC' DD219A06# 0802 LD IX,ERRCD
06E0' 3E00 0803 LD A,00H
06E2' DD7700 0804 LD (IX),A
06E5' 3E1B 0805 LD A,01BH
06E7' DD7701 0806 LD (IX+1),A
06EA' CDA706# 0807 CALL ERROR
06ED' 18CF 0808 JR SCEC2 ; SCAN UNTIL PERIOD (.)
FOUND
0809 ;
0810 ; ----- END SCAN SOURCE-COMPUTER ----- *
0811 ;
0812 ; ----- NEXT CHECK FOR OBJECT-COMPUTER ----- *
0813 ;
06EF' 3A7327' 0814 OBJCOM: LD A,(EP2) ; CHECK FOR OBJECT-COMP
UTER FLAG
06F2' FE41 0815 CP A,'A'
06F4' 2011 0816 JR NZ,OBJC1
06F6' DD21DE06# 0817 LD IX,ERRCD
06FA' 3E00 0818 LD A,00H ; OBJECT-COMPUTER EXTRA
NEOUS
06FC' DD7700 0819 LD (IX),A
06FF' 3E1D 0820 LD A,01DH
0701' DD7701 0821 LD (IX+1),A
0704' CDEB06# 0822 CALL ERROR
0707' 3E41 0823 OBJC1: LD A,'A'
0709' 327327' 0824 LD (EP2),A ; SET FLAG FOR OBJECT-C
OMPUTER
070C' 3AA325' 0825 LD A,(AREA)
070F' FE41 0826 CP A,'A'
0711' 2811 0827 JR Z,OBJC2
0713' DD21F806# 0828 LD IX,ERRCD
0717' 3E00 0829 LD A,00H
0719' DD7700 0830 LD (IX),A
071C' 3E09 0831 LD A,09H
071E' DD7701 0832 LD (IX+1),A
0721' CD0507# 0833 CALL ERROR
0724' CDAF0D' 0834 OBJC2: CALL FRNOTE ; PERIOD (.) EXPECTED

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0727' DD21A725' 0835 LD IX,NOTE
072B' DD7E00 0836 LD A,(IX)
072E' FEFE 0837 CP A,0FEH
0730' 280B 0838 JR Z,OBJER1
0732' FE01 0839 CP A,01H
0734' 2007 0840 JR NZ,OBJER1
0736' DD7E01 0841 LD A,(IX+1)
0739' FE8C 0842 CP A,08CH
073B' 2826 0843 JR Z,OBJC3
073D' DD211507# 0844 OBJER1: LD IX,ERRCD
0741' 3E00 0845 LD A,00H
0743' DD7700 0846 LD (IX),A
0746' 3E0B 0847 LD A,0BH
0748' DD7701 0848 LD (IX+1),A
074B' CD2207# 0849 CALL ERROR
074E' CDAF0D' 0850 LPOBJ2: CALL FRNOTE ; SCAN UNTIL PERIOD (.)
          FOUND
0751' DD21A725' 0851 LD IX,NOTE
0755' DD7E00 0852 LD A,(IX)
0758' FE01 0853 CP A,01H
075A' 20F2 0854 JR NZ,LPOBJ2
075C' DD7E01 0855 LD A,(IX+1)
075F' FE8C 0856 CP A,08CH
0761' 20EB 0857 JR NZ,LPOBJ2
0858 ;
0859 ; ----- AT THIS POINT OBJECT-COMPUTER FOUND -----
-----*
0860 ;
0861 ; ----- SCAN FOR ELEMENT AFTER OBJECT-COMPUTER -----
-----*
0862 ;
0863 ; - MEMORY SIZE 00H 0B9H
0864 ; - COLLATING SEQUENCE 01H 1CH
0865 ; - SEGMENT-LIMIT 01H 76H
0866 ;
0763' CDAF0D' 0867 OBJC3: CALL FRNOTE
0766' DD21A725' 0868 LD IX,NOTE
076A' DD7E00 0869 LD A,(IX)
076D' FEFE 0870 CP A,0FEH ; NON-RESERVED WORD
076F' 28F2 0871 JR Z,OBJC3 ; SCAN FOR PERIOD (.)
0771' FE01 0872 CP A,01H
0773' 2824 0873 JR Z,CHKEN2
0775' FE00 0874 CP A,00H
0777' 2806 0875 JR Z,MEMSZE
0779' 113127' 0876 LD DE,LOGIC6
077C' C3D224' 0877 JP ENDPGM
077F' DD7E01 0878 MEMSZE: LD A,(IX+1)
0782' FEB9 0879 CP A,0B9H ; MEMORY SIZE
0784' 20DD 0880 JR NZ,OBJC3
0786' DD213F07# 0881 LD IX,ERRCD
078A' 3E00 0882 LD A,00H
078C' DD7700 0883 LD (IX),A
078F' 3E1E 0884 LD A,01EH ; MEMORY SIZE DOES NOT
0791' DD7701 0885 LD (IX+1),A ; BE SUPPORTED
0794' CD4C07# 0886 CALL ERROR
0797' 18CA 0887 JR OBJC3
0799' DD7E01 0888 CHKEN2: LD A,(IX+1)

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079C' FE1C          0889          CP          A,01CH          ; COLLATING SEQUENCE
079E' 2013          0890          JR          NZ,SGMNT1
07A0' DD218807#    0891          LD          IX,ERRCD
07A4' 3E00          0892          LD          A,00H
07A6' DD7700       0893          LD          (IX),A
07A9' 3E1F          0894          LD          A,01FH          ; COLLATING SEQUENCE DO
                                ES NOT
07AB' DD7701       0895          LD          (IX+1),A        ; BE SUPPORTED
07AE' CD9507#      0896          CALL        ERROR
07B1' 18B0          0897          JR          OBJC3
07B3' FE76          0898 SGMNT1: CP          A,076H
07B5' 2013          0899          JR          NZ,ENPER
07B7' DD21A207#    0900          LD          IX,ERRCD
07BB' 3E00          0901          LD          A,00H
07BD' DD7700       0902          LD          (IX),A        ; SEGMENT-LIMIT DOES NO
                                T
07C0' 3E20          0903          LD          A,020H          ; BE SUPPORTED
07C2' DD7701       0904          LD          (IX+1),A
07C5' CDAF07#      0905          CALL        ERROR
07C8' 1899          0906          JR          OBJC3
07CA' FE8C          0907 ENPER: CP          A,08CH          ; PERIOD (.) FOUND
07CC' 2095          0908          JR          NZ,OBJC3
07CE' C3E405'      0909          JP          SECT1
0910 ;
0911 ; ----- AT THIS POINT COMPLETE PARAGRAPH OBJECT-COM
        PUTER -- *
0912 ;
0913 ;          STARTING SPECIAL-NAMES PARAGRAPH EXAMINED
        -----*
0914 ;
07D1' 3AA325'      0915 SPECNM: LD          A,(AREA)
07D4' FE41          0916          CP          A,'A'
07D6' 2811          0917          JR          Z,BSPEC
07D8' DD21B907#    0918          LD          IX,ERRCD
07DC' 3E00          0919          LD          A,00H
07DE' DD7700       0920          LD          (IX),A
07E1' 3E09          0921          LD          A,09H
07E3' DD7701       0922          LD          (IX+1),A
07E6' CDC607#      0923          CALL        ERROR
07E9' 3E41          0924 BSPEC: LD          A,'A'
07EB' 327427'      0925          LD          (EP3),A
07EE' CDAF0D'      0926          CALL        FRNOTE          ; PERIOD (.) EXPECTED
07F1' DD21A725'    0927          LD          IX,NOTE
07F5' DD7E00       0928          LD          A,(IX)
07F8' FE01          0929          CP          A,01H
07FA' 2828          0930          JR          Z,EPER3          ; NEXT FOR PERIOD (.)
07FC' DD21DA07#    0931 LPENV2: LD          IX,ERRCD
0800' 3E00          0932          LD          A,00H
0802' DD7700       0933          LD          (IX),A
0805' 3E0B          0934          LD          A,0BH          ; PERIOD (.) EXPECTED
0807' DD7701       0935          LD          (IX+1),A        ; BUT NOT FOUND
080A' CDE707#      0936          CALL        ERROR
080D' CDAF0D'      0937 LPENV3: CALL        FRNOTE
0810' DD21A725'    0938          LD          IX,NOTE
0814' DD7E00       0939          LD          A,(IX)
0817' FE01          0940          CP          A,01H
0819' 20F2          0941          JR          NZ,LPENV3          ; SCAN UNTIL PERIOD (.)

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                                FOUND
081B' DD7E01          0942      LD      A,(IX+1)
081E' FE8C           0943      CP      A,08CH
0820' 20EB           0944      JR      NZ,LPENV3
0822' 1807           0945      JR      EPER4
0824' DD7E01          0946 EPER3: LD      A,(IX+1)
0827' FE8C           0947      CP      A,08CH
0829' 20D1           0948      JR      NZ,LPENV2
                                0949 ;
                                0950 ;
                                0951 ;
                                0952 ;
                                0953 ;
                                0954 ;
                                0955 ;
                                0956 ;
                                0957 ;
                                0958 ;
                                AT THIS POINT PARAGRAPH SPECIAL-NAMES FOUND
                                SCAN ELEMENT IN THIS PARAGRAPH
                                - ON OFF STATUS      00H 036H      00H 00FH
                                - STANDARD-1          01H 050H
                                - NATIVE              00H 0BAH
                                - CURRENCY            01H 00AH
                                - DECIMAL-POINT      01H 075H
                                - C01 - C12          01H 01FH
082B' CDAF0D'        0959 EPER4: CALL    FRNOTE
082E' DD21A725'      0960      LD      IX,NOTE
0832' DD7E00          0961      LD      A,(IX)
0835' FEFE           0962      CP      A,0FEH
0837' 201F           0963      JR      NZ,EPER5
0839' DD21FE07#      0964      LD      IX,ERRCD
083D' 3E00           0965      LD      A,00H
083F' DD7700          0966      LD      (IX),A
0842' 3E21           0967      LD      A,021H
0844' DD7701          0968      LD      (IX+1),A
0847' CDOB08#        0969      CALL    ERROR
084A' CDAF0D'        0970 LPENV6: CALL    FRNOTE
084D' DD21A725'      0971      LD      IX,NOTE
0851' DD7E00          0972      LD      A,(IX)
0854' FEFE           0973      CP      A,0FEH
0856' 28F2           0974      JR      Z,LPENV6
0858' FE00           0975 EPER5: CP      A,00H
085A' 2027           0976      JR      NZ,EPER6
085C' DD7E01          0977      LD      A,(IX+1)
085F' FE36           0978      CP      A,036H      ; ON STATUS
0861' 2840           0979      JR      Z,ONOFF
0863' FEOF           0980      CP      A,0FH      ; OFF STATUS
0865' 283C           0981      JR      Z,ONOFF
0867' FEBA           0982      CP      A,0BAH      ; NATIVE
0869' 284B           0983      JR      Z,NATIVE
086B' FE1F           0984      CP      A,01FH      ; C01 - C12
086D' CAF08'         0985      JP      Z,CHAN
0870' DD213B08#      0986 ERREN2: LD      IX,ERRCD
0874' 3E00           0987      LD      A,00H
0876' DD7700          0988      LD      (IX),A
0879' 3E22           0989      LD      A,022H
087B' DD7701          0990      LD      (IX+1),A
087E' CD4808#        0991      CALL    ERROR
0881' 18A8           0992      JR      EPER4
0883' FE01           0993 EPER6: CP      A,01H
0885' 2806           0994      JR      Z,EPER7
0887' 114227'        0995      LD      DE,LOGIC7
088A' C3D224'        0996      JP      ENDPGM
088D' DD7E01          0997 EPER7: LD      A,(IX+1)

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0890' FE8C          0998          CP      A,08CH          ; PERIOD (.) DETECTED
0892' CAE405'      0999          JP      Z,SECT1        ; GO TO SECT1 TO FIND N

                        EXT SECTION
0895' FE50          1000          CP      A,050H          ; STANDARD-1
0897' 281D          1001          JR      Z,NATIVE
0899' FE0A          1002          CP      A,0AH           ; CURRENCY
089B' 282C          1003          JR      Z,CURRCY
089D' FE75          1004          CP      A,075H         ; DECIMAL-POINT
089F' 2828          1005          JR      Z,CURRCY
08A1' 18CD          1006          JR      ERREN2
1007 ; -----
1008 ;
1009 ;           BEGIN GENERATE MESSAGE IN SPECIAL-NAMES ;
1010 ;
1011 ; -----
08A3' DD217208#    1012 ONOFF: LD      IX,ERRCD
08A7' 3E00          1013          LD      A,00H
08A9' DD7700        1014          LD      (IX),A
08AC' 3E23          1015          LD      A,023H          ; NOT SUPPORT ON-OFF ST

                        ATUS
08AE' DD7701        1016          LD      (IX+1),A
08B1' CD7F08#      1017          CALL    ERROR
08B4' 1824          1018          JR      ENEXT
08B6' DD21A508#    1019 NATIVE: LD      IX,ERRCD
08BA' 3E00          1020          LD      A,00H
08BC' DD7700        1021          LD      (IX),A
08BF' 3E24          1022          LD      A,024H          ; NOT SUPPORT STANDARD-
                        L, NATIVE
08C1' DD7701        1023          LD      (IX+1),A
08C4' CDB208#      1024          CALL    ERROR
08C7' 1811          1025          JR      ENEXT
08C9' DD21B808#    1026 CURRCY: LD      IX,ERRCD
08CD' 3E00          1027          LD      A,00H
08CF' DD7700        1028          LD      (IX),A
08D2' 3E25          1029          LD      A,025H          ; NOT SUPPORT CURRENCY

                        AND
08D4' DD7701        1030          LD      (IX+1),A          ; DECIMAL POINT
08D7' CDC508#      1031          CALL    ERROR
08DA' CDAF0D'      1032 ENEXT: CALL    FRNOTE
08DD' DD21A725'    1033          LD      IX,NOTE
08E1' DD7E00        1034          LD      A,(IX)
08E4' FEFE          1035          CP      A,0FEH
08E6' C25808'      1036          JP      NZ,EPERS5
08E9' DD21CB08#    1037          LD      IX,ERRCD
08ED' 3E00          1038          LD      A,00H
08EF' DD7700        1039          LD      (IX),A
08F2' 3E26          1040          LD      A,026H
08F4' DD7701        1041          LD      (IX+1),A
08F7' CDD808#      1042          CALL    ERROR
08FA' 18DE          1043          JR      ENEXT
1044 ;
1045 ;           ROUTINE FOR PRINTER CHANNEL.
1046 ;           KEEP CHANNEL-NAME IN SYMBOL TABLE
1047 ;
08FC' CDAF0D'      1048 CHAN: CALL    FRNOTE
08FF' DD21A725'    1049          LD      IX,NOTE          ; MAYBE WORD 'IS' FOUND
0903' DD7E00        1050          LD      A,(IX)

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0906'	FEFE	1051	CP	A, OFEH	
0908'	281E	1052	JR	Z, CHNAME	
090A'	FE00	1053	CP	A, 00H	
090C'	2813	1054	JR	Z, CHIS	
090E'	DD21EB08#	1055	CHERR:	LD	IX, ERRCD
0912'	3E00	1056	LD	A, 00H	
0914'	DD7700	1057	LD	(IX), A	
0917'	3E27	1058	LD	A, 027H	
0919'	DD7701	1059	LD	(IX+1), A	
091C'	CDF808#	1060	CALL	ERROR	
091F'	18DB	1061	JR	CHAN	
0921'	DD7E01	1062	CHIS:	LD	A, (IX+1)
0924'	FE0C	1063	CP	A, 0CH	
0926'	20E6	1064	JR	NZ, CHERR	
0928'	CDAF0D'	1065	CHNAME:	CALL	FRNOTE
092B'	DD21A725'	1066	LD	IX, NOTE	
092F'	DD7E00	1067	LD	A, (IX)	
0932'	FEFE	1068	CP	A, OFEH	
0934'	2813	1069	JR	Z, CHNM1	
0936'	DD211009#	1070	LD	IX, ERRCD	
093A'	3E00	1071	LD	A, 00H	
093C'	DD7700	1072	LD	(IX), A	
093F'	3E27	1073	LD	A, 027H	
0941'	DD7701	1074	LD	(IX+1), A	
0944'	CD1D09#	1075	CALL	ERROR	
0947'	18DF	1076	JR	CHNAME	
0949'	E5	1077	CHNM1:	PUSH	HL
094A'	3A8725'	1078	LD	A, (HHHH)	
094D'	67	1079	LD	H, A	
094E'	3A8825'	1080	LD	A, (LLLL)	
0951'	6F	1081	LD	L, A	
0952'	3E01	1082	LD	A, 01H	; SPECIAL-NAMES FLAG
0954'	CDAB0F'	1083	CALL	KPTSYM	; KEEP SPECIAL-NAMES IN
0957'	E1	1084	POP	HL	
0958'	CDAF0D'	1085	CALL	FRNOTE	; SYMBOL TABLE
095B'	DD21A725'	1086	LD	IX, NOTE	
095F'	DD7E00	1087	LD	A, (IX)	
0962'	FEFE	1088	CP	A, OFEH	; EXPECT PERIOD (.)
0964'	2028	1089	JR	NZ, CHPER	
0966'	DD213809#	1090	PRERR1:	LD	IX, ERRCD
096A'	3E00	1091	LD	A, 00H	
096C'	DD7700	1092	LD	(IX), A	
096F'	3E0B	1093	LD	A, 0BH	
0971'	DD7701	1094	LD	(IX+1), A	
0974'	CD4509#	1095	CALL	ERROR	
0977'	CDAF0D'	1096	PRNEXT:	CALL	FRNOTE
097A'	DD21A725'	1097	LD	IX, NOTE	
097E'	DD7E00	1098	LD	A, (IX)	
0981'	FE01	1099	CP	A, 01H	
0983'	20F2	1100	JR	NZ, PRNEXT	
0985'	DD7E01	1101	LD	A, (IX+1)	
0988'	FE8C	1102	CP	A, 08CH	
098A'	20ER	1103	JR	NZ, PRNEXT	
098C'	180B	1104	JR	CHPER2	
098E'	FE01	1105	CHPER:	CP	A, 01H
0990'	20D4	1106	JR	NZ, PRERR1	
0992'	DD7E01	1107	LD	A, (IX+1)	

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0995' FE8C          1108          CP          A,08CH
0997' 20CD          1109          JR          NZ,PRERR1
                                1110 ;
                                1111 ;          SPECIAL-NAMES PARAGRAPH COMPLETE
                                1112 ;
0999' CDAF0D'      1113 CHPER2: CALL    FRNOTE
099C' DD21A725'   1114          LD          IX,NOTE
09A0' DD7E00       1115          LD          A,(IX)
09A3' FEFE         1116          CP          A,0FEH
09A5' 2028         1117          JR          NZ,CHKIO          ; EXPECT I-O OR DATA DI
                                VISION
09A7' DD216809#   1118          LD          IX,ERRCD
09AB' 3E00         1119          LD          A,00H
09AD' DD7700       1120          LD          (IX),A
09B0' 3E28         1121          LD          A,028H
09B2' DD7701       1122          LD          (IX+1),A
09B5' CD7509#     1123          CALL    ERROR
09B8' CDAF0D'     1124 CHPLP1: CALL    FRNOTE
09BB' DD21A725'   1125          LD          IX,NOTE
09BF' DD7E00       1126          LD          A,(IX)
09C2' FE01         1127          CP          A,01H
09C4' 20F2         1128          JR          NZ,CHPLP1
09C6' DD7E01       1129          LD          A,(IX+1)
09C9' FE8C         1130          CP          A,08CH
09CB' 20EB         1131          JR          NZ,CHPLP1
09CD' 18CA         1132          JR          CHPER2
09CF' FE00         1133 CHKIO:  CP          A,00H
09D1' 2813         1134          JR          Z,CHKIO1
09D3' DD21A909#   1135 CHKERR: LD          IX,ERRCD
09D7' 3E00         1136          LD          A,00H
09D9' DD7700       1137          LD          (IX),A
09DC' 3E29         1138          LD          A,029H
09DE' DD7701       1139          LD          (IX+1),A
09E1' CDB609#     1140          CALL    ERROR
09E4' 18D2         1141          JR          CHPLP1
09E6' DD7E01       1142 CHKIO1: LD          A,(IX+1)
09E9' FE33         1143          CP          A,033H
09EB' 2807         1144          JR          Z,IOSECT
09ED' FE46         1145          CP          A,046H
09EF' CACF24'     1146          JP          Z,DATADV
09F2' 18DF         1147          JR          CHKERR
                                1148 ;-----
                                1149 ;
                                1150 ;          BEGIN INPUT-OUTPUT SECTION
                                1151 ;
                                1152 ;-----
09F4' CDAF0D'      1153 IOSECT: CALL    FRNOTE
09F7' DD21A725'   1154          LD          IX,NOTE          ; EXPECT WORD SECTION
09FB' DD7E00       1155          LD          A,(IX)
09FE' FEFE         1156          CP          A,0FEH
0A00' 2028         1157          JR          NZ,IOPER3
0A02' DD21D509#   1158 IOERR1: LD          IX,ERRCD          ; SECTION MISSING
0A06' 3E00         1159          LD          A,00H
0A08' DD7700       1160          LD          (IX),A
0A0B' 3E19         1161          LD          A,019H
0A0D' DD7701       1162          LD          (IX+1),A
0A10' CDE209#     1163          CALL    ERROR

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0A13' DD21A725' 1164 IOPER2: LD IX,NOTE ; SCAN FOR PERIOD (.)
0A17' DD7E00 1165 LD A,(IX)
0A1A' FE01 1166 CP A,01H
0A1C' 2007 1167 JR NZ,IOPER1
0A1E' DD7E01 1168 LD A,(IX+1)
0A21' FE8C 1169 CP A,08CH
0A23' 2838 1170 JR Z,IOPER4
0A25' CDAFOD' 1171 IOPER1: CALL FRNOTE
0A28' 18E9 1172 JR IOPER2
0A2A' FE01 1173 IOPER3: CP A,01H
0A2C' 20D4 1174 JR NZ,IOERR1
0A2E' DD7E01 1175 LD A,(IX+1)
0A31' FE02 1176 CP A,02H
0A33' 20CD 1177 JR NZ,IOERR1
0A35' CDAFOD' 1178 CALL FRNOTE
0A38' DD21A725' 1179 LD IX,NOTE
0A3C' DD7E00 1180 LD A,(IX) ; PERIOD (.) EXPECTED
0A3F' FE01 1181 CP A,01H
0A41' 2007 1182 JR NZ,IOERR2
0A43' DD7E01 1183 LD A,(IX+1)
0A46' FE8C 1184 CP A,08CH
0A48' 2813 1185 JR Z,IOPER4
0A4A' DD21040A# 1186 IOERR2: LD IX,ERRCD
0A4E' 3E00 1187 LD A,00H
0A50' DD7700 1188 LD (IX),A
0A53' 3E0B 1189 LD A,0BH
0A55' DD7701 1190 LD (IX+1),A
0A58' CD110A# 1191 CALL ERROR
0A5B' 18B6 1192 JR IOPER2 ; LOOP FOR PERIOD
1193 ;
1194 ; I-O SECTION. FOUND COMPLETELY
1195 ;
0A5D' CDAFOD' 1196 IOPER4: CALL FRNOTE ; FILE-CONTROL (01H 68H
)
0A60' DD21A725' 1197 LD IX,NOTE ; EXPECTED
0A64' DD7E00 1198 LD A,(IX)
0A67' FE01 1199 CP A,01H
0A69' 2007 1200 JR NZ,FCERR1
0A6B' DD7E01 1201 LD A,(IX+1)
0A6E' FE68 1202 CP A,068H
0A70' 285D 1203 JR Z,SELPER
0A72' DD214C0A# 1204 FCERR1: LD IX,ERRCD
0A76' 3E00 1205 LD A,00H
0A78' DD7700 1206 LD (IX),A
0A7B' 3E2A 1207 LD A,02AH
0A7D' DD7701 1208 LD (IX+1),A
0A80' CD590A# 1209 CALL ERROR
1210 ;
1211 ; FILE-CONTROL MISSING SCAN FOR NEW HEADER
1212 ; - I-O-CONTROL (01H 5BH)
1213 ; - DATA DIVISION (00H 46H)
1214 ;
0A83' CDAFOD' 1215 FCERR2: CALL FRNOTE
0A86' DD21A725' 1216 LD IX,NOTE
0A8A' DD7E00 1217 LD A,(IX)
0A8D' FE00 1218 CP A,00H
0A8F' 200A 1219 JR NZ,IONXT

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0A91' DD7E01      1220      LD      A,(IX+1)
0A94' FE46        1221      CP      A,046H
0A96' 20EB        1222      JR      NZ,FCERR2
0A98' C3CF24'     1223      JP      DATADV
0A9B' FE01        1224 IONXT: CP      A,01H
0A9D' 20E4        1225      JR      NZ,FCERR2
0A9F' DD7E01      1226      LD      A,(IX+1)
0AA2' FE5B        1227      CP      A,05BH
0AA4' 20DD        1228      JR      NZ,FCERR2
0AA6' DD21740A#   1229 IOCNTL: LD      IX,ERRCD      ; I-O-CONTROL NOT SUPPO
RT
0AAA' 3E00        1230      LD      A,00H
0AAC' DD7700      1231      LD      (IX),A
0AAF' 3E2B        1232      LD      A,02BH
0AB1' DD7701      1233      LD      (IX+1),A
0AB4' CD810A#     1234      CALL   ERROR
0AB7' CDAF0D'     1235 LPCNTL: CALL   FRNOTE
0ABA' DD21A725'   1236      LD      IX,NOTE
0ABE' DD7E00      1237      LD      A,(IX)
0AC1' FE00        1238      CP      A,00H
0AC3' 20F2        1239      JR      NZ,LPCNTL
0AC5' DD7E01      1240      LD      A,(IX+1)
0AC8' FE46        1241      CP      A,046H
0ACA' CACF24'     1242      JP      Z,DATADV
0ACD' 18E8        1243      JR      LPCNTL
1244 ;
1245 ;
0ACF' CDAF0D'     1246 SELPER: CALL   FRNOTE      ; AFTER FILE-CONTROL
0AD2' DD21A725'   1247      LD      IX,NOTE      ; EXPECT PERIOD (.)
0AD6' DD7E00      1248      LD      A,(IX)
0AD9' FE01        1249      CP      A,01H
0ADB' 2007        1250      JR      NZ,SLERR1
0ADD' DD7E01      1251      LD      A,(IX+1)
0AE0' FE8C        1252      CP      A,08CH
0AE2' 2826        1253      JR      Z,SELECT
0AE4' DD21A80A#   1254 SLERR1: LD      IX,ERRCD
0AE8' 3E00        1255      LD      A,00H
0AEA' DD7700      1256      LD      (IX),A
0AED' 3E0B        1257      LD      A,0BH
0AEF' DD7701      1258      LD      (IX+1),A
0AF2' CDB50A#     1259      CALL   ERROR
0AF5' CDAF0D'     1260 LPSEL1: CALL   FRNOTE
0AF8' DD21A725'   1261      LD      IX,NOTE
0AFC' DD7E00      1262      LD      A,(IX)
0AFF' FE01        1263      CP      A,01H
0B01' 20F2        1264      JR      NZ,LPSEL1
0B03' DD7E01      1265      LD      A,(IX+1)
0B06' FE8C        1266      CP      A,08CH
0B08' 20EB        1267      JR      NZ,LPSEL1
1268 ;
1269 ;-----
1270 ;
1271 ; BEGIN SELECT CLAUSE SCANNING
1272 ;
1273 ;-----
0BOA' CDAF0D'     1274 SELECT: CALL   FRNOTE
0BOD' DD21A725'   1275      LD      IX,NOTE

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OB11' DD7E00      1276      LD      A,(IX)
OB14' FEFE        1277      CP      A,0FEH
OB16' 2028        1278      JR      NZ,SLCT1
OB18' DD21E60A#   1279      LD      IX,ERRCD
OB1C' 3E00        1280      LD      A,00H
OB1E' DD7700      1281      LD      (IX),A
OB21' 3E2C        1282      LD      A,02CH      ; NO OTHER CLAUSE THAN
OB23' DD7701      1283      LD      (IX+1),A    ; SELECT CLAUSE SHOULD

                        APPEAR
OB26' CDF30A#     1284      CALL    ERROR      ; SCAN FOR NEXT SENTENC
                        E
OB29' CDAFOD'     1285      SPRIOD: CALL    FRNOTE
OB2C' DD21A725'   1286      LD      IX,NOTE
OB30' DD7E00      1287      LD      A,(IX)
OB33' FE01        1288      CP      A,01H
OB35' 20F2        1289      JR      NZ,SPRIOD
OB37' DD7E01      1290      LD      A,(IX+1)
OB3A' FE8C        1291      CP      A,08CH
OB3C' 20EB        1292      JR      NZ,SPRIOD
OB3E' 18CA        1293      JR      SELECT
OB40' FE00        1294      SLCT1: CP      A,00H
OB42' 2813        1295      JR      Z,SLCT2
OB44' DD211A0B#   1296      LD      IX,ERRCD    ; NO OTHER CLAUSE THAN
OB48' 3E00        1297      LD      A,00H      ; SELECT CLAUSE SHOULD

                        APPEAR
OB4A' DD7700      1298      LD      (IX),A      ; SCAN FOR NEXT SENTENC
                        E
OB4D' 3E2C        1299      LD      A,02CH
OB4F' DD7701      1300      LD      (IX+1),A
OB52' CD270B#     1301      CALL    ERROR
OB55' 18B3        1302      JR      SELECT
OB57' DD7E01      1303      SLCT2: LD      A,(IX+1)    ; SELECT OR DATA OR NOT
OB5A' FEC7        1304      CP      A,0C7H      ; SELECT CLAUSE
OB5C' 2818        1305      JR      Z,SLCT3
OB5E' FE46        1306      CP      A,046H      ; DATA DIVISION
OB60' CACF24'     1307      JP      Z,DATADV    ; GO TO DATA DIVISION
OB63' DD21460B#   1308      LD      IX,ERRCD
OB67' 3E00        1309      LD      A,00H
OB69' DD7700      1310      LD      (IX),A
OB6C' 3E2C        1311      LD      A,02CH      ; NO OTHER CLAUSE THAN
OB6E' DD7701      1312      LD      (IX+1),A    ; SELECT CLAUSE SHOULD

                        APPEAR
OB71' CD530B#     1313      CALL    ERROR      ; SCAN FOR NEXT SENTENC
                        E
OB74' 1894        1314      JR      SELECT
OB76' 3AA325'     1315      SLCT3: LD      A,(AREA)
OB79' FE42        1316      CP      A,'B'
OB7B' 2811        1317      JR      Z,SLCT4
OB7D' DD21650B#   1318      LD      IX,ERRCD
OB81' 3E00        1319      LD      A,00H      ; SHOULD NOT BEGIN IN A
                        REA A
OB83' DD7700      1320      LD      (IX),A
OB86' 3E2D        1321      LD      A,02DH
OB88' DD7701      1322      LD      (IX+1),A
OB8B' CD720B#     1323      CALL    ERROR
OB8E' CDAFOD'     1324      SLCT4: CALL    FRNOTE    ; FILE-NAME OR OPTIONAL
OB91' DD21A725'   1325      LD      IX,NOTE

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OB95' DD7E00      1326      LD      A,(IX)
OB98' FEFE        1327      CP      A,0FEH
OB9A' 2842        1328      JR      Z,KPTFLN
OB9C' FE01        1329      CP      A,01H
OB9E' 2829        1330      JR      Z,OPTION
OBA0' DD217F0B#  1331 SLE CER: LD      IX,ERRCD
OBA4' 3E00        1332      LD      A,00H
OBA6' DD7700      1333      LD      (IX),A
OBA9' 3E2E        1334      LD      A,02EH
OBAB' DD7701      1335      LD      (IX+1),A
OBAE' CD8C0B#    1336      CALL   ERROR
OBB1' CDAF0D'    1337 SL4PER: CALL   FRNOTE          ; SCAN FOR PERIOD (.)
OBB4' DD21A725'  1338      LD      IX,NOTE
OBB8' DD7E00      1339      LD      A,(IX)
OBBB' FE01        1340      CP      A,01H
OBBD' 20F2        1341      JR      NZ,SL4PER
OBBF' DD7E01      1342      LD      A,(IX+1)
OBC2' FE8C        1343      CP      A,08CH
OBC4' 20EB        1344      JR      NZ,SL4PER
OBC6' C30A0B'    1345      JP      SELECT
OBC9' DD7E01      1346 OPTION: LD      A,(IX+1)
OBCC' FE12        1347      CP      A,012H
OBCE' 20D0        1348      JR      NZ,SLE CER
OBD0' CDAF0D'    1349      CALL   FRNOTE
OBD3' DD21A725'  1350      LD      IX,NOTE
OBD7' DD7E00      1351      LD      A,(IX)
OBDA' FEFE        1352      CP      A,0FEH
OBDC' 20C2        1353      JR      NZ,SLE CER
OBDE' CD8410'    1354 KPTFLN: CALL   DTNMI
OBE1' FE54        1355      CP      A,'T'
OBE3' 2821        1356      JR      Z,KPTFNI
OBE5' 3E00        1357      LD      A,00H
OBE7' DD21A20B#  1358      LD      IX,ERRCD
OBEB' DD7700      1359      LD      (IX),A
OBE E' 3E3A       1360      LD      A,03AH
OBF0' DD7701      1361      LD      (IX+1),A
OBF3' CDAF0B#    1362      CALL   ERROR
OBF6' C5          1363      PUSH   BC
OBF7' D5          1364      PUSH   DE
OBF8' 061F        1365      LD      B,31
OBF A' 117B27'    1366      LD      DE,FILE
OBF D' 3E00       1367      LD      A,00H
OBF F' 12         1368 KPTLP5: LD      (DE),A
OC00' 10FD        1369      DJNZ   KPTLP5
OC02' D1          1370      POP    DE
OC03' C1          1371      POP    BC
OC04' 1826        1372      JR      ASSIGN
OC06' C5          1373 KPTFNI: PUSH   BC          ; KEEP FILE-NAME
OC07' E5          1374      PUSH   HL
OC08' D5          1375      PUSH   DE
OC09' 061F        1376      LD      B,31
OC0B' 117B27'    1377      LD      DE,FILE          ; CLEAR 31 BYTE
OC0E' 3E00        1378      LD      A,00H
OC10' 12          1379 KPTLP1: LD      (DE),A
OC11' 13          1380      INC    DE
OC12' 10FC        1381      DJNZ   KPTLP1
OC14' 3AA425'    1382      LD      A,(LENGTH)

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0C17' 117B27'      1383      LD      DE,FILE
0C1A' 12           1384      LD      (DE),A      ; KEEP LENGTH
0C1B' 13           1385      INC     DE
0C1C' 0600         1386      LD      B,00H
0C1E' 4F           1387      LD      C,A      ; ITERATIVE NUMBER
0C1F' 3A8725'     1388      LD      A,(HHHH)
0C22' 67           1389      LD      H,A
0C23' 3A8825'     1390      LD      A,(LLLL)
0C26' 6F           1391      LD      L,A
0C27' EDB0         1392      LDIR                     ; TRANSFER FILE-NAME TO
                                FILE
0C29' D1           1393      POP     DE
0C2A' E1           1394      POP     HL
0C2B' C1           1395      POP     BC
                                1396 ;
                                1397 ;-----*
                                1398 ;
                                1399 ;     KEEP FILE-NAME IN TEMP AREA TO SEE IT IS INPUT *
                                1400 ;     FILE OR OUTPUT FILE LATER ON *
                                1401 ;
                                1402 ;     NEXT SCAN FOR ASSIGN PHRASE *
                                1403 ;
                                1404 ;-----*
0C2C' CDAF0D'     1405  ASSIGN: CALL    FRNOTE
0C2F' DD21A725'   1406      LD      IX,NOTE
0C33' DD7E00       1407      LD      A,(IX)
0C36' FEFE         1408      CP      A,0FEH
0C38' 2013         1409      JR      NZ,ASGN1
0C3A' DD21E90B#   1410      LD      IX,ERRCD
0C3E' 3E00         1411      LD      A,00H
0C40' DD7700       1412      LD      (IX),A
0C43' 3E2F         1413      LD      A,02FH
0C45' DD7701       1414      LD      (IX+1),A
0C48' CDF40B#     1415      CALL   ERROR
0C4B' 18DF         1416      JR      ASSIGN
0C4D' FE01         1417  ASGN1: CP      A,01H
0C4F' 2044         1418      JR      NZ,ASGN2
0C51' DD7E01       1419      LD      A,(IX+1)
0C54' FE8C         1420      CP      A,08CH
0C56' 2014         1421      JR      NZ,ASGER1
0C58' DD213C0C#   1422      LD      IX,ERRCD
0C5C' 3E00         1423      LD      A,00H
0C5E' DD7700       1424      LD      (IX),A
0C61' 3E30         1425      LD      A,030H      ; FILE-NAME NOT ACCEPTED
                                5
0C63' DD7701       1426      LD      (IX+1),A
0C66' CD490C#     1427      CALL   ERROR
0C69' C30A0B'     1428      JP      SELECT
0C6C' DD215A0C#   1429  ASGER1: LD      IX,ERRCD
0C70' 3E00         1430      LD      A,00H
0C72' DD7700       1431      LD      (IX),A
0C75' 3E31         1432      LD      A,031H
0C77' DD7701       1433      LD      (IX+1),A
0C7A' CD670C#     1434      CALL   ERROR
0C7D' CDAF0D'     1435  ASGPER: CALL    FRNOTE
0C80' DD21A725'   1436      LD      IX,NOTE
0C84' DD7E00       1437      LD      A,(IX)

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0C87' FE01          1438      CP      A,01H
0C89' 20F2          1439      JR      NZ,ASGPER
0C8B' DD7E01        1440      LD      A,(IX+1)
0C8E' FE8C          1441      CP      A,08CH
0C90' 20EB          1442      JR      NZ,ASGPER
0C92' C30A0B'      1443      JP      SELECT
0C95' DD7E01        1444 ASGN2: LD      A,(IX+1)
0C98' FEA3          1445      CP      A,0A3H
0C9A' 20D0          1446      JR      NZ,ASGER1      ; NO OTHER CLAUSE THAN
0C9C' CDAF0D'      1447      CALL    FRNOTE        ; ASSIGN SHOULD APPEAR
0C9F' DD21A725'    1448      LD      IX,NOTE        ; TO OR UT-S-SYSIN
0CA3' DD7E00        1449      LD      A,(IX)         ; OR UT-S-SYSPRINT
0CA6' FE00          1450      CP      A,00H          ; TO
0CA8' 203A          1451      JR      NZ,UTS1
0CAA' DD7E01        1452      LD      A,(IX+1)
0CAD' FE17          1453      CP      A,017H
0CAF' 2829          1454      JR      Z,UTS
0CB1' DD216E0C#    1455      LD      IX,ERRCD
0CB5' 3E00          1456      LD      A,00H
0CB7' DD7700        1457      LD      (IX),A
0CBA' 3E32          1458      LD      A,032H
0CBC' DD7701        1459      LD      (IX+1),A
0CBF' CD7B0C#      1460      CALL    ERROR
0CC2' CDAF0D'      1461 ASGLP2: CALL    FRNOTE        ; SCAN FOR PERIOD
0CC5' DD21A725'    1462      LD      IX,NOTE
0CC9' DD7E00        1463      LD      A,(IX)
0CCC' FE01          1464      CP      A,01H
0CCE' 20F2          1465      JR      NZ,ASGLP2
0CD0' DD7E01        1466      LD      A,(IX+1)
0CD3' FE8C          1467      CP      A,08CH
0CD5' 20EB          1468      JR      NZ,ASGLP2
0CD7' C30A0B'      1469      JP      SELECT
0CDA' CDAF0D'      1470 UTS:   CALL    FRNOTE
0CDD' DD21A725'    1471      LD      IX,NOTE
0CE1' DD7E00        1472      LD      A,(IX)
0CE4' FE01          1473 UTS1:  CP      A,01H
0CE6' 2813          1474      JR      Z,UTS2
0CE8' DD21B30C#    1475      LD      IX,ERRCD
0CEC' 3E00          1476      LD      A,00H
0CEE' DD7700        1477      LD      (IX),A
0CF1' 3E32          1478      LD      A,032H
0CF3' DD7701        1479      LD      (IX+1),A
0CF6' CDC00C#      1480      CALL    ERROR
0CF9' 18C7          1481      JR      ASGLP2
0CFB' DD7E01        1482 UTS2:  LD      A,(IX+1)
0CFE' FE92          1483      CP      A,092H        ; UT-S-SYSIN
0D00' 2817          1484      JR      Z,UTIN
0D02' FE93          1485      CP      A,093H        ; UT-S-SYSPRINT
0D04' 285E          1486      JR      Z,UTOUT
0D06' DD21EA0C#    1487      LD      IX,ERRCD
0DOA' 3E00          1488      LD      A,00H
0DOC' DD7700        1489      LD      (IX),A
0DOF' 3E32          1490      LD      A,032H
0D11' DD7701        1491      LD      (IX+1),A
0D14' CDF70C#      1492      CALL    ERROR
0D17' 18A9          1493      JR      ASGLP2
0D19' 3E02          1494 UTSIN: LD      A,02H        ; INPUT FILE-NAME FLAG

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0D1B' E5          1495      PUSH   HL
0D1C' 217B27'    1496      LD     HL,FILE      ; FILE-NAME TO BE KEPT
0D1F' 7E         1497      LD     A,(HL)
0D20' FE00       1498      CP     A,00H
0D22' 2814       1499      JR     Z,UTIN11
0D24' 3AA425'    1500      LD     A,(LENGTH)   ; KEEP CURRENT TOKEN LE
                        NGTH
0D27' 32A525'    1501      LD     (LEN),A
0D2A' 7E         1502      LD     A,(HL)      ; LENGTH OF FILE NAME
0D2B' 32A425'    1503      LD     (LENGTH),A
0D2E' 23         1504      INC   HL
0D2F' CDAB0F'    1505      CALL  KPTSYM      ; KEEP FILE-NAME IN SYM
                        BOL TABLE
0D32' 3AA525'    1506      LD     A,(LEN)
0D35' 32A425'    1507      LD     (LENGTH),A
0D38' E1         1508 UTIN11: POP   HL
0D39' CDAF0D'    1509 UTIN2: CALL  FRNOTE      ; EXPECT FOR PERIOD (.)
0D3C' DD21A725' 1510      LD     IX,NOTE
0D40' DD7E00     1511      LD     A,(IX)
0D43' FE01       1512      CP     A,01H
0D45' 2813       1513      JR     Z,UTIN1
0D47' DD21080D# 1514 UTINE1: LD     IX,ERRCD
0D4B' 3E00       1515      LD     A,00H
0D4D' DD7700     1516      LD     (IX),A
0D50' 3E0B       1517      LD     A,0BH
0D52' DD7701     1518      LD     (IX+1),A
0D55' CD150D#    1519      CALL  ERROR
0D58' 18DF       1520      JR     UTIN2
0D5A' DD7E01     1521 UTIN1: LD     A,(IX+1)
0D5D' FE8C       1522      CP     A,08CH
0D5F' 20E6       1523      JR     NZ,UTINE1
0D61' C30A0B'    1524      JP     SELECT
0D64' 3E03       1525 UTOUT: LD     A,03H      ; OUTPUT FILE-NAME FLAG
0D66' E5         1526      PUSH  HL
0D67' 217B27'    1527      LD     HL,FILE      ; FILE-NAME TO BE KEPT
0D6A' 7E         1528      LD     A,(HL)
0D6B' FE00       1529      CP     A,00H
0D6D' 2814       1530      JR     Z,UTOT11
0D6F' 3AA425'    1531      LD     A,(LENGTH)
0D72' 32A525'    1532      LD     (LEN),A
0D75' 7E         1533      LD     A,(HL)
0D76' 32A425'    1534      LD     (LENGTH),A
0D79' 23         1535      INC   HL
0D7A' CDAB0F'    1536      CALL  KPTSYM      ; KEEP FILE-NAME IN SYM
                        BOL TABLE
0D7D' 3AA525'    1537      LD     A,(LEN)
0D80' 32A425'    1538      LD     (LENGTH),A
0D83' E1         1539 UTOT11: POP   HL
0D84' CDAF0D'    1540 UTOUT2: CALL  FRNOTE      ; EXPECT FOR PERIOD (.)
0D87' DD21A725' 1541      LD     IX,NOTE
0D8B' DD7E00     1542      LD     A,(IX)
0D8E' FE01       1543      CP     A,01H
0D90' 2813       1544      JR     Z,UTOUT1
0D92' DD21490D# 1545 UTOUE1: LD     IX,ERRCD
0D96' 3E00       1546      LD     A,00H
0D98' DD7700     1547      LD     (IX),A
0D9B' 3E0B       1548      LD     A,0BH

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OD9D' DD7701      1549      LD      (IX+1),A
ODAO' CD560D#    1550      CALL   ERROR
ODA3' 18DF       1551      JR      UTOUT2
ODA5' DD7E01     1552 UTOUT1: LD      A,(IX+1)
ODAB' FE8C       1553      CP      A,08CH
ODAA' 20E6       1554      JR      NZ,UTOUE1
ODAC' C30A0B'   1555      JP      SELECT
1556 ;
1557 ;
1558 ;
1559 ;*****
1560 ;*
1561 ;*          BEGIN ALL SUB-ROUTINE
1562 ;*
1563 ;*****
1564 ;
ODAF' 7E         1565 FRNOTE: LD      A,(HL)
ODBO' FEFF       1566      CP      A,0FFH      ; END BUFFER OR NOT
ODB2' CC750F'    1567      CALL   Z,RDRT
ODB5' 7C         1568      LD      A,H
ODB6' FE01       1569      CP      A,01H      ; END OF DMA AREA OR NO
T
ODB8' CC750F'    1570      CALL   Z,RDRT
1571 ;
ODBB' 7E         1572 FRNT:  LD      A,(HL)
ODBC' FE00       1573      CP      A,00H      ; LINE NO. FLAG OR NOT
ODBE' 200C       1574      JR      NZ,FR01
ODCO' 23         1575      INC     HL          ; POINT START LINE NO.
ODC1' 111500#    1576      LD      DE,COUNT1
ODC4' 0600       1577      LD      B,00H
ODC6' 0E04       1578      LD      C,04H
ODC8' EDB0       1579      LDIR     ; KEEP CURRENT LINE-NUM
BER
ODCA' 18E3       1580      JR      FRNOTE
1581 ;
1582 ;
1583 ; CHECK-AREA ROUTINE
1584 ;
ODCC' 7E         1585 FR01:  LD      A,(HL)      ; GET TOKEN COLUMN
ODCD' FE07       1586      CP      A,07H      ; TOKEN AT COLUMN 7 IS
JUST A
ODCF' 200A       1587      JR      NZ,FR011      ; CONTINUE CARD (
-)
ODD1' 3E43       1588      LD      A,'C'      ; FLAG TO IDENTIFY CONT
INUE CARD
ODD3' 32A625'    1589      LD      (CONT),A
ODD6' 23         1590      INC     HL          ; HL POINT NEXT LENGTH
BYTE FOR (-)
ODD7' 23         1591      INC     HL          ; HL POINT AT -
ODD8' 23         1592      INC     HL          ; HL POINT NEXT AVAILAB
LE TOKEN
ODD9' 18D4       1593      JR      FRNOTE
ODDB' F5         1594 FR011: PUSH   AF
ODDC' 3E00       1595      LD      A,00H      ; FLAG INDICATE NOT A C
ONTINUE CARD
ODDE' 32A625'    1596      LD      (CONT),A
ODEI' F1         1597      POP     AF

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ODE2' FE0C          1598          CP      A,0CH          ; COLUMN 12 OR NOT
ODE4' FAEB0D'      1599          JP      M,AREAA        ; IF LESS THAN 12 IT'S
                          AREA A
ODE7' 3E42         1600          LD      A,'B'
ODE9' 1802         1601          JR      FRO2
ODEB' 3E41         1602 AREAA:   LD      A,'A'
ODED' 32A325'     1603 FRO2:   LD      (AREA),A      ; AREA RECOGNIZED
                          1604 ;
                          1605 ;*****:
                          1606 ;          END
                          1607 ;*****
ODF0' 23          1608          INC     HL          ; HL POINT LENGTH BYTE
ODF1' 7E          1609          LD      A,(HL)
ODF2' 32A425'    1610          LD      (LENGTH),A    ; KEEP TOKEN LENGTH
ODF5' 23          1611          INC     HL          ; HL POINT TOKEN CONTEN
                          T
ODF6' 119325'    1612          LD      DE,NUMBER    ; INDEXING FOR NUMBER R
                          SW
ODF9' 1B          1613          DEC     DE
ODFA' 3AA425'    1614          LD      A,(LENGTH)
ODFD' 47          1615          LD      B,A
ODFE' 13          1616 FRO21:  INC     DE
ODFF' 10FD       1617          DJNZ   FRO21
OE01' 1A         1618          LD      A,(DE)      ; NUMBER OF RSW
OE02' 47         1619          LD      B,A
OE03' CDE40F'    1620          CALL   FRDE          ; FIND ORIGIN OF TABLE
OE06' C5         1621 FIND:   PUSH   BC
OE07' 3AA425'    1622          LD      A,(LENGTH)
OE0A' 47         1623          LD      B,A
OE0B' CD0000#    1624          CALL   COMPAR        ; TRY ON RSW TABLE
OE0E' C1         1625          POP    BC
OE0F' FE54       1626          CP      A,'T'      ; IF EQUAL FOUND
OE11' 2822       1627          JR      Z,FOUND
OE13' C5         1628          PUSH   BC
OE14' 3AA425'    1629          LD      A,(LENGTH)
OE17' 47         1630          LD      B,A
                          1631 ;
OE18' 13         1632 FRO31:  INC     DE          ; NEXT RSW TABLE ELEMEN
                          T
OE19' 10FD       1633          DJNZ   FRO31
OE1B' 13         1634          INC     DE
OE1C' 13         1635          INC     DE          ; 2 BYTES FOR ATTRIBUTE
                          S
OE1D' C1         1636          POP    BC
OE1E' 10E6       1637          DJNZ   FIND
OE20' 3EFE       1638          LD      A,0FEH      ; FLAG NOT FOUND IN RSW
                          TABLE
OE22' 32A725'    1639          LD      (NOTE),A
OE25' 7C         1640          LD      A,H          ; STORE ADDRESS OF NON-
                          RSW
OE26' 328725'    1641          LD      (HHHH),A
OE29' 7D         1642          LD      A,L
OE2A' 328825'    1643          LD      (LLLL),A
OE2D' 3AA425'    1644          LD      A,(LENGTH)
OE30' 47         1645          LD      B,A
OE31' 23         1646 FRO311: INC     HL
OE32' 10FD       1647          DJNZ   FRO311

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0E34' C9          1648          RET
0E35' 3AA425'    1649 FOUND: LD      A, (LENGTH)
0E38' 47          1650          LD      B,A
0E39' 13          1651 FR04:  INC     DE
0E3A' 10FD       1652          DJNZ   FR04          ; DE POINT DESIRED ATTR
                   IBUTE
0E3C' 1A          1653          LD      A, (DE)          ; IN RSW TABLE
0E3D' E5          1654          PUSH   HL
0E3E' 21A725'    1655          LD      HL,NOTE
0E41' 77          1656          LD      (HL),A
0E42' 13          1657          INC     DE
0E43' 23          1658          INC     HL
0E44' 1A          1659          LD      A, (DE)
0E45' 77          1660          LD      (HL),A
0E46' E1          1661          POP    HL
0E47' 3AA425'    1662          LD      A, (LENGTH)
0E4A' 47          1663          LD      B,A
0E4B' 23          1664 FR041: INC     HL
0E4C' 10FD       1665          DJNZ   FR041
0E4E' C9          1666          RET
                   1667 ;
                   1668 ;
0E4F' E5          1669 AHEAD:  PUSH   HL
0E50' D5          1670          PUSH   DE
0E51' C5          1671          PUSH   BC
0E52' DDE5       1672          PUSH   IX
0E54' FDE5       1673          PUSH   IY
0E56' F5          1674          PUSH   AF
0E57' 7E          1675          LD      A, (HL)
0E58' FEFF       1676          CP      A, OFFH          ; END BUFFER OR NOT
0E5A' CC580F'    1677          CALL   Z, RDRTT
0E5D' 7C          1678          LD      A, H
0E5E' FE01       1679          CP      A, 01H          ; END OF DMA AREA OR NO
                   T
0E60' CC580F'    1680          CALL   Z, RDRTT
                   1681 ;
0E63' 7E          1682 AHNT:  LD      A, (HL)
0E64' FE00       1683          CP      A, 00H          ; LINE NO. FLAG OR NOT
0E66' 200C       1684          JR      NZ, AH01
0E68' 23          1685          INC     HL          ; POINT START LINE NO.
0E69' 11C20D#    1686          LD      DE, COUNT1
0E6C' 0600       1687          LD      B, 00H
0E6E' 0E04       1688          LD      C, 04H
0E70' EDB0       1689          LDIR          ; KEEP CURRENT LINE-NUM
                   BER
0E72' 18DB       1690          JR      AHEAD
                   1691 ;
                   1692 ;
                   1693 ; CHECK-AREA ROUTINE
                   1694 ;
0E74' 7E          1695 AH01:  LD      A, (HL)          ; GET TOKEN COLUMN
0E75' FE07       1696          CP      A, 07H          ; TOKEN AT COLUMN 7 IS
                   JUST A
0E77' 200A       1697          JR      NZ, AH011          ; CONTINUE CARD (
                   -)
0E79' 3E43       1698          LD      A, 'C'          ; FLAG TO IDENTIFY CONT
                   INUE CARD

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0E7B' 32A625' 1699 LD (CONT),A
0E7E' 23 1700 INC HL ; HL POINT NEXT LENGTH
          BYTE FOR (-)
0E7F' 23 1701 INC HL ; HL POINT AT -
0E80' 23 1702 INC HL ; HL POINT NEXT AVAILAB
          LE TOKEN
0E81' 18CC 1703 JR AHEAD
0E83' F5 1704 AH011: PUSH AF
0E84' 3E00 1705 LD A,00H ; FLAG INDICATE NOT A C
          ONTINUE CARD
0E86' 32A625' 1706 LD (CONT),A
0E89' F1 1707 POP AF
0E8A' FE0C 1708 CP A,0CH ; COLUMN 12 OR NOT
0E8C' FA930E' 1709 JP M,AREAAA ; IF LESS THAN 12 IT'S
          AREA A
0E8F' 3E42 1710 LD A,'B'
0E91' 1802 1711 JR AH02
0E93' 3E41 1712 AREAAA: LD A,'A'
0E95' 32A325' 1713 AH02: LD (AREA),A ; AREA RECOGNIZED
          1714 ;
          1715 ;*****:
          1716 ; END
          1717 ;*****
0E98' 23 1718 INC HL ; HL POINT LENGTH BYTE
0E99' 7E 1719 LD A,(HL)
0E9A' 32A425' 1720 LD (LENGTH),A ; KEEP TOKEN LENGTH
0E9D' 23 1721 INC HL ; HL POINT TOKEN CONTEN
          T
0E9E' 119325' 1722 LD DE,NUMBER ; INDEXING FOR NUMBER R
          SW
0EA1' 1B 1723 DEC DE
0EA2' 3AA425' 1724 LD A,(LENGTH)
0EA5' 47 1725 LD B,A
0EA6' 13 1726 AH021: INC DE
0EA7' 10FD 1727 DJNZ AH021
0EA9' 1A 1728 LD A,(DE) ; NUMBER OF RSW
0EAA' 47 1729 LD B,A
0EAB' CDE40F' 1730 CALL FRDE ; FIND ORIGIN OF TABLE
0EAE' C5 1731 AFIND: PUSH BC
0EAF' 3AA425' 1732 LD A,(LENGTH)
0EB2' 47 1733 LD B,A
0EB3' CD0C0E# 1734 CALL COMPAR ; TRY ON RSW TABLE
0EB6' C1 1735 POP BC
0EB7' FE54 1736 CP A,'T' ; IF EQUAL FOUND
0EB9' 2822 1737 JR Z,AFFOUND
0EBB' C5 1738 PUSH BC
0EBC' 3AA425' 1739 LD A,(LENGTH)
0EBF' 47 1740 LD B,A
          1741 ;
0EC0' 13 1742 AH031: INC DE ; NEXT RSW TABLE ELEMEN
          T
0EC1' 10FD 1743 DJNZ AH031
0EC3' 13 1744 INC DE
0EC4' 13 1745 INC DE ; 2 BYTES FOR ATTRIBUTE
          S
0EC5' C1 1746 POP BC
0EC6' 10E6 1747 DJNZ AFIND

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OEC8' 3EFE          1748          LD      A,0FEH          ; FLAG NOT FOUND IN RSW
                        TABLE
OECA' 32A725'      1749          LD      (NOTE),A
OECB' 7C            1750          LD      A,H          ; STORE ADDRESS OF NON-
                        RSW
OECE' 328725'      1751          LD      (HHHH),A
OEDI' 7D            1752          LD      A,L
OED2' 328825'      1753          LD      (LLLL),A
OED5' 3AA425'      1754          LD      A,(LENGTH)
OED8' 47            1755          LD      B,A
OED9' 23            1756 AH0311: INC      HL
OEDA' 10FD          1757          DJNZ   AH0311
OEDC' C9            1758          RET
OEDD' 3AA425'      1759 AFOUND: LD      A,(LENGTH)
OEE0' 47            1760          LD      B,A
OEE1' 13            1761 AH04:  INC      DE
OEE2' 10FD          1762          DJNZ   AH04          ; DE POINT DESIRED ATTR
                        IBUTE
OEE4' 1A            1763          LD      A,(DE)          ; IN RSW TABLE
OEE5' E5            1764          PUSH   HL
OEE6' 21A725'      1765          LD      HL,NOTE
OEE9' 77            1766          LD      (HL),A
OEEA' 13            1767          INC      DE
OEEB' 23            1768          INC      HL
OEEC' 1A            1769          LD      A,(DE)
OEEF' 77            1770          LD      (HL),A
OEEE' E1            1771          POP    HL          ; NOTE CONTAINS ATTRIBU
                        TE
OEEF' 3AA725'      1772          LD      A,(NOTE)
OEF2' FE00          1773          CP      A,00H
OEF4' 2805          1774          JR      Z,CALLOH
OEF6' CD330F'      1775          CALL   VERBNI
OEF9' 1803          1776          JR      FRCALL
OEFB' CD0E0F'      1777 CALLOH: CALL   VERBNO
OEFE' 3AA425'      1778 FRCALL: LD      A,(LENGTH)
OFO1' 47            1779          LD      B,A
OFO2' 23            1780 AH041: INC      HL
OFO3' 10FD          1781          DJNZ   AH041
OFO5' F1            1782          POP    AF
OFO6' FDE1          1783          POP    IY
OFO8' DDE1          1784          POP    IX
OFOA' C1            1785          POP    BC
OFOB' D1            1786          POP    DE
OFOC' E1            1787          POP    HL
OFOE' C5            1788          RET
OFOE' C5            1789          ;
OFOF' E5            1790          ;*****
OFOF' E5            1791          ;
OFOF' E5            1792          ;*****
OFOF' E5            1793          ;#
OFOF' E5            1794          ;#          TO SEE VERB OR NOT
OFOF' E5            1795          ;#
OFOF' E5            1796          ;*****
OFOE' C5            1797 VERBNO: PUSH   BC
OFOF' E5            1798          PUSH   HL
OFOG' D5            1799          PUSH   DE
OF0H' F5            1800          PUSH   AF

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0F12' 11A725'      1801      LD      DE,NOTE
0F15' 13           1802      INC     DE                ; POINT BYTE 2
0F16' 1A           1803      LD      A,(DE)
0F17' 214328'     1804      LD      HL,VERB00      ; SEARCH VERB 00H FIRST
0F1A' 0631        1805      LD      B,49          ; 49 ELEMENTS IN TABLE
0F1C' BE          1806 VBLP1:  CP      A,(HL)
0F1D' 280D        1807      JR      Z,OUTOK
0F1F' 23          1808      INC     HL                ; NEXT ELEMENT
0F20' 10FA        1809      DJNZ   VBLP1
0F22' 3E4E        1810      LD      A,'N'
0F24' 328425'     1811      LD      (VERB),A
0F27' F1          1812 VBRET:  POP     AF
0F28' D1          1813      POP     DE
0F29' E1          1814      POP     HL
0F2A' C1          1815      POP     BC
0F2B' C9          1816      RET
0F2C' 3E59        1817 OUTOK:  LD      A,'Y'
0F2E' 328425'     1818      LD      (VERB),A
0F31' 18F4        1819      JR      VBRET
1820 ;
1821 ;+++++
1822 ;
0F33' C5          1823 VERBN1:  PUSH   BC
0F34' E5          1824      PUSH   HL
0F35' D5          1825      PUSH   DE
0F36' F5          1826      PUSH   AF
0F37' 11A725'     1827      LD      DE,NOTE
0F3A' 13           1828      INC     DE                ; POINT BYTE 2
0F3B' 1A           1829      LD      A,(DE)
0F3C' 217428'     1830      LD      HL,VERB01      ; SEARCH VERB 01H FIRST
0F3F' 0609        1831      LD      B,09          ; 9 ELEMENTS IN TABLE
0F41' BE          1832 VBLP2:  CP      A,(HL)
0F42' 280D        1833      JR      Z,OUTOK1
0F44' 23          1834      INC     HL                ; NEXT ELEMENT
0F45' 10FA        1835      DJNZ   VBLP2
0F47' 3E4E        1836      LD      A,'N'
0F49' 328425'     1837      LD      (VERB),A
0F4C' F1          1838 VBRET2:  POP     AF
0F4D' D1          1839      POP     DE
0F4E' E1          1840      POP     HL
0F4F' C1          1841      POP     BC
0F50' C9          1842      RET
0F51' 3E59        1843 OUTOK1:  LD      A,'Y'
0F53' 328425'     1844      LD      (VERB),A
0F56' 18F4        1845      JR      VBRET2
1846 ;
1847 ;+++++
1848 ;
0F58' C5          1849 RDRTT:  PUSH   BC
0F59' D5          1850      PUSH   DE
0F5A' F5          1851      PUSH   AF
0F5B' 0E1A        1852      LD      C,STDMA        ; SET NEW DMA TO LOCAL
0F5D' 11C327'     1853      LD      DE,BUFFER
0F60' CD0500      1854      CALL   BDOS
0F63' CD5B10'     1855      CALL   READ
0F66' 0E1A        1856      LD      C,STDMA
0F68' 118000      1857      LD      DE,DMA

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0F6B' CD0500      1858      CALL   BDOS           ; SET DMA BACK
0F6E' F1          1859      POP    AF
0F6F' D1          1860      POP    DE
0F70' C1          1861      POP    BC
0F71' 21C327'    1862      LD     HL,BUFFER
0F74' C9          1863      RET
                  1864 ;
0F75' E5          1865 RDRT:  PUSH   HL
0F76' D5          1866      PUSH  DE
0F77' C5          1867      PUSH  BC
0F78' F5          1868      PUSH  AF
0F79' 21C327'    1869      LD     HL,BUFFER
0F7C' 7E          1870      LD     A,(HL)
0F7D' FEFF        1871      CP    A,OFFH
0F7F' 281F        1872      JR    Z,RDRR
0F81' 0600        1873      LD     B,00H
0F83' 0E80        1874      LD     C,128
0F85' 118000      1875      LD     DE,DMA
0F88' 21C327'    1876      LD     HL,BUFFER
0F8B' EDB0        1877      LD IR
0F8D' 21C327'    1878      LD     HL,BUFFER
0F90' 3EFF        1879      LD     A,OFFH
0F92' 0E80        1880      LD     C,128
0F94' 77          1881 RDRL:  LD     (HL),A
0F95' 23          1882      INC   HL
0F96' 10FC        1883      DJNZ  RDRL           ; CLEAR BUFFER
0F98' F1          1884      POP    AF
0F99' C1          1885      POP    BC
0F9A' D1          1886      POP    DE
0F9B' E1          1887      POP    HL
0F9C' 218000      1888      LD     HL,DMA
0F9F' C9          1889      RET
0FA0' CD5B10'    1890 RDRR:  CALL   READ
0FA3' F1          1891      POP    AF
0FA4' C1          1892      POP    BC
0FA5' D1          1893      POP    DE
0FA6' E1          1894      POP    HL
0FA7' 218000      1895      LD     HL,DMA
0FAA' C9          1896 RET:    RET
                  1897 ;
0F98 ;*****
0F99 ;*
0F9A ;*   ROUTINE FOR KEEP SYMBOL IN SYMBOL TABLE   *
0F9B ;*
0F9C ;*****
0FAB' DDE5        1903 KPTSYM: PUSH   IX
0FAD' D5          1904      PUSH  DE
0FAE' E5          1905      PUSH  HL
0FAF' C5          1906      PUSH  BC
0FB0' F5          1907      PUSH  AF
0FB1' DD218B25'  1908      LD     IX,ENDSM1
0FB5' 3A8525'    1909      LD     A,(DDD)       ; A KEEP SYMBOL FLAG
0FB8' DDBE00      1910      CP    A,(IX)
                  1911 ;
0FBB' F2C40F'    1912      JP    M,KPTNXT
0FBE' 11A925'    1913      LD     DE,OVF
0FC1' C3D224'    1914      JP    ENDPGM

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0FC4' 57          1915 KPTNXT: LD      D,A
0FC5' 3A8625'    1916          LD      A,(EEE)
0FC8' 5F          1917          LD      E,A          ; DE POINT START SYMBOL

                TABLE
0FC9' F1          1918          POP     AF          ; AVAILABLE ADDRESS
0FCA' 12          1919          LD      (DE),A      ; KEEP SYMBOL FLAG
0FCB' 13          1920          INC     DE
0FCC' 0600        1921          LD      B,00H
0FCE' 3AA425'    1922          LD      A,(LENGTH) ; KEEP SYMBOL LENGTH
0FD1' 4F          1923          LD      C,A
0FD2' 12          1924          LD      (DE),A      ; KEEP SYMBOL IN TABLE
0FD3' 13          1925          INC     DE
0FD4' EDB0        1926          LDIR
                ;
                1927 ;          INC     DE          ; POINT THE NEXT AVAILA
                BLE
0FD6' 7A          1928          LD      A,D          ; ADDRESS TO KEEP SYMBO
                L
0FD7' 328525'    1929          LD      (DDD),A
0FDA' 7B          1930          LD      A,E
0FDB' 328625'    1931          LD      (EEE),A      ; KEEP THE ADDRESS
0FDE' C1          1932          POP     BC
0FDF' E1          1933          POP     HL
0FE0' D1          1934          POP     DE
0FE1' DDE1        1935          POP     IX
0FE3' C9          1936          RET
                1937 ;*****
                1938 ;*
                1939 ;*      ROUTINE FOR FIND ORIGIN OF TABLE      *
                1940 ;*
                1941 ;*****
                1942 ;
0FE4' 3AA425'    1943 FRDE:   LD      A,(LENGTH)
0FE7' FE01        1944          CP      A,01H
0FE9' 2004        1945          JR      NZ,FRDE02
0FEB' 110000#    1946          LD      DE,L01
0FEE' C9          1947          RET
0FEF' FE02        1948 FRDE02: CP     A,02H
0FF1' 2004        1949          JR      NZ,FRDE03
0FF3' 110000#    1950          LD      DE,L02
0FF6' C9          1951          RET
0FF7' FE03        1952 FRDE03: CP     A,03H
0FF9' 2004        1953          JR      NZ,FRDE04
0FFB' 110000#    1954          LD      DE,L03
0FFE' C9          1955          RET
0FFF' FE04        1956 FRDE04: CP     A,04H
1001' 2004        1957          JR      NZ,FRDE05
1003' 110000#    1958          LD      DE,L04
1006' C9          1959          RET
1007' FE05        1960 FRDE05: CP     A,05H
1009' 2004        1961          JR      NZ,FRDE06
100B' 110000#    1962          LD      DE,L05
100E' C9          1963          RET
100F' FE06        1964 FRDE06: CP     A,06H
1011' 2004        1965          JR      NZ,FRDE07
1013' 110000#    1966          LD      DE,L06
1016' C9          1967          RET
1017' FE07        1968 FRDE07: CP     A,07H

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1019' 2004          1969          JR          NZ,FRDE08
101B' 110000#      1970          LD          DE,L07
101E' C9           1971          RET
101F' FE08         1972 FRDE08: CP      A,08H
1021' 2004          1973          JR          NZ,FRDE09
1023' 110000#      1974          LD          DE,L08
1026' C9           1975          RET
1027' FE09         1976 FRDE09: CP      A,09H
1029' 2004          1977          JR          NZ,FRDE0A
102B' 110000#      1978          LD          DE,L09
102E' C9           1979          RET
102F' FE0A         1980 FRDE0A: CP      A,0AH
1031' 2004          1981          JR          NZ,FRDE0B
1033' 110000#      1982          LD          DE,LOA
1036' C9           1983          RET
1037' FE0B         1984 FRDE0B: CP      A,0BH
1039' 2004          1985          JR          NZ,FRDE0C
103B' 110000#      1986          LD          DE,LOB
103E' C9           1987          RET
103F' FE0C         1988 FRDE0C: CP      A,0CH
1041' 2004          1989          JR          NZ,FRDE0D
1043' 110000#      1990          LD          DE,LOC
1046' C9           1991          RET
1047' FE0D         1992 FRDE0D: CP      A,0DH
1049' 2004          1993          JR          NZ,FRDE0E
104B' 110000#      1994          LD          DE,LOD
104E' C9           1995          RET
104F' FE0E         1996 FRDE0E: CP      A,0EH
1051' 2004          1997          JR          NZ,FRDE0F
1053' 110000#      1998          LD          DE,LOE
1056' C9           1999          RET
1057' 110000#      2000 FRDE0F: LD      DE,LOF
105A' C9           2001          RET
2002 ;
2003 ;*****
2004 ;*
2005 ;*      READ : READ-ROUTINE
2006 ;*
2007 ;*****
105B' D5           2008 READ:   PUSH    DE
105C' F5           2009          PUSH    AF
105D' 117D28'     2010          LD      DE,CBLSK4
1060' 0E14         2011          LD      C,CPMRDR      ; READ FILE FUNCTION
1062' CD0500       2012          CALL   BDOS          ; READ 1 SECTOR
1065' FE00         2013          CP      A,00H
1067' 2808         2014          JR      Z,PROX      ; READ OK GO TO PROCESS
1069' 116926'     2015          LD      DE,COMPL    ; END OF FILE TOKEN
106C' FE01         2016          CP      A,01H      ; END FILE FLAG
106E' CAD224'     2017          JP      Z,ENDPGM
1071' 218000       2018 PROX:   LD      HL,DMA
1074' F1           2019          POP    AF
1075' D1           2020          POP    DE
1076' C9           2021          RET
2022 ;*****
2023 ;*
2024 ;*      DTNAME : ROUTINE FOR
2025 ;*      - GET NEXT TOKEN

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2026 ;* - VERIFY IF IT CAN BE A *
2027 ;* DATA NAME OR NOT *
2028 ;* - USED WHEN VERIFY DATA DIVISION *
2029 ;* *
2030 ;*****
1077' CDAF0D' 2031 DTNAME: CALL FRNOTE
107A' 3AA725' 2032 DTNAM: LD A,(NOTE)
107D' FEFE 2033 CP A,0FEH
107F' 2803 2034 JR Z,DTNM1
1081' 3E46 2035 DATER1: LD A,'F'
1083' C9 2036 RET
1084' E5 2037 DTNM1: PUSH HL ; KEEP ADDRESS OF NEXT
TOKEN
1085' 3A8725' 2038 LD A,(HHHH)
1088' 67 2039 LD H,A
1089' 3A8825' 2040 LD A,(LLLL)
108C' 6F 2041 LD L,A ; HL POINT THE OLD TOKE
N
108D' 3E00 2042 LD A,00H
108F' 329225' 2043 LD (CHCNT),A ; CLEAR ALPHABETIC COUN
T
1092' DD219225' 2044 LD IX,CHCNT
1096' C5 2045 PUSH BC
1097' 3AA425' 2046 LD A,(LENGTH)
109A' FE1E 2047 CP A,30
109C' F2A610' 2048 JP P,DTERR2
109F' 47 2049 LD B,A ; LENGTH OF TOKEN
10A0' 7E 2050 DTNM2: LD A,(HL)
10A1' FE2F 2051 CP A,02FH ; COMPARE FOR NUMERIC
10A3' F2AA10' 2052 JP P,DTNM3 ; LOWER BOUND
10A6' C1 2053 DTERR2: POP BC
10A7' E1 2054 POP HL
10A8' 18D7 2055 JR DATER1 ; INVALID DATA NAME
10AA' FE3A 2056 DTNM3: CP A,03AH ; COMPARE FOR NUMERIC
10AC' FABC10' 2057 JP M,DTNM5 ; UPPER BOUND
10AF' FE41 2058 CP A,'A' ; COMPARE FOR ALPHABETI
C
10B1' FAA610' 2059 JP M,DTERR2 ; LOWER BOUND
10B4' FE5A 2060 CP A,'Z' ; COMPARE FOR ALPHABETI
C
10B6' F2A610' 2061 JP P,DTERR2 ; UPPER BOUND
2062 ;
2063 ; FIRST CHARACTER IS VALID
2064 ;
10B9' ED3400 2065 DTNM4: INC (IX) ; FIRST CHARACTER IS AL
PHABETIC
10BC' C5 2066 DTNM5: DEC B
10BD' C5 2067 DEC B
10BE' 23 2068 DTNML1: INC HL
10BF' 7E 2069 LD A,(HL)
10C0' FE2D 2070 CP A,'-'
10C2' 2819 2071 JR Z,DTNML4
10C4' FE30 2072 CP A,'0' ; NUMERIC LOWER BOUNC
10C6' FAA610' 2073 JP M,DTERR2 ; INVALID DATA NAME
10C9' FE39 2074 DTNML2: CP A,'9' ; NUMERIC UPPER BOUND
10CB' F2D010' 2075 JP P,DTNML3
10CE' 180D 2076 JR DTNML4

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10D0' FE41          2077 DTNML3: CP      A,'A'
10D2' FAA610'      2078          JP      M,DTERR2
10D5' FE5A         2079          CP      A,'Z'
10D7' F2A610'     2080          JP      P,DTERR2
10DA' DD3400      2081          INC      (IX)          ; COUNT FOR ALPHABETIC
10DD' 10DF        2082 DTNML4: DJNZ    DTNML1
                2083 ;
                2084 ;          CHECK LAST CHARACTER OF DATA NAME
                2085 ;
10DF' 23          2086          INC      HL
10E0' 7E          2087          LD      A,(HL)
10E1' FE30        2088          CP      A,'0'
10E3' FAA610'     2089          JP      M,DTERR2
10E6' FE39        2090          CP      A,'9'
10E8' F2ED10'     2091          JP      P,DTNM6
10EB' 180D        2092          JR      DTNMOK
10ED' FE41        2093 DTNM6:  CP      A,'A'
10EF' FAA610'     2094          JP      M,DTERR2
10F2' FE5A        2095          CP      A,'Z'
10F4' F2A610'     2096          JP      P,DTERR2
10F7' DD3400      2097          INC      (IX)
10FA' 3A9225'     2098 DTNMOK: LD      A,(CHCNT)
10FD' FE00        2099          CP      A,00H
10FF' 28A5        2100          JR      Z,DTERR2
1101' 3E54        2101          LD      A,'T'
1103' C1          2102          POP     BC
1104' E1          2103          POP     HL
1105' C9          2104          RET
                2105 ;
2106 ;*****
2107 ;*
2108 ;*      BEGIN TO SCAN ALL ELEMENTS IN DATA DIVISION *
2109 ;*
2110 ;*      - VERIFY ELEMMENTS IN DATA DIVISION *
2111 ;*      - KEEP SYMBOL TABLE *
2112 ;*
2113 ;*      GLLTttt..... *
2114 ;*
2115 ;*****
2116 ;DATADV:  ===== Used in the future =====
1106' CDAF0D'     2117          CALL    FRNOTE
1109' DD21A725'   2118          LD      IX,NOTE
110D' DD7E00      2119          LD      A,(IX)          ; WORD "DIVISION" EXPEC
                TED
1110' FEFE        2120          CP      A,0FEH
1112' 280B        2121          JR      Z,DIVE
1114' FE01        2122          CP      A,01H
1116' 2C07        2123          JR      NZ,DIVE
1118' DD7E01      2124          LD      A,(IX+1)
111B' FE0B        2125          CP      A,0BH          ; DIVISION = 01H 0BH
111D' 2811        2126          JR      Z,DTDV05
111F' DD21940D#  2127 DIVE:  LD      IX,ERRCD
1123' 3E0A        2128          LD      A,0AH
1125' DD7700      2129          LD      (IX),A
1128' 3E00        2130          LD      A,00H
112A' DD7701      2131          LD      (IX+1),A
112D' CDA10D#    2132          CALL    ERROR
    
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1130' CDAFOD'      2133 DTDV05: CALL   FRNOTE      ; NEXT TOKEN TO BE PERI
                   OD (.)
1133' DD21A725'   2134          LD     IX,NOTE
1137' DD7E00      2135          LD     A,(IX)
113A' FE01        2136          CP     A,01H
113C' 2007        2137          JR     NZ,DTDE05
113E' DD7E01      2138          LD     A,(IX+1)
1141' FE8C        2139          CP     A,08CH      ; PERIOD (.) = 01H 08CH
1143' 2826        2140          JR     Z,DTDV06
1145' DD212111#  2141 DTDE05: LD     IX,ERRCD
1149' 3E00        2142          LD     A,00H
114B' DD7700      2143          LD     (IX),A
114E' 3E0B        2144          LD     A,0BH
1150' DD7701      2145          LD     (IX+1),A
1153' CD2E11#     2146          CALL   ERROR
1156' CDAFOD'     2147 DTDL05: CALL   FRNOTE
1159' DD21A725'   2148          LD     IX,NOTE
115D' DD7E00      2149          LD     A,(IX)
1160' FE01        2150          CP     A,01H
1162' 20F2        2151          JR     NZ,DTDL05
1164' DD7E01      2152          LD     A,(IX+1)
1167' FE8C        2153          CP     A,08CH
1169' 20EB        2154          JR     NZ,DTDL05
116B' CDAFOD'     2155 DTDV06: CALL   FRNOTE      ; NEXT TOKEN AFTER PERI
                   OD (.)
116E' DD21A725'   2156          LD     IX,NOTE
1172' DD7E00      2157          LD     A,(IX)
1175' FE00        2158          CP     A,00H
1177' 2007        2159          JR     NZ,DTDE06
1179' DD7E01      2160          LD     A,(IX+1)
117C' FE4B        2161          CP     A,04BH
117E' 2828        2162          JR     Z,DTDV07      ; WORD "FILE" FOUND FOR
                   SECTION
1180' DD214711#  2163 DTDE06: LD     IX,ERRCD
1184' 3E00        2164          LD     A,00H
1186' DD7700      2165          LD     (IX),A
1189' 3E34        2166          LD     A,034H      ; FILE SECTION MISSING,
118B' DD7701      2167          LD     (IX+1),A      ; ASSUME PRESENT
118E' CD5411#     2168          CALL   ERROR
1191' CDAFOD'     2169 DTDL06: CALL   FRNOTE
1194' DD21A725'   2170          LD     IX,NOTE
1198' DD7E00      2171          LD     A,(IX)
119B' FE01        2172          CP     A,01H
119D' 20F2        2173          JR     NZ,DTDL06
119F' DD7E01      2174          LD     A,(IX+1)
11A2' FE8C        2175          CP     A,08CH
11A4' 20EB        2176          JR     NZ,DTDL06
11A6' 187D        2177          JR     DTDV10      ; TO COMPLETE FILE SECT
                   ION
11A8' 3AA325'    2178 DTDV07: LD     A,(AREA)
11AB' FE41        2179          CP     A,'A'
11AD' 2811        2180          JR     Z,DTDV08
11AF' DD218211#  2181          LD     IX,ERRCD
11B3' 3E00        2182          LD     A,00H
11B5' DD7700      2183          LD     (IX),A
11B8' 3E09        2184          LD     A,09H
11BA' DD7701      2185          LD     (IX+1),A

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11BD' CD8F11#      2186      CALL      ERROR
11CO' CDAFOD'     2187 DTDV08: CALL      FRNOTE
11C3' DD21A725'   2188      LD        IX,NOTE
11C7' DD7E00      2189      LD        A,(IX)
11CA' FE01        2190      CP        A,01H
11CC' 2007        2191      JR        NZ,DTDE08
11CE' DD7E01     2192      LD        A,(IX+1)
11D1' FE02        2193      CP        A,02H      ; WORD 'SECTION' MISSIN
                                G
11D3' 2828        2194      JR        Z,DTDV09
11D5' DD21B111#   2195 DTDE08: LD        IX,ERRCD
11D9' 3E00        2196      LD        A,00H
11DB' DD7700     2197      LD        (IX),A
11DE' 3E19        2198      LD        A,019H
11E0' DD7701     2199      LD        (IX+1),A
11E3' CDBE11#    2200      CALL      ERROR
11E6' CDAFOD'     2201 DTDL08: CALL      FRNOTE
11E9' DD21A725'   2202      LD        IX,NOTE
11ED' DD7E00     2203      LD        A,(IX)
11F0' FE01        2204      CP        A,01H
11F2' 20F2        2205      JR        NZ,DTDL08
11F4' DD7E01     2206      LD        A,(IX+1)
11F7' FE8C        2207      CP        A,08CH
11F9' 20EB        2208      JR        NZ,DTDL08
11FB' 1828        2209      JR        DTDV10
11FD' CDAFOD'     2210 DTDV09: CALL      FRNOTE
1200' DD21A725'   2211      LD        IX,NOTE
1204' DD7E00     2212      LD        A,(IX)
1207' FE01        2213      CP        A,01H
1209' 2007        2214      JR        NZ,DTDE09
120B' DD7E01     2215      LD        A,(IX+1)
120E' FE8C        2216      CP        A,08CH
1210' 2813        2217      JR        Z,DTDV10
1212' DD21D711#   2218 DTDE09: LD        IX,ERRCD
1216' 3E00        2219      LD        A,00H
1218' DD7700     2220      LD        (IX),A
121B' 3E0B        2221      LD        A,0BH
121D' DD7701     2222      LD        (IX+1),A
1220' CDE411#    2223      CALL      ERROR
1223' 18C1        2224      JR        DTDL08      ; LOOP SCAN FOR PERIOD
                                (.)
2225 ;
2226 ;-----
2227 ;
2228 ; FILE SECTION COMPLETELY FOUND
2229 ; NEXT TO DETECT ONLY FOR FILE SECTION
2230 ; ELEMENTARY
2231 ; WORKING-STORAGE SECTION AND
2232 ; LINKAGE SECTION
2233 ;-----
2234 ;
2235 ;
1225' CDAFOD'     2236 DTDV10: CALL      FRNOTE
1228' DD21A725'   2237      LD        IX,NOTE
122C' DD7E00     2238      LD        A,(IX)
122F' FE00        2239      CP        A,00H
1231' 2063        2240      JR        NZ,DTDV11

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1233' DD7E01      2241      LD      A,(IX+1)
1236' FE07        2242      CP      A,07H      ; FD - FILE DESCRIPTION
1238' CABE12'     2243      JP      Z,FDRTN   ; FILE DECLARATION ROUT
                       INE
123B' FE16        2244      CP      A,016H   ; SD - SORT DESCRIPTION
123D' 281C        2245      JR      Z,SDERR
123F' FEED        2246      CP      A,0EDH   ; LINKAGE SECTION SAME
                       AS WORKNG
1241' CA8C1C'     2247      JP      Z,WORKNG ; GO TO LINKAGE SECTION
1244' FEC2        2248      CP      A,0C2H   ; REPORT WRITER
1246' 203B        2249      JR      NZ,DTE101
1248' DD211412#  2250 REPORT: LD      IX,ERRCD
124C' 3E00        2251      LD      A,00H
124E' DD7700      2252      LD      (IX),A
1251' 3E37        2253      LD      A,037H
1253' DD7701      2254      LD      (IX+1),A
1256' CD2112#    2255      CALL   ERROR
1259' 1811        2256      JR      DTL101
125B' DD214A12#  2257 SDERR: LD      IX,ERRCD
125F' 3E00        2258      LD      A,00H
1261' DD7700      2259      LD      (IX),A
1264' 3E35        2260      LD      A,035H
1266' DD7701      2261      LD      (IX+1),A
1269' CD5712#    2262      CALL   ERROR      ; SORT FEATURE NOT SUPP
                       ORTED
126C' CDAF0D'     2263 DTL101: CALL   FRNOTE      ; END STATEMENT
126F' DD21A725'  2264      LD      IX,NOTE
1273' DD7E00      2265      LD      A,(IX)
1276' FE01        2266      CP      A,01H
1278' 20F2        2267      JR      NZ,DTL101
127A' DD7E01      2268      LD      A,(IX+1)
127D' FE8C        2269      CP      A,08CH
127F' 20EB        2270      JR      NZ,DTL101
1281' 18A2        2271      JR      DTDV10
1283' DD215D12#  2272 DTE101: LD      IX,ERRCD
1287' 3E00        2273      LD      A,00H
1289' DD7700      2274      LD      (IX),A
128C' 3E36        2275      LD      A,036H      ; INVALID ELEMENT IN DA
                       TA DECLARATION
128E' DD7701      2276      LD      (IX+1),A
1291' CD6A12#    2277      CALL   ERROR
1294' 18D6        2278      JR      DTL101
1296' FE01        2279 DTDV11: CP      A,01H
1298' 20E9        2280      JR      NZ,DTE101
129A' DD7E01      2281      LD      A,(IX+1)
129D' FE87        2282      CP      A,087H   ; WORKING-STORAGE SECTI
                       ON
129F' CA8C1C'     2283      JP      Z,WORKNG ; GO TO WORKING-STORAGE
                       SECTION
12A2' FE35        2284      CP      A,035H   ; PROCEDURE DIVISION
12A4' CAD224'     2285      JP      Z,PROCDE ; GO TO PROCEDURE DIVIS
                       ION
12A7' FE70        2286      CP      A,070H   ; COMMUNICATION SECTION
12A9' 20D8        2287      JR      NZ,DTE101
12AB' DD218512#  2288 COMMUN: LD      IX,ERRCD
12AF' 3E00        2289      LD      A,00H
12B1' DD7700      2290      LD      (IX),A

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12B4' 3E38      2291      LD      A,038H      ; NOT SUPPORT
12B6' DD7701    2292      LD      (IX+1),A
12B9' CD9212#  2293      CALL   ERROR
12BC' 18AE      2294      JR      DTL101
2295 ;
2296 ;-----
2297 ;
2298 ;          FDRTN : ROUTINE TO CHECK FILE CHARACTERISTICS
2299 ;          AND CHECK FILE NAME WITH SELECT CLAUSE
2300 ;          THEN KEEP RECORD IN FILE AND OTHER
2301 ;          VARIABLES.
2302 ;
2303 ;-----
2304 ;
12BE' 3AA325'   2305 FDRTN: LD      A,(AREA)      ; CHECK WHETHER AREA A
OR NOT
12C1' FE41      2306      CP      A,'A'
12C3' 2811      2307      JR      Z,FDRN01
12C5' DD21AD12# 2308      LD      IX,ERRCD
12C9' 3E00      2309      LD      A,00H
12CB' DD7700    2310      LD      (IX),A
12CE' 3E09      2311      LD      A,09H
12D0' DD7701    2312      LD      (IX+1),A      ; HEADER IN AREA A EXPE
CTED
12D3' CDBA12#  2313      CALL   ERROR      ; BUT NOT FOUND
12D6' CDAF0D'   2314 FDRN01: CALL   FRNOTE      ; FILE-NAME EXPECTED
12D9' DD21A725' 2315      LD      IX,NOTE
12DD' DD7E00    2316      LD      A,(IX)
12E0' FEFE      2317      CP      A,0FEH
12E2' 2829      2318      JR      Z,FDRN02
12E4' DD21C712# 2319      LD      IX,ERRCD
12E8' 3E00      2320      LD      A,00H
12EA' DD7700    2321      LD      (IX),A
12ED' 3E39      2322      LD      A,039H      ; RESERVED WORD AS FILE
-NAME
12EF' DD7701    2323      LD      (IX+1),A
12F2' CDD412#  2324      CALL   ERROR
12F5' CDAF0D'   2325 FDRLO1: CALL   FRNOTE
12F8' DD21A725' 2326      LD      IX,NOTE
12FC' DD7E00    2327      LD      A,(IX)
12FF' FE01      2328      CP      A,01H
1301' 20F2      2329      JR      NZ,FDRLO1
1303' DD7E01    2330      LD      A,(IX+1)
1306' FE8C      2331      CP      A,8CH
1308' 20EB      2332      JR      NZ,FDRLO1
130A' C32512'   2333      JP      DTDV10
2334 ;-----
2335 ;
2336 ;          CHECK FILE NAME AND VERIFY THE NAME

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2337 ;
2338 ;-----
130D' D5      2339 FDRN02: PUSH    DE
130E' E5      2340          PUSH    HL
130F' C5      2341          PUSH    BC
1310' 11EC2A' 2342          LD      DE,SYMTAB
1313' 3A8725' 2343          LD      A,(HHHH)
1316' 67      2344          LD      H,A
1317' 3A8825' 2345          LD      A,(LLLL)
131A' 6F      2346          LD      L,A
131B' 1A      2347 FDRN03: LD      A,(DE)
131C' FE02    2348          CP      A,02H          ; INPUT FILE
131E' 2864    2349          JR      Z,FDRN04
1320' FE03    2350          CP      A,03H          ; OUTPUT FILE
1322' 2867    2351          JR      Z,FDRN14
1324' FE03    2352          CP      A,03H
1326' F23113' 2353          JP      P,FDER01
1329' 13      2354          INC    DE
132A' 1A      2355          LD      A,(DE)
132B' 47      2356          LD      B,A
132C' 13      2357 FDLP01: INC    DE          ; NEXT ELEMENT IN TABLE
132D' 10FD    2358          DJNZ   FDLP01
132F' 18EA    2359          JR      FDRN03
1331' DD21E612# 2360 FDER01: LD      IX,ERRCD
1335' 3E00    2361          LD      A,00H
1337' DD7700  2362          LD      (IX),A
133A' 3E3D    2363          LD      A,03DH
133C' DD7701  2364          LD      (IX+1),A          ; FILE WITHOUT SELECT
133F' CDF312# 2365          CALL  ERROR
1342' C1      2366          POP    BC
1343' E1      2367          POP    HL
1344' D1      2368          POP    DE
1345' CDAF0D' 2369 FDLP02: CALL  FRNOTE
1348' DD21A725' 2370          LD      IX,NOTE
134C' ED7E00  2371          LD      A,(IX)
134F' FE00    2372          CP      A,00H
1351' 2019    2373          JR      NZ,FDLP03
1353' DD7E01  2374          LD      A,(IX+1)
1356' FE07    2375          CP      A,07H
1358' CABE12' 2376          JP      Z,FDRTN
135B' FE16    2377          CP      A,016H
135D' CA5B12' 2378          JP      Z,SDERR
1360' FEED    2379          CP      A,0EDH
1362' CA8C1C' 2380          JP      Z,WORKNG          ; LINKAGE SECTION THE S
                                AME
1365' FEC2    2381          CP      A,0C2H          ; AS WORKING-STORAGE SE
                                CTION
1367' CA4812' 2382          JP      Z,REPORT
136A' 18D9    2383          JR      FDLP02
136C' FE01    2384 FDLP03: CP      A,01H
136E' 20D5    2385          JR      NZ,FDLP02
1370' DD7E01  2386          LD      A,(IX+1)
1373' FE87    2387          CP      A,087H
1375' CA8C1C' 2388          JP      Z,WORKNG
1378' FE35    2389          CP      A,035H
137A' C3D224' 2390          JP      PROCDE
137D' FE70    2391          CP      A,070H

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137F' CAAB12'      2392          JP      Z,COMMUN
1382' 18C1         2393          JR      FDLP02
2394 ;*****
2395 ;*
2396 ;*          INPUT FILE IS OK
2397 ;*
2398 ;*****
1384' 3E49        2399 FDRN04: LD      A,'I'
1386' 32D228'     2400          LD      (FFILE),A
1389' 1805        2401          JR      FDRN41
138B' 3E4F        2402 FDRN14: LD      A,'O'
138D' 32D228'     2403          LD      (FFILE),A
1390' CDAF0D'     2404 FDRN41: CALL    FRNOTE          ; LABEL RECORD CLAUSE E
XPECTED
1393' DD21A725'   2405          LD      IX,NOTE
1397' DD7E00      2406          LD      A,(IX)
139A' FE00        2407          CP      A,00H
139C' 2831        2408          JR      Z,FDRN05
139E' FE01        2409          CP      A,01H
13A0' 2008        2410          JR      NZ,FDER04
13A2' DD7E01      2411          LD      A,(IX+1)
13A5' FE8C        2412          CP      A,08CH
13A7' CA8D16'     2413          JP      Z,REC01
13AA' DD213313#   2414 FDER04: LD      IX,ERRCD
13AE' 3E00        2415          LD      A,00H
13B0' DD7700      2416          LD      (IX),A
13B3' 3E3E        2417          LD      A,03EH
13B5' DD7701      2418          LD      (IX+1),A
13B8' CD4013#     2419          CALL    ERROR
13BB' CDAF0D'     2420 FDLP04: CALL    FRNOTE
13BE' 3AA725'     2421          LD      A,(NOTE)
13C1' FE01        2422          CP      A,01H
13C3' 20F6        2423          JR      NZ,FDLP04
13C5' 3AA825'     2424          LD      A,(NOTE+1)
13C8' FE8C        2425          CP      A,08CH
13CA' 20EF        2426          JR      NZ,FDLP04
13CC' C38D16'     2427          JP      REC01          ; FOR 01 LEVEL VERIFICA
TION
13CF' 3AA825'     2428 FDRN05: LD      A,(NOTE+1)
13D2' FE86        2429          CP      A,086H
13D4' CA4115'     2430          JP      Z,LABEL
13D7' FE46        2431          CP      A,046H
13D9' CAD615'     2432          JP      Z,DATA
13DC' FEC0        2433          CP      A,0C0H
13DE' CAAA14'     2434          JP      Z,RECORD
13E1' FE76        2435          CP      A,076H
13E3' 20C5        2436          JR      NZ,FDER04
13E5' CDAF0D'     2437 BLOCK: CALL    FRNOTE          ; CONTAINS EXPECTED
13E8' DD21A725'   2438          LD      IX,NOTE
13EC' DD7E00      2439          LD      A,(IX)
13EF' FE01        2440          CP      A,01H
13F1' 201E        2441          JR      NZ,BLK02
13F3' DD7E01      2442          LD      A,(IX+1)
13F6' FE08        2443          CP      A,08H          ; CONTAINS CLAUSE
13F8' 2311        2444          JR      Z,BLK01
13FA' DD21AC13#   2445          LD      IX,ERRCD
13FE' 3E00        2446          LD      A,00H

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1400' DD7700      2447      LD      (IX),A
1403' 3E3F       2448      LD      A,03FH
1405' DD7701     2449      LD      (IX+1),A      ; INVALID CLAUSE DETECT
                        ED
1408' CDB913#    2450      CALL    ERROR
140B' CDAF0D'    2451 BLK01: CALL    FRNOTE      ; INTEGER EXPECTED
140E' 3AA725'    2452      LD      A,(NOTE)
1411' FEFE       2453 BLK02: CP      A,0FEH
1413' 2829       2454      JR      Z,BLK03
1415' DD21FC13#  2455      LD      IX,ERRCD
1419' 3E00       2456      LD      A,00H
141B' DD7700     2457      LD      (IX),A
141E' 3E40       2458      LD      A,040H
1420' DD7701     2459      LD      (IX+1),A
1423' CD0914#    2460      CALL    ERROR
1426' CDAF0D'    2461 FDLPO5: CALL    FRNOTE
1429' DD21A725'  2462      LD      IX,NOTE
142D' DD7E00     2463      LD      A,(IX)
1430' FE01       2464      CP      A,01H
1432' 20F2       2465      JR      NZ,FDLPO5
1434' DD7E01     2466      LD      A,(IX+1)
1437' FE8C       2467      CP      A,08CH
1439' 20EB       2468      JR      NZ,FDLPO5
143B' C38D16'    2469      JP      RECO1      ; FOR 01 LEVEL VERIFICA
                        TION
143E' E5         2470 BLK03: PUSH   HL
143F' 3AA425'    2471      LD      A,(LENGTH)
1442' 47         2472      LD      B,A
1443' 3A8725'    2473      LD      A,(HHHH)
1446' 67         2474      LD      H,A
1447' 3A8825'    2475      LD      A,(LLLL)
144A' 6F         2476      LD      L,A
144B' 7E         2477 BLK031: LD     A,(HL)
144C' FE2F       2478      CP      A,02FH
144E' F26514'    2479      JP      P,BLK31
1451' DD211714#  2480 BLKER1: LD     IX,ERRCD
1455' 3E00       2481      LD      A,00H
1457' DD7700     2482      LD      (IX),A
145A' 3E41       2483      LD      A,041H
145C' DD7701     2484      LD      (IX+1),A
145F' CD2414#    2485      CALL    ERROR
1462' E1         2486      POP     HL
1463' 18C1       2487      JR      FDLPO5
1465' FE3A       2488 BLK31: CP      A,03AH
1467' FA6C14'    2489      JP      M,BLK32
146A' 18E5       2490      JR      BLKER1
146C' 23         2491 BLK32: INC     HL
146D' 10DC       2492      DJNZ   BLK031
146F' E1         2493      POP     HL
1470' CDAF0D'    2494      CALL    FRNOTE      ; BLOCK CONTAINS INTEGE
                        R
1473' DD21A725'  2495      LD      IX,NOTE
1477' DD7E00     2496      LD      A,(IX)
147A' FE00       2497      CP      A,00H
147C' 2817       2498      JR      Z,RCORD
147E' FE01       2499      CP      A,01H
1480' 281E       2500      JR      Z,CHRCT

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1482' DD215314#    2501 BLKER3: LD      IX,ERRCD
1486' 3E00         2502         LD      A,00H
1488' DD7700       2503         LD      (IX),A
148B' 3E42         2504         LD      A,042H
148D' DD7701       2505         LD      (IX+1),A
1490' CD6014#     2506         CALL    ERROR
1493' 1891         2507         JR      FDLPO5
1495' DD7E01       2508 RECORD: LD      A,(IX+1)
1498' FEC0         2509         CP      A,0C0H          ; WORD 'RECORDS'
149A' C2CF13'     2510         JP      NZ,FDRN05
149D' C38413'     2511         JP      FDRN04
14A0' DD7E01       2512 CHRCT:  LD      A,(IX+1)
14A3' FE2B         2513         CP      A,02BH
14A5' CAB413'     2514         JP      Z,FDRN04
14A8' 18D8         2515         JR      BLKER3
                2516 ;
                2517 ;
14AA' CDAF0D'     2518 RECORD: CALL    FRNOTE          ; CONTAINS EXPECTED
14AD' DD21A725'   2519         LD      IX,NOTE
14B1' DD7E00       2520         LD      A,(IX)
14B4' FE01         2521         CP      A,01H
14B6' 201E         2522         JR      NZ,RECO02
14B8' DD7E01       2523         LD      A,(IX-1)
14BB' FE08         2524         CP      A,08H          ; CONTAINS
14BD' 2811         2525         JR      Z,RECO01
14BF' DD218414#   2526         LD      IX,ERRCD
14C3' 3E00         2527         LD      A,00H
14C5' DD7700       2528         LD      (IX),A
14C8' 3E3F         2529         LD      A,03FH
14CA' DD7701       2530         LD      (IX+1),A
14CD' CD9114#     2531         CALL    ERROR
14D0' CDAF0D'     2532 RECO01: CALL    FRNOTE          ; INTEGER EXPECTED
14D3' 3AA725'     2533         LD      A,(NOTE)
14D6' FEFE         2534 RECO02: CP      A,0FEH
14D8' 2814         2535         JR      Z,RECO03
14DA' DD21C114#   2536         LD      IX,ERRCD
14DE' 3E00         2537         LD      A,00H
14E0' DD7700       2538         LD      (IX),A
14E3' 3E43         2539         LD      A,043H
14E5' DD7701       2540         LD      (IX+1),A
14E8' CDCE14#     2541         CALL    ERROR
14EB' C32614'     2542         JP      FDLPO5
14EE' E5           2543 RECO03: PUSH    HL
14EF' 3AA425'     2544         LD      A,(LENGTH)
14F2' 47           2545         LD      B,A
14F3' 3A8725'     2546         LD      A,(HHHH)
14F6' 67           2547         LD      H,A
14F7' 3A8825'     2548         LD      A,(LLLL)
14FA' 6F           2549         LD      L,A
14FB' 7E           2550 RECO31: LD      A,(HL)
14FC' FE2F         2551         CP      A,02FH
14FE' F21815'     2552         JP      P,REC310
1501' DD21DC14#   2553 RECER1: LD      IX,ERRCD
1505' 3E00         2554         LD      A,00H
1507' DD7700       2555         LD      (IX),A
150A' 3E44         2556         LD      A,044H
150C' DD7701       2557         LD      (IX+1),A

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150F' CDE914#      2558      CALL      ERROR
1512' E1           2559      POP       HL
1513' C32614'     2560      JP        FDLPO5
1516' FE3A        2561 REC310: CP      A,03AH
1518' FA1D15'     2562      JP        M,REC320
151B' 18E4        2563      JR        RECER1
151D' 23          2564 REC320: INC     HL
151E' 10DB        2565      DJNZ     REC031
1520' E1          2566      POP       HL
1521' CDAF0D'     2567      CALL     FRNOTE      ; RECORD CONTAINS INTEG
                          ER
1524' DD21A725'   2568      LD        IX,NOTE
1528' DD7E00      2569      LD        A,(IX)
152B' FE01        2570      CP        A,01H
152D' 2808        2571      JR        Z,CHRREC
152F' FE00        2572      CP        A,00H
1531' CACF13'     2573      JP        Z,FDRN05
1534' C38413'     2574      JP        FDRN04
1537' DD7E01      2575 CHRREC: LD     A,(IX+1)
153A' FE2B        2576      CP        A,02BH
153C' CA8413'     2577      JP        Z,FDRN04
153F' 18C0        2578      JR        RECER1
                          2579 ;
                          2580 ;
1541' CDAF0D'     2581 LABEL: CALL     FRNOTE      ; RECORD EXPECTED
1544' DD21A725'   2582      LD        IX,NOTE
1548' DD7E00      2583      LD        A,(IX)
154B' FE00        2584      CP        A,00H
154D' 2829        2585      JR        Z,LBL1
154F' DD210315#   2586 LBLER0: LD     IX,ERRCD
1553' 3E00        2587      LD        A,00H
1555' DD7700      2588      LD        (IX),A
1558' 3E45        2589      LD        A,045H
155A' DD7701      2590      LD        (IX+1),A
155D' CD1015#     2591      CALL     ERROR
1560' CDAF0D'     2592 LBLLP1: CALL     FRNOTE
1563' DD21A725'   2593      LD        IX,NOTE
1567' DD7E00      2594      LD        A,(IX)
156A' FE01        2595      CP        A,01H
156C' 20F2        2596      JR        NZ,LBLLP1
156E' DD7E01      2597      LD        A,(IX+1)
1571' FE8C        2598      CP        A,08CH
1573' 20EB        2599      JR        NZ,LBLLP1
1575' C38D16'     2600      JP        REC01
1578' DD7E01      2601 LBL1:  LD        A,(IX+1)
157B' FEC0        2602      CP        A,0COH
157D' 20D0        2603      JR        NZ,LBLER0
157F' CDAF0D'     2604 LBL2:  CALL     FRNOTE      ; IS, ARE OR STANDARD,
                          OMITTED
1582' DD21A725'   2605      LD        IX,NOTE
1586' DD7E00      2606      LD        A,(IX)
1589' FE00        2607      CP        A,00H
158B' 2818        2608      JR        Z,LBL22
158D' FE01        2609      CP        A,01H      ; MAY BE STANDARD
158F' 2822        2610      JR        Z,STD1
1591' DD215115#   2611 LBLER1: LD     IX,ERRCD
1595' 3E00        2612      LD        A,00H

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1597' DD7700      2613      LD      (IX),A
159A' 3E46        2614      LD      A,046H
159C' DD7701      2615      LD      (IX+1),A
159F' CD5E15#    2616      CALL   ERROR
15A2' C38413'    2617      JP      FDRN04
15A5' DD7E01      2618 LBL22: LD      A,(IX+1)
15A8' FE0C        2619      CP      A,0CH          ; IS ARE
15AA' 2811        2620      JR      Z,LBL3
15AC' FEF2        2621 OMIT1: CP      A,0F2H          ; OMITTED
15AE' 20E1        2622      JR      NZ,LBLER1
15B0' C38413'    2623      JP      FDRN04
15B3' DD7E01      2624 STD1:  LD      A,(IX+1)
15B6' FE1D        2625      CP      A,01DH
15B8' 20D7        2626      JR      NZ,LBLER1
15BA' C38413'    2627      JP      FDRN04
15BD' CDAF0D'    2628 LBL3:  CALL   FRNOTE
15C0' DD21A725'  2629      LD      IX,NOTE
15C4' DD7E00      2630      LD      A,(IX)
15C7' FE00        2631      CP      A,00H
15C9' 2806        2632      JR      Z,OMIT
15CB' FE01        2633      CP      A,01H
15CD' 28E4        2634      JR      Z,STD1
15CF' 18C0        2635      JR      LBLER1
15D1' DD7E01      2636 OMIT:  LD      A,(IX+1)
15D4' 18D6        2637      JR      OMIT1
                2638 ;
                2639 ;
15D6' CDAF0D'    2640 DATA: CALL   FRNOTE          ; RECORD, RECORDS EXPEC
                TED
15D9' DD21A725'  2641      LD      IX,NOTE
15DD' DD7E00      2642      LD      A,(IX)
15E0' FE00        2643      CP      A,00H
15E2' 2814        2644      JR      Z,DATAX1
15E4' DD219315#  2645 DATAE1: LD      IX,ERRCD
15E8' 3E00        2646      LD      A,00H
15EA' DD7700      2647      LD      (IX),A
15ED' 3E47        2648      LD      A,047H
15EF' DD7701      2649      LD      (IX+1),A          ; INVALID DATA CLAUSE
15F2' CDA015#    2650      CALL   ERROR
15F5' C36015'    2651      JP      LBLLP1
15F8' DD7E01      2652 DATAX1: LD      A,(IX+1)
15FB' FEC0        2653      CP      A,0COH
15FD' 20E5        2654      JR      NZ,DATAE1
15FF' CDAF0D'    2655      CALL   FRNOTE          ; IS ARE
1602' DD21A725'  2656      LD      IX,NOTE
1606' DD7E00      2657      LD      A,(IX)
1609' FE00        2658      CP      A,00H
160B' 2818        2659      JR      Z,IS
160D' FEFE        2660      CP      A,0FEH
160F' 282B        2661      JR      Z,DATREC
1611' DD21E615#  2662 DTER2: LD      IX,ERRCD
1615' 3E00        2663      LD      A,00H
1617' DD7700      2664      LD      (IX),A
161A' 3E47        2665      LD      A,047H
161C' DD7701      2666      LD      (IX+1),A
161F' CDF315#    2667      CALL   ERROR
1622' C36015'    2668      JP      LBLLP1

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1625' DD7E01      2669 IS:   LD      A,(IX+1)
1628' FE0C       2670      CP      A,0CH      ; IS ARE
162A' 2802       2671      JR      Z,DATRE1
162C' 18E3       2672      JR      DTER2
162E' CDAFOD'    2673 DATRE1: CALL   FRNOTE
1631' DD21A725'  2674      LD      IX,NOTE
1635' DD7E00     2675      LD      A,(IX)
1638' FEFE       2676      CP      A,0FEH
163A' 20D5       2677      JR      NZ,DTER2
163C' DD219A27'  2678 DATREC: LD      IX,FF
1640' 3AD228'    2679      LD      A,(FFILE)
1643' FE49       2680      CP      A,'I'
1645' 2004       2681      JR      NZ,DRC01
1647' 3E12       2682      LD      A,012H      ; INPUT RECORD FLAG
1649' 1802       2683      JR      DRC01
164B' 3E13       2684 DRC01: LD      A,013H      ; OUTPUT RECORD FLAG
164D' DD7700     2685 DRC01: LD      (IX),A
1650' 3E00       2686      LD      A,00H      ; NO GROUP ADDRESS
1652' DD7701     2687      LD      (IX+1),A
1655' DD7702     2688      LD      (IX+2),A
1658' DD7703     2689      LD      (IX+3),A      ; LENGTH OF DATA HAS
165B' 3AA425'    2690      LD      A,(LENGTH) ; NOT BEEN KNOWN YET
165E' DD7704     2691      LD      (IX+4),A
1661' CDD922'    2692      CALL   TABLE      ; KEEP DATA RECORD IN T
                        ABLE
1664' CDAFOD'    2693      CALL   FRNOTE      ; NEXT DATA RECORD OR N
                        OT
1667' 3AA725'    2694      LD      A,(NOTE)
166A' FEFE       2695      CP      A,0FEH
166C' 28CE       2696      JR      Z,DATREC
166E' FE01       2697      CP      A,01H
1670' 2814       2698      JR      Z,DRPRD1
1672' DD211316#  2699 DRER01: LD      IX,ERRCD
1676' 3E00       2700      LD      A,00H
1678' DD7700     2701      LD      (IX),A
167B' 3E48       2702      LD      A,048H      ; RESERVED WORD ILLEGAL
                        USED
167D' DD7701     2703      LD      (IX+1),A
1680' CD2016#    2704      CALL   ERROR
1683' C3S015'    2705      JP      LBLLP1
1686' DD7E01     2706 DRPRD1: LD      A,(IX+1)
1689' FE8C       2707      CP      A,08CH
168B' 20E5       2708      JR      NZ,DRER01
2709 ;*****
      *****
2710 ;*
      *
2711 ;*      FILE DESCRIPTION HAS BEEN COMPLETELY DETECTED
      *
2712 ;*
      *
2713 ;*****
      *****
168D' CDAFOD'    2714 REC01: CALL   FRNOTE      ; LEVEL 01 EXPECTED
1690' 3AA725'    2715      LD      A,(NOTE)
1693' FEFE       2716      CP      A,0FEH
1695' 2837       2717      JR      Z,CHK01
    
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1697' DD217416# 2718 LD IX,ERRCD
169B' 3E00 2719 LD A,00H
169D' DD7700 2720 LD (IX),A
16A0' 3E49 2721 LD A,049H ; INVALID RESERVED WORD
DETECTED
16A2' DD7701 2722 LD (IX+1),A
16A5' CD8116# 2723 CALL ERROR
16A8' CDAF0D' 2724 RECLP1: CALL FRNOTE ; LOOP SCAN FOR PERIOD
16AB' DD21A725' 2725 LD IX,NOTE
16AF' DD7E00 2726 LD A,(IX)
16B2' FE01 2727 CP A,01H
16B4' 20F2 2728 JR NZ,RECLP1
16B6' DD7E01 2729 LD A,(IX+1)
16B9' FE8C 2730 CP A,08CH
16BB' 20EB 2731 JR NZ,RECLP1
2732 ;
2733 ; LOOK AHEAD TO SEE MULTIPLE RECORD OR NOT
2734 ;
16BD' CD4F0E' 2735 CALL AHEAD
16C0' DD21A725' 2736 LD IX,NOTE
16C4' DD7E00 2737 LD A,(IX)
16C7' FEFE 2738 CP A,0FEH
16C9' 2803 2739 JR Z,CHK01
16CB' C32512' 2740 JP DTDV10 ; NEXT ELEMENT IN DATA
DIVISION
16CE' CD0F23' 2741 CHK01: CALL CONVRT
16D1' 3AC227' 2742 LD A,(L4)
16D4' FE01 2743 CP A,01H
16D6' 2829 2744 JR Z,CHK02
16D8' DD219916# 2745 LD IX,ERRCD
16DC' 3E00 2746 LD A,00H
16DE' DD7700 2747 LD (IX),A
16E1' 3E4C 2748 LD A,04CH
16E3' DD7701 2749 LD (IX+1),A
16E6' CDA616# 2750 CALL ERROR
16E9' CDAF0D' 2751 CHK11: CALL FRNOTE
16EC' DD21A725' 2752 LD IX,NOTE
16F0' DD7E00 2753 LD A,(IX)
16F3' FE01 2754 CP A,01H
16F5' 20F2 2755 JR NZ,CHK11
16F7' DD7E01 2756 LD A,(IX+1)
16FA' FE8C 2757 CP A,08CH
16FC' 20EB 2758 JR NZ,CHK11
16FE' C32512' 2759 JP DTDV10
2760 ;
2761 ; LEVEL 01 DETECTED, NEXT TOKEN IS DATA-NAME
2762 ;
1701' 3E00 2763 CHK02: LD A,00H
1703' 32D328' 2764 LD (KTRACK),A
1706' 32D428' 2765 LD (KTRACK+1),A
1709' 3E12 2766 LD A,012H ; SEARCH INPUT RECORD
170B' CD8F24' 2767 CALL SCHTAB
170E' FE54 2768 CP A,'T'
1710' 287C 2769 JR Z,IFIL1
1712' 3E13 2770 LD A,013H ; SEARCH OUTPUT RECORD
1714' CD8F24' 2771 CALL SCHTAB
1717' FE54 2772 CP A,'T'

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1719' 2873          2773          JR          Z, IFIL1
                    2774 ; .....
                    2775 ; .....
                    2776 ; DATA RECORD CLAUSE NOT DECLARED
                    2777 ; MUST INSERT THE NEW ONE INTO TABLE
                    2778 ; .....
                    2779 ; .....
171B' CD7710'     2780          CALL        DTNAME          ; VERIFY IF IT CAN BE
171E' FE54        2781          CP          A, 'T'          ; DATANAME OR NOT
1720' 2829        2782          JR          Z, ISRTF1
1722' DD21DA16#  2783          LD          IX,ERRCD
1726' 3E00        2784          LD          A,00H
1728' DD7700     2785          LD          (IX),A
172B' 3E4D        2786          LD          A,04DH
172D' DD7701     2787          LD          (IX+1),A
1730' CDE716#    2788          CALL        ERROR
1733' CDAFOD'     2789  CHK02L: CALL        FRNOTE
1736' DD21A725'  2790          LD          IX,NOTE
173A' DD7E00     2791          LD          A,(IX)
173D' FE01        2792          CP          A,01H
173F' 20F2        2793          JR          NZ,CHK02L
1741' DD7E01     2794          LD          A,(IX+1)
1744' FE8C        2795          CP          A,08CH
1746' 20EB        2796          JR          NZ,CHK02L
1748' C32512'    2797          JP          DTDV10
174B' 3AD228'    2798  ISRTF1: LD          A,(FFILE)
174E' FE49        2799          CP          A,'I'
1750' 2804        2800          JR          Z,IFILE
1752' 3E13        2801          LD          A,013H
1754' 1802        2802          JR          IFILE2
1756' 3E12        2803  IFILE:  LD          A,012H
1758' DD219A27'  2804  IFILE2: LD          IX,FF
175C' DD7700     2805          LD          (IX),A
175F' 3E00        2806          LD          A,00H
1761' DD7701     2807          LD          (IX+1),A
1764' DD7702     2808          LD          (IX+2),A          ; NO GROUP FLAG
1767' DD7703     2809          LD          (IX+3),A
176A' 3AA425'    2810          LD          A,(LENGTH)
176D' DD7704     2811          LD          (IX+4),A
1770' 0600        2812          LD          B,00H
1772' 4F          2813          LD          C,A
1773' E5          2814          PUSH        HL
1774' D5          2815          PUSH        DE
1775' 3A8725'    2816          LD          A,(HHHH)
1778' 67          2817          LD          H,A
1779' 3A8825'    2818          LD          A,(LLLL)
177C' 6F          2819          LD          L,A
177D' 119A27'    2820          LD          DE,FF
1780' 13          2821          INC         DE
1781' 13          2822          INC         DE
1782' 13          2823          INC         DE
1783' 13          2824          INC         DE
1784' 13          2825          INC         DE
1785' EDB0        2826          LDIR
1787' D1          2827          POP         DE
1788' E1          2828          POP         HL
1789' CD5424'    2829          CALL        TRACK          ; KEEP TRACK TR

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2885 ; .....
17EF' CDAFOD' 2886 IFILE3: CALL FRNOTE ; PERIOD OR OTHER CLAUS
ES
17F2' DD21A725' 2887 LD IX,NOTE ; EXPECTED
17F6' DD7E00 2888 LD A,(IX)
17F9' FE01 2889 CP A,01H
17FB' 282E 2890 JR Z,RDFN
17FD' FE00 2891 CP A,00H
17FF' CAA818' 2892 JP Z,OTC
1802' DD21C517# 2893 IFILER: LD IX,ERRCD
1806' 3E00 2894 LD A,00H
1808' DD7700 2895 LD (IX),A
180B' 3E4F 2896 LD A,04FH
180D' DD7701 2897 LD (IX+1),A
1810' CDD217# 2898 CALL ERROR
1813' CDAFOD' 2899 IFILL1: CALL FRNOTE
1816' DD21A725' 2900 LD IX,NOTE
181A' DD7E00 2901 LD A,(IX)
181D' FE01 2902 CP A,01H
181F' 20F2 2903 JR NZ,IFILL1
1821' DD7E01 2904 LD A,(IX+1)
1824' FE8C 2905 CP A,08CH
1826' 20EB 2906 JR NZ,IFILL1
1828' C32512' 2907 JP DTDV10
182B' DD7E01 2908 RDFN: LD A,(IX+1)
182E' FE36 2909 CP 036H
1830' 2863 2910 JR Z,IFILE4
1832' FE8C 2911 CP A,08CH
1834' 20CC 2912 JR NZ,IFILER
1836' CDD922' 2913 CALL TABLE
1839' CD5424' 2914 CALL TRACK
2915 ;
2916 ;
183C' CDAFOD' 2917 CALL FRNOTE
183F' 3AA725' 2918 LD A,(NOTE)
1842' FEFE 2919 CP A,0FEH
1844' 20BC 2920 JR NZ,IFILER
1846' CD0F23' 2921 CALL CONVRT ; TO KNOW THE VALUE OF
THE TOKEN
1849' 3AC227' 2922 LD A,(L4)
184C' FE01 2923 CP A,01H ; LEVEL 01 OR NOT
184E' F2C119' 2924 JP P,LVL02
1851' DD210418# 2925 LD IX,ERRCD
1855' 3E00 2926 LD A,00H
1857' DD7700 2927 LD (IX),A
185A' 3E50 2928 LD A,050H
185C' DD7701 2929 LD (IX+1),A
185F' CD1118# 2930 CALL ERROR
1862' CDAFOD' 2931 RDFNLI: CALL FRNOTE ; UNTIL 01, FD, WORKING
-STORAGE
1865' DD21A725' 2932 LD IX,NOTE
1869' DD7E00 2933 LD A,(IX)
186C' FEFE 2934 CP A,0FEH
186E' 200D 2935 JR NZ,RDFN2
1870' CD0F23' 2936 CALL CONVRT
1873' 3AC227' 2937 LD A,(L4)
1876' FE01 2938 CP A,01H
    
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1878' CA8D16'      2939      JP      Z,RECO1
187B' 18E5        2940      JR      RDFNLI
187D' FE00        2941 RDN2:  CP      A,00H
187F' 200A        2942      JR      NZ,RDFN3
1881' DD7E01      2943      LD      A,(IX+1)
1884' FE07        2944      CP      A,07H
1886' C3BE12'    2945      JP      FDRTN
1889' 18D7        2946      JR      RDFNLI
188B' DD7E01      2947 RDN3:  LD      A,(IX+1)
188E' FE87        2948      CP      A,087H
1890' 20D0        2949      JR      NZ,RDFNLI
1892' C38C1C'    2950      JP      WORKNG      ; GO TO WORKING-STORAGE

SECTION
2951 ;
2952 ;+++++
2953 ;
1895' DD215318#  2954 IFILE4: LD      IX,ERRCD      ; REDEFINES CLAUSE
1899' 3E00        2955      LD      A,00H      ; ILLEGAL USED AT
189B' DD7700      2956      LD      (IX),A      ; LEVEL 01 IN FILE SECT

ION
189E' 3E54        2957      LD      A,054H
18A0' DD7701      2958      LD      (IX+1),A
18A3' CD6018#    2959      CALL   ERROR
18A6' 18BA        2960      JR      RDFNLI      ; UNTIL 01, FD, WORKING

-STORAGE
2961 ;
2962 ;
2963 ;@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@
2964 ;@
2965 ;@ IN FD AT 01 LEVEL..... @
2966 ;@
2967 ;@ THERE ARE CLAUSES TO BE VERIFIED @
2968 ;@
2969 ;@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@
2970 ;
18A8' 3E47        2971 OTC:  LD      A,'G'
18AA' 32A225'    2972      LD      (ITEM),A
18AD' DD7E01      2973      LD      A,(IX+1)
18B0' FE37        2974      CP      A,037H      ; PICTURE CLAUSE
18B2' CA9819'    2975      JP      Z,FDPIC
18B5' FE09        2976      CP      A,09H      ; USAGE CLAUSE
18B7' CA5E19'    2977      JP      Z,FDUSAG
18BA' FEBC        2978      CP      A,0BCH      ; OCCURS CLAUSE
18BC' CA8419'    2979      JP      Z,FDOCCR
18BF' FE43        2980      CP      A,043H      ; COMPUTATIONAL
18C1' CAEF17'    2981      JP      Z,IFILE3
18C4' FE64        2982      CP      A,064H      ; SYNCHRONIZED CLAUSE
18C6' CAEF17'    2983      JP      Z,IFILE3
18C9' FE4E        2984      CP      A,04EH      ; JUSTIFIED CLAUSE
18CB' 2969        2985      JR      Z,FDJUST
18CD' FE9C        2986      CP      A,09CH      ; VALUE CLAUSE
18CF' 2014        2987      JR      NZ,OTC01
18D1' DD219718#  2988      LD      IX,ERRCD
18D5' 3E00        2989      LD      A,00H
18D7' DD7700      2990      LD      (IX),A
18DA' 3E55        2991      LD      A,055H      ; VALUE CLAUSE PROHIBIT

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195E' CDAF0D'      3048 FDUSAG: CALL    FRNOTE
196I' 3AA725'      3049          LD      A,(NOTE)
1964' FE00         3050          CP      A,00H
1966' 2008         3051          JR      NZ,USAGER
1968' 3AA825'      3052          LD      A,(NOTE+1)
196B' FE43         3053          CP      A,043H
196D' CAEF17'      3054          JP      Z,IFILE3
1970' DD214219#    3055 USAGER: LD      IX,ERRCD
1974' 3E00         3056          LD      A,00H
1976' DD7700       3057          LD      (IX),A
1979' 3E58         3058          LD      A,058H
197B' DD7701       3059          LD      (IX+1),A
197E' CD4F19#     3060          CALL   ERROR
1981' C3EF17'      3061          JP      IFILE3
1984' DD217219#    3062 FDOCCR: LD      IX,ERRCD
1988' 3E00         3063          LD      A,00H
198A' DD7700       3064          LD      (IX),A
198D' 3E59         3065          LD      A,059H
198F' DD7701       3066          LD      (IX+1),A
1992' CD7F19#     3067          CALL   ERROR
1995' C36218'      3068          JP      RDFNL1
1998' CD5B23'      3069 FDPIC: CALL   PICTUR
199B' FE54         3070          CP      A,'T'
199D' 2814         3071          JR      Z,PICFD          ; PICTURE CLAUSE VALID
                        OR NOT
199F' DD218619#    3072          LD      IX,ERRCD
19A3' 3E00         3073          LD      A,00H
19A5' DD7700       3074          LD      (IX),A
19A8' 3E5F         3075          LD      A,05FH
19AA' DD7701       3076          LD      (IX+1),A
19AD' CD9319#     3077          CALL   ERROR
19B0' C36218'      3078          JP      RDFNL1
19B3' 3A682A'      3079 PICFD: LD      A,(PICLN)
19B6' 329D27'      3080          LD      (FF+3),A
19B9' 3E45         3081          LD      A,'E'          ; KEEP LENGTH OF DATANA
                        ME
19BB' 32A225'      3082          LD      (ITEM),A
19BE' C3EF17'      3083          JP      IFILE3
3084 ;
3085 ;***** END LEVEL 01 IN FILE SECTION *****
*****
3086 ;
3087 ; NEXT CHECK FOR LEVEL 02-49, 66, 88
3088 ;
19C1' FE42         3089 LVL02: CP      A,066          ; LEVEL 66 RENAMES CLAU
                        SE
19C3' 282E         3090          JR      Z,FD66
19C5' FE58         3091          CP      A,088          ; LEVEL 88 CONDITION NA
                        ME
19C7' 283D         3092          JR      Z,FD88
19C9' FE32         3093          CP      A,50          ; MUST LESS THAN 50
19CB' FAC31A'      3094          JP      M,LVL021
19CE' DD21A119#    3095          LD      IX,ERRCD
19D2' 3E00         3096          LD      A,00H
19D4' DD7700       3097          LD      (IX),A
19D7' 3E5A         3098          LD      A,05AH
19D9' DD7701       3099          LD      (IX+1),A

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19DC' CDAE19#      3100          CALL   ERROR
19DF' CDAF0D'      3101 LVLLER: CALL   FRNOTE
19E2' 3AA725'      3102          LD     A,(NOTE)
19E5' FE01         3103          CP     A,01H
19E7' 20F6         3104          JR     NZ,LVLLER
19E9' 3AA825'      3105          LD     A,(NOTE+1)
19EC' FE8C         3106          CP     A,08CH
19EE' 20EF         3107          JR     NZ,LVLLER
19F0' C3EF17'      3108          JP     IFIE3
19F3' DD21D019#    3109 FD66:  LD     IX,ERRCD
19F7' 3E00         3110          LD     A,00H
19F9' DD7700       3111          LD     (IX),A
19FC' 3E5B         3112          LD     A,05BH
19FE' DD7701       3113          LD     (IX+1),A      ; LEVEL 66 DOSE NOTE SU
                        REPORT
1A01' CDDD19#      3114          CALL   ERROR
1A04' 18D9         3115          JR     LVLLER
1A06' 3AC227'      3116 FD88:  LD     A,(L4)      ; TO SEE ELEMENTARY OR
                        GROUP
1A09' FE45         3117          CP     A,'E'
1A0B' 2813         3118          JR     Z,FD8800
1A0D' DD21F519#    3119          LD     IX,ERRCD
1A11' 3E00         3120          LD     A,00H
1A13' DD7700       3121          LD     (IX),A
1A16' 3E5C         3122          LD     A,05CH
1A18' DD7701       3123          LD     (IX+1),A
1A1B' CD021A#      3124          CALL   ERROR
1A1E' 18BF         3125          JR     LVLLER
                        3126 ;
1A20' CDAF0D'      3127 FD8800: CALL   FRNOTE
1A23' 3AA725'      3128          LD     A,(NOTE)
1A26' FEFE         3129          CP     A,0FEH
1A28' 2813         3130          JR     Z,FD8810
1A2A' DD210F1A#    3131          LD     IX,ERRCD
1A2E' 3E00         3132          LD     A,00H
1A30' DD7700       3133          LD     (IX),A
1A33' 3E5D         3134          LD     A,05DH
1A35' DD7701       3135          LD     (IX+1),A
1A38' CD1C1A#      3136          CALL   ERROR
1A3B' 18A2         3137          JR     LVLLER
1A3D' CD7710'      3138 FD8810: CALL   DTNAME
1A40' FE54         3139          CP     A,'T'
1A42' 2814         3140          JR     Z,FD8801
1A44' DD212C1A#    3141          LD     IX,ERRCD
1A48' 3E00         3142          LD     A,00H
1A4A' DD7700       3143          LD     (IX),A
1A4D' 3E5D         3144          LD     A,05DH
1A4F' DD7701       3145          LD     (IX+1),A
1A52' CD391A#      3146          CALL   ERROR      ; INVALID CONDITION NAM
                        E
1A55' C36218'      3147          JP     RDFNLI
1A58' 3E04         3148 FD8801: LD     A,04H      ; CONDITION NAME FLAG
1A5A' 329A27'      3149          LD     (FF),A
1A5D' 3E00         3150          LD     A,00H
1A5F' 329B27'      3151          LD     (FF+1),A
1A62' 329C27'      3152          LD     (FF+2),A
1A65' 329D27'      3153          LD     (FF+3),A

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1A68' 3AA425'      3154      LD      A, (LENGTH)
1A6B' 329E27'      3155      LD      (FF+4), A      ; LENGTH OF DATANAME
1A6E' 0600         3156      LD      B, 00H
1A70' 4F           3157      LD      C, A
1A71' E5           3158      PUSH   HL
1A72' D5           3159      PUSH   DE
1A73' 119A27'     3160      LD      DE, FF
1A76' 13           3161      INC    DE
1A77' 13           3162      INC    DE
1A78' 13           3163      INC    DE
1A79' 13           3164      INC    DE
1A7A' 13           3165      INC    DE
1A7B' 3A8725'     3166      LD      A, (HHHH)
1A7E' 67           3167      LD      H, A
1A7F' 3A8825'     3168      LD      A, (LLLL)
1A82' 6F           3169      LD      L, A
1A83' EDB0        3170      LDIR                   ; STORE CONDITION NAME
1A85' D1           3171      POP    DE
1A86' E1           3172      POP    HL
1A87' CDAF0D'     3173      CALL  FRNOTE          ; MUST BE VALUE
1A8A' 3AA725'     3174      LD      A, (NOTE)
1A8D' FE00        3175      CP     A, 00H
1A8F' 2B14        3176      JR     Z, FD8802
1A91' DD21461A#   3177  FD88ER: LD      IX, ERRCD
1A95' 3E00        3178      LD      A, 00H
1A97' DD7700      3179      LD      (IX), A
1A9A' 3E5E        3180      LD      A, 05EH
1A9C' DD7701      3181      LD      (IX+1), A
1A9F' CD531A#    3182      CALL  ERROR
1AA2' C36218'     3183      JP     RDFNLI
1AA5' 3AA825'     3184  FD8802: LD      A, (NOTE+1)
1AA8' FE9C        3185      CP     A, 09CH
1AAA' 20E5        3186      JR     NZ, FD88ER
1AAC' CDAF0D'     3187  FD88L2: CALL  FRNOTE
1AAF' 3AA725'     3188      LD      A, (NOTE)
1AB2' FE01        3189      CP     A, 01H
1AB4' 20F6        3190      JR     NZ, FD88L2
1AB6' 3AA825'     3191      LD      A, (NOTE+1)
1AB9' FE8C        3192      CP     A, 08CH
1ABB' 20EF        3193      JR     NZ, FD88L2
1ABD' CDD922'     3194      CALL  TABLE          ; KEEP CONDITION-NAME I
                                N
1AC0' C3EF17'     3195      JP     IFILE3          ; SYMBOL TABLE
                                3196 ; .....
                                3197 ;     END OF LEVEL 88
                                3198 ;     LVL021 : CHECK LEVEL 02-49 AND KEEP DATANAME
                                3199 ; .....
                                3200 ;
1AC3' 3AA225'     3201  LVL021: LD      A, (ITEM)
1AC6' FE45        3202      CP     A, 'E'          ; TO SEE ELEMENTARY OR
                                GROUP
1AC8' 2013        3203      JR     NZ, LVL022      ; GROUP
1ACA' DD21931A#   3204      LD      IX, ERRCD
1ACE' 3E00        3205      LD      A, 00H
1AD0' DD7700      3206      LD      (IX), A
1AD3' 3E5F        3207      LD      A, 05FH
1AD5' DD7701      3208      LD      (IX+1), A

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1AD8' CDA01A#      3209      CALL      ERROR
1ADB' 18CF         3210      JR          FD88L2
1ADD' CDAF0D'     3211 LVL022: CALL      FRNOTE      ; DATANAME EXPECTED
1AE0' 3AA725'     3212      LD          A,(NOTE)
1AE3' FEFE         3213      CP          A,0FEH
1AE5' 2813         3214      JR          Z,LVL023
1AE7' DD21CC1A#   3215      LD          IX,ERRCD
1AEB' 3E00         3216      LD          A,00H
1AED' DD7700      3217      LD          (IX),A
1AF0' 3E51         3218      LD          A,051H      ; RESERVED WORD AS DATA

NAME
1AF2' DD7701      3219      LD          (IX+1),A
1AF5' CDD91A#    3220      CALL      ERROR
1AF8' 18B2         3221      JR          FD88L2
1AFA' CD7710'     3222 LVL023: CALL      DTNAME      ; SEE IF IT CAN BE DATA
NAME

1AFD' FE54        3223      CP          A,'T'
1AFF' 2814         3224      JR          Z,LVL024
1B01' DD21E91A#  3225      LD          IX,ERRCD
1B05' 3E00         3226      LD          A,00H
1B07' DD7700      3227      LD          (IX),A
1B0A' 3E51         3228      LD          A,051H
1B0C' DD7701      3229      LD          (IX+1),A
1B0F' CDF61A#    3230      CALL      ERROR
1B12' C36218'     3231      JP          RDFNLI
3232 ; LVL024:    CALL      GROUP
1B15' 3E06        3233 LVL024: LD          A,06H
1B17' 329A27'     3234      LD          (FF),A
1B1A' 3A0529'     3235      LD          A,(ADDR)
1B1D' 329B27'     3236      LD          (FF+1),A
1B20' 3A0629'     3237      LD          A,(ADDR+1)
1B23' 329C27'     3238      LD          (FF+2),A
1B26' 3E00         3239      LD          A,00H
1B28' 329D27'     3240      LD          (FF+3),A
1B2B' 3AA425'     3241      LD          A,(LENGTH)
1B2E' 329E27'     3242      LD          (FF+4),A
1B31' E5           3243      PUSH      HL
1B32' D5           3244      PUSH      DE
1B33' 0600        3245      LD          B,00H
1B35' 4F           3246      LD          C,A
1B36' 3A8725'     3247      LD          A,(HHHH)
1B39' 67           3248      LD          H,A
1B3A' 3A8825'     3249      LD          A,(LLLL)
1B3D' 6F           3250      LD          L,A
1B3E' 119A27'     3251      LD          DE,FF
1B41' 13           3252      INC       DE
1B42' 13           3253      INC       DE
1B43' 13           3254      INC       DE
1B44' 13           3255      INC       DE
1B45' 13           3256      INC       DE
1B46' EDB0        3257      LDIR
1B48' D1           3258      POP       DE
1B49' E1           3259      POP       HL
1B4A' CDAF0D'     3260      CALL      FRNOTE
1B4D' 3AA725'     3261      LD          A,(NOTE)
1B50' FE01        3262      CP          A,01H
1B52' 2807        3263      JR          Z,RDFN02
    
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1B54'	FE00	3264	CP	A,00H	
1B56'	2827	3265	JR	Z,OTC002	
1B58'	C30218'	3266	JP	IFILER	
1B5B'	3AA825'	3267	RDFNO2: LD	A,(NOTE+1)	
1B5E'	FE36	3268	CP	A,036H	; REDEFINES CLAUSE
1B60'	CA9518'	3269	JP	Z,IFILE4	
1B63'	FE8C	3270	CP	A,08CH	
1B65'	C20218'	3271	JP	NZ,IFILER	
1B68'	CDD922'	3272	CALL	TABLE	
1B6B'	CD5424'	3273	CALL	TRACK	
1B6E'	3AA725'	3274	LD	A,(NOTE)	
1B71'	CD0F23'	3275	CALL	CONVRT	
1B74'	3AC227'	3276	LD	A,(L4)	
1B77'	FE01	3277	CP	A,01H	
1B79'	F2C119'	3278	JP	P,LVL02	
1B7C'	C30117'	3279	JP	CHK02	
1B7F'	3E47	3280	OTC002: LD	A,'G'	
1B81'	32A225'	3281	LD	(ITEM),A	
1B84'	DD7E01	3282	LD	A,(IX+1)	
1B87'	FE37	3283	CP	A,037H	; PICTURE CLAUSE
1B89'	CA631C'	3284	JP	Z,FFDPIC	
1B8C'	FE09	3285	CP	A,09H	; USAGE CLAUSE
1B8E'	CA351C'	3286	JP	Z,FFDUSA	
1B91'	FEBC	3287	CP	A,0BCH	; OCCURS CLAUSE
1B93'	CA5B1C'	3288	JP	Z,FFDOCC	
1B96'	FE43	3289	CP	A,043H	; COMPUTATIONAL
1B98'	CAEF17'	3290	JP	Z,IFILE3	
1B9B'	FE64	3291	CP	A,064H	; SYNCHRONIZED CLAUSE
1B9D'	CAEF17'	3292	JP	Z,IFILE3	
1BA0'	FE4E	3293	CP	A,04EH	; JUSTIFIED CLAUSE
1BA2'	2869	3294	JR	Z,FFDJUS	
1BA4'	FE9C	3295	CP	A,09CH	; VALUE CLAUSE
1BA6'	2014	3296	JR	NZ,OTC001	
1BA8'	DD21031B#	3297	LD	IX,ERRCD	
1BAC'	3E00	3298	LD	A,00H	
1BAE'	DD7700	3299	LD	(IX),A	
1BB1'	3E55	3300	LD	A,055H	; VALUE CLAUSE PROHIBIT
			TED		
1BB3'	DD7701	3301	LD	(IX+1),A	
1BB6'	CD101B#	3302	CALL	ERROR	
1BB9'	C36218'	3303	JP	RDFNLI	
1BBC'	FE75	3304	OTC001: CP	A,075H	; BLANK WHEN ZERO CLAUS
			E		
1BBE'	2814	3305	JR	Z,FOTC02	
1BC0'	DD21AA1B#	3306	LD	IX,ERRCD	
1BC4'	3E00	3307	LD	A,00H	
1BC6'	DD7700	3308	LD	(IX),A	
1BC9'	3E53	3309	LD	A,053H	
1BCB'	DD7701	3310	LD	(IX+1),A	
1BCE'	CDB71B#	3311	CALL	ERROR	
1BD1'	C36218'	3312	JP	RDFNLI	
1BD4'	CDAF0D'	3313	FOTC02: CALL	FRNOTE	; WHEN ZERO EXPECTED
1BD7'	3AA725'	3314	LD	A,(NOTE)	
1BDA'	FE00	3315	CP	A,00H	
1BDC'	200C	3316	JR	NZ,FOTCE2	
1BDE'	3AA825'	3317	LD	A,(NOTE+1)	
1BE1'	FE6E	3318	CP	A,06EH	


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1CF4' CDDBIC#          3430          CALL    ERROR
1CF7' CDAF0D'         3431 WRK02L: CALL    FRNOTE
1CFA' 3AA725'         3432          LD      A, (NOTE)
1CFD' FE01            3433          CP      A, 01H
1CFF' 20F6            3434          JR      NZ, WRK02L
1D01' 3AA825'         3435          LD      A, (NOTE+1)
1D04' FE8C            3436          CP      A, 08CH
1D06' 20EF            3437          JR      NZ, WRK02L
1D08' CDAF0D'         3438 WREC01: CALL    FRNOTE          ; LEVEL 01 EXPECTED
1D0B' 3AA725'         3439          LD      A, (NOTE)
1D0E' FEFE            3440          CP      A, 0FEH
1D10' 2826            3441          JR      Z, WCHK01
1D12' DD21E81C#      3442          LD      IX, ERRCD
1D16' 3E00            3443          LD      A, 00H
1D18' DD7700          3444          LD      (IX), A
1D1B' 3E49            3445          LD      A, 049H          ; INVALID RESERVED WORD
                        DETECTED
1D1D' DD7701          3446          LD      (IX+1), A
1D20' CDF51C#        3447          CALL    ERROR
1D23' CDAF0D'         3448 WECLP1: CALL    FRNOTE          ; LOOP SCAN FOR PERIOD
1D26' DD21A725'      3449          LD      IX, NOTE
1D2A' DD7E00          3450          LD      A, (IX)
1D2D' FE01            3451          CP      A, 01H
1D2F' 20F2            3452          JR      NZ, WECLP1
1D31' DD7E01          3453          LD      A, (IX+1)
1D34' FE8C            3454          CP      A, 08CH
1D36' 20EB            3455          JR      NZ, WECLP1
1D38' CD0F23'         3456 WCHK01: CALL    CONVRT
1D3B' 3AC227'         3457          LD      A, (L4)
1D3E' FE01            3458          CP      A, 01H
1D40' 2829            3459          JR      Z, WCHK02
1D42' DD21141D#      3460          LD      IX, ERRCD
1D46' 3E00            3461          LD      A, 00H
1D48' DD7700          3462          LD      (IX), A
1D4B' 3E4C            3463          LD      A, 04CH
1D4D' DD7701          3464          LD      (IX+1), A
1D50' CD211D#        3465          CALL    ERROR
1D53' CDAF0D'         3466 WCHKL1: CALL    FRNOTE
1D56' DD21A725'      3467          LD      IX, NOTE
1D5A' DD7E00          3468          LD      A, (IX)
1D5D' FE01            3469          CP      A, 01H
1D5F' 20F2            3470          JR      NZ, WCHKL1
1D61' DD7E01          3471          LD      A, (IX+1)
1D64' FE8C            3472          CP      A, 08CH
1D66' 20EB            3473          JR      NZ, WCHKL1
1D68' C32512'         3474          JP      DTDV10
3475 ;
3476 ;          LEVEL 01 DETECTED, NEXT TOKEN IS DATA-NAME
3477 ;
1D6B' CD7710'         3478 WCHK02: CALL    DTNAME          ; VERIFY IF IT CAN BE
1D6E' FE54            3479          CP      A, 'T'          ; DATANAME OR NOT
1D70' 2829            3480          JR      Z, WSRTF1
1D72' DD21441D#      3481          LD      IX, ERRCD
1D76' 3E00            3482          LD      A, 00H
1D78' DD7700          3483          LD      (IX), A
1D7B' 3E4D            3484          LD      A, 04DH
1D7D' DD7701          3485          LD      (IX+1), A

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1D80' CD511D#      3486          CALL   ERROR
1D83' CDAF0D'     3487 WHK02L: CALL   FRNOTE
1D86' DD21A725'   3488          LD     IX,NOTE
1D8A' DD7E00      3489          LD     A,(IX)
1D8D' FE01        3490          CP     A,01H
1D8F' 20F2        3491          JR     NZ,WHK02L
1D91' DD7E01      3492          LD     A,(IX+1)
1D94' FE8C        3493          CP     A,0BCH
1D96' 20EB        3494          JR     NZ,WHK02L
1D98' C32512'    3495          JP     DTDV10
1D9B' 3AD228'    3496 WSRTF1: LD     A,(FFILE)
1D9E' FE49        3497          CP     A,'I'
1DA0' 2804        3498          JR     Z,WIFILE
1DA2' 3E13        3499          LD     A,013H
1DA4' 1802        3500          JR     WFILE2
1DA6' 3E12        3501 WIFILE: LD     A,012H
1DA8' DD219A27'  3502 WFILE2: LD     IX,FF
1DAC' DD7700      3503          LD     (IX),A
1DAF' 3E00        3504          LD     A,00H
1DB1' DD7701      3505          LD     (IX+1),A
1DB4' DD7702      3506          LD     (IX+2),A           ; NO GROUP FLAG
1DB7' DD7703      3507          LD     (IX+3),A
1DBA' 3AA425'    3508          LD     A,(LENGTH)
1DBD' DD7704      3509          LD     (IX+4),A
1DC0' 0600        3510          LD     B,00H
1DC2' 4F          3511          LD     C,A
1DC3' E5          3512          PUSH  HL
1DC4' D5          3513          PUSH  DE
1DC5' 3A8725'    3514          LD     A,(HHHH)
1DC8' 67          3515          LD     H,A
1DC9' 3A8825'    3516          LD     A,(LLLL)
1DCC' 6F          3517          LD     L,A
1DCD' 119A27'    3518          LD     DE,FF
1DD0' 13          3519          INC   DE
1DD1' 13          3520          INC   DE
1DD2' 13          3521          INC   DE
1DD3' 13          3522          INC   DE
1DD4' 13          3523          INC   DE
1DD5' EDB0        3524          LDIR
1DD7' D1          3525          POP   DE
1DD8' E1          3526          POP   HL
1DD9' CD5424'    3527          CALL  TRACK           ; KEEP TRACK TR

                                ACK-TABLE
1DDC' 185E        3528          JR     WFILE3
                                3529 ;
                                3530 ; SEARCH FOUND DATA RECORD CLAUSE
                                3531 ;
1DDE' E5          3532 WIFIL1: PUSH  HL
1DDF' D5          3533          PUSH  DE
1DE0' C5          3534          PUSH  BC
1DE1' 3A8925'    3535          LD     A,(KH)
1DE4' 67          3536          LD     H,A
1DE5' 3A8A25'    3537          LD     A,(KL)
1DE8' 6F          3538          LD     L,A           ; HL POINT RECORD NAME
1DE9' 3A8725'    3539          LD     A,(HHHH)     ; IN SYMBOL TABLE
1DEC' 57          3540          LD     D,A
1DED' 3A8825'    3541          LD     A,(LLLL)

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1DF0' 5F          3542      LD      E,A
1DF1' 3AA425'    3543      LD      A,(LENGTH)
1DF4' 47          3544      LD      B,A
1DF5' CDA917#    3545      CALL   COMPAR
1DF8' FE54       3546      CP      A,'T'
1DFA' 2014       3547      JR      NZ,WFILE01
1DFC' 3A8925'    3548      LD      A,(KH)
1DFF' 32D328'    3549      LD      (KTRACK),A
1E02' 3A8A25'    3550      LD      A,(KL)
1E05' 32D428'    3551      LD      (KTRACK+1),A      ; KEEP TRACK KEEP-TRACK

                                TABLE
1E08' CD5424'    3552      CALL   TRACK
1E0B' C1         3553      POP    BC
1E0C' D1         3554      POP    DE
1E0D' E1         3555      POP    HL
1E0E' 1898       3556      JR      WFILE2
1E10' DD21741D# 3557 WFILE01: LD      IX,ERRCD
1E14' 3E00       3558      LD      A,00H
1E16' DD7700     3559      LD      (IX),A
1E19' 3E4E       3560      LD      A,04EH
1E1B' DD7701     3561      LD      (IX+1),A
1E1E' CD811D#    3562      CALL   ERROR
1E21' CDAF0D'    3563 WFILE01: CALL   FRNOTE
1E24' DD21A725' 3564      LD      IX,NOTE
1E28' DD7E00     3565      LD      A,(IX)
1E2B' FE01       3566      CP      A,01H
1E2D' 20F2       3567      JR      NZ,WFILE01
1E2F' DD7E01     3568      LD      A,(IX+1)
1E32' FE8C       3569      CP      A,08CH
1E34' 20EB       3570      JR      NZ,WFILE01
1E36' C1         3571      POP    BC
1E37' D1         3572      POP    DE
1E38' E1         3573      POP    HL
1E39' C32512'    3574      JP      DTDV10
3575 ; .....
3576 ;
3577 ; DATA RECORD HAS BEEN DETECTED, NEXT TOKEN
3578 ; PERIOD OR OTHER CLAUSES EXPECTED.
3579 ; .....
1E3C' CDAF0D'    3580 WFILE3: CALL   FRNOTE      ; PERIOD OR OTHER CLAUS
                                ES
1E3F' DD21A725' 3581      LD      IX,NOTE      ; EXPECTED
1E43' DD7E00     3582      LD      A,(IX)
1E46' FE01       3583      CP      A,01H
1E48' 282E       3584      JR      Z,WRDFN
1E4A' FE00       3585      CP      A,00H
1E4C' CAF51E'    3586      JP      Z,WOTC
1E4F' DD21121E# 3587 WFILE1: LD      IX,ERRCD
1E53' 3E00       3588      LD      A,00H
1E55' DD7700     3589      LD      (IX),A
1E58' 3E4F       3590      LD      A,04FH
1E5A' DD7701     3591      LD      (IX+1),A
1E5D' CD1F1E#    3592      CALL   ERROR
1E60' CDAF0D'    3593 WFILE11: CALL   FRNOTE
1E63' DD21A725' 3594      LD      IX,NOTE
1E67' DD7E00     3595      LD      A,(IX)
1E6A' FE01       3596      CP      A,01H

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1EGC' 20F2          3597      JR      NZ,WFILL1
1EGE' DD7E01       3598      LD      A,(IX+1)
1E71' FE8C         3599      CP      A,08CH
1E73' 20EB         3600      JR      NZ,WFILL1
1E75' C32512'     3601      JP      DTDV10
1E78' DD7E01       3602 WRDFN: LD      A,(IX+1)
1E7B' FE36         3603      CP      036H
1E7D' 2863         3604      JR      Z,WFILE4
1E7F' FE8C         3605      CP      A,08CH
1E81' 20CC         3606      JR      NZ,WFILER
1E83' CDD922'     3607      CALL   TABLE
1E86' CD5424'     3608      CALL   TRACK
3609 ;
3610 ;
1E89' CDAF0D'     3611      CALL   FRNOTE
1E8C' 3AA725'     3612      LD      A,(NOTE)
1E8F' FEFE         3613      CP      A,0FEH
1E91' 20BC         3614      JR      NZ,WFILER
1E93' CD0F23'     3615      CALL   CONVRT          ; TO KNOW THE VALUE OF
                          THE TOKEN
1E96' 3AC227'     3616      LD      A,(L4)
1E99' FE01         3617      CP      A,01H          ; LEVEL 01 OR NOT
1E9B' F20E20'     3618      JP      P,WLV102
1E9E' DD21511E#   3619      LD      IX,ERRCD
1EA2' 3E00         3620      LD      A,00H
1EA4' DD7700       3621      LD      (IX),A
1EA7' 3E50         3622      LD      A,050H
1EA9' DD7701       3623      LD      (IX+1),A
1EAC' CD5E1E#     3624      CALL   ERROR
1EAF' CDAF0D'     3625 WDFNL1: CALL   FRNOTE          ; UNTIL 01, FD, WORKING
                          -STORAGE
1EB2' DD21A725'   3626      LD      IX,NOTE
1EB6' DD7E00       3627      LD      A,(IX)
1EB9' FEFE         3628      CP      A,0FEH
1EBB' 200D         3629      JR      NZ,WRDFN2
1EBD' CD0F23'     3630      CALL   CONVRT
1ECO' 3AC227'     3631      LD      A,(L4)
1EC3' FE01         3632      CP      A,01H
1EC5' CA081D'     3633      JP      Z,WREC01
1EC8' 18E5         3634      JR      WDFNL1
1ECA' FE00         3635 WRDFN2: CP      A,00H
1ECC' 200A         3636      JR      NZ,WRDFN3
1ECE' DD7E01       3637      LD      A,(IX+1)
1ED1' FE07         3638      CP      A,07H
1ED3' CABE12'     3639      JP      Z,FDRTN
1ED6' 18D7         3640      JR      WDFNL1
1ED8' DD7E01       3641 WRDFN3: LD      A,(IX+1)
1EDB' FE87         3642      CP      A,087H
1EDD' 20D0         3643      JR      NZ,WDFNL1
1EDF' C38C1C'     3644      JP      WORKNG          ; GO TO WORKING-STORAGE
                          SECTION
3645 ;
3646 ;+++++++
3647 ;
1EE2' DD21A01E#   3648 WFILE4: LD      IX,ERRCD          ; REDEFINES CLAUSE
1EE6' 3E00         3649      LD      A,00H          ; ILLEGAL USED AT
1EE8' DD7700       3650      LD      (IX),A          ; LEVEL 01 IN FILE SECT
    
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                                ION
1EEB' 3E54          3651      LD      A,054H
1EED' DD7701       3652      LD      (IX+1),A
1EFO' CDAD1E#     3653      CALL   ERROR
1EF3' 18BA        3654      JR      WDFNL1          ; UNTIL 01, FD, WORKING

-STORAGE
3655 ;
3656 ;
3657 ;@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@
3658 ;@
3659 ;@ IN FD AT 01 LEVEL..... @
3660 ;@
3661 ;@ THERE ARE CLAUSES TO BE VERIFIED @
3662 ;@
3663 ;@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@
3664 ;
1EF5' 3E47        3665 WOTC:  LD      A,'G'
1EF7' 32A225'    3666      LD      (ITEM),A
1EFA' DD7E01     3667      LD      A,(IX+1)
1EFD' FE37       3668      CP      A,037H          ; PICTURE CLAUSE
1EFF' CAE51F'    3669      JP      Z,WWDPIC
1F02' FE09       3670      CP      A,09H          ; USAGE CLAUSE
1F04' CAAB1F'    3671      JP      Z,WDUSAG
1F07' FEBC       3672      CP      A,0BCH          ; OCCURS CLAUSE
1F09' CAD11F'    3673      JP      Z,WDOCCR
1F0C' FE43       3674      CP      A,043H          ; COMPUTATIONAL
1FOE' CA3C1E'    3675      JP      Z,WFILE3
1F11' FE64       3676      CP      A,064H          ; SYNCHRONIZED CLAUSE
1F13' CA3C1E'    3677      JP      Z,WFILE3
1F16' FE4E       3678      CP      A,04EH          ; JUSTIFIED CLAUSE
1F18' 2869       3679      JR      Z,WDJUST
1F1A' FE9C       3680      CP      A,09CH          ; VALUE CLAUSE
1F1C' 2014       3681      JR      NZ,WOTC01
1F1E' DD21E41E# 3682      LD      IX,ERRCD
1F22' 3E00       3683      LD      A,00H
1F24' DD7700     3684      LD      (IX),A
1F27' 3E55       3685      LD      A,055H          ; VALUE CLAUSE PROHIBIT

                                TED
1F29' DD7701     3686      LD      (IX+1),A
1F2C' CDF11E#    3687      CALL   ERROR
1F2F' C3AF1E'    3688      JP      WDFNL1
1F32' FE75       3689 WOTC01: CP      A,075H          ; BLANK WHEN ZERO CLAUS

                                E
1F34' 2814       3690      JR      Z,WWTC02
1F36' DD21201F# 3691      LD      IX,ERRCD
1F3A' 3E00       3692      LD      A,00H
1F3C' DD7700     3693      LD      (IX),A
1F3F' 3E53       3694      LD      A,053H
1F41' DD7701     3695      LD      (IX+1),A
1F44' CD2D1F#    3696      CALL   ERROR
1F47' C3AF1E'    3697      JP      WDFNL1
1F4A' CDAF0D'    3698 WWTC02: CALL   FRNOTE          ; WHEN ZERO EXPECTED
1F4D' 3AA725'    3699      LD      A,(NOTE)
1F50' FE00       3700      CP      A,00H
1F52' 200C       3701      JR      NZ,WTCE02
1F54' 3AA825'    3702      LD      A,(NOTE+1)
1F57' FE6E       3703      CP      A,06EH

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1FDF' CDCC1F#      3761      CALL      ERROR
1FE2' C3AF1E'     3762      JP        WDFNLI
1FE5' CD5B23'     3763  WWDPIC: CALL    PICTUR
1FE8' FE54        3764      CP        A,'T'
1FEA' 2814        3765      JR        Z,WPICWD      ; PICTURE CLAUS
                        E VALID OR NOT
1FEC' DD21D31F#   3766      LD        IX,ERRCD
1FF0' 3E00        3767      LD        A,00H
1FF2' DD7700      3768      LD        (IX),A
1FF5' 3E5F        3769      LD        A,05FH
1FF7' DD7701      3770      LD        (IX+1),A
1FFA' CDE01F#     3771      CALL      ERROR
1FFD' C3AF1E'     3772      JP        WDFNLI
2000' 3A682A'     3773  WPICWD: LD        A,(PICLN)
2003' 329D27'     3774      LD        (FF+3),A
2006' 3E45        3775      LD        A,'E'      ; KEEP LENGTH OF DATANA
                        ME
2008' 32A225'     3776      LD        (ITEM),A
200B' C33C1E'     3777      JP        WFILE3
3778 ;
3779 ;***** END LEVEL 01 IN FILE SECTION *****
3780 ;
3781 ; NEXT CHECK FOR LEVEL 02-49, 66, 88
3782 ;
200E' FE42        3783  WLVL02: CP        A,066      ; LEVEL 66 RENAMES CLAU
                        SE
2010' 282E        3784      JR        Z,WFD66
2012' FE58        3785      CP        A,088      ; LEVEL 88 CONDITION NA
                        ME
2014' 283D        3786      JR        Z,WFD88
2016' FE32        3787      CP        A,50      ; MUST LESS THAN 50
2018' FA1021'     3788      JP        M,WVL021
201B' DD21EE1F#   3789      LD        IX,ERRCD
201F' 3E00        3790      LD        A,00H
2021' DD7700      3791      LD        (IX),A
2024' 3E5A        3792      LD        A,05AH
2026' DD7701      3793      LD        (IX+1),A
2029' CDFB1F#     3794      CALL      ERROR
202C' CDAF0D'     3795  WVLLER: CALL    FRNOTE
202F' 3AA725'     3796      LD        A,(NOTE)
2032' FE01        3797      CP        A,01H
2034' 20F6        3798      JR        NZ,WVLLER
2036' 3AA825'     3799      LD        A,(NOTE+1)
2039' FE8C        3800      CP        A,08CH
203B' 20EF        3801      JR        NZ,WVLLER
203D' C33C1E'     3802      JP        WFILE3
2040' DD211D20#   3803  WFD66: LD        IX,ERRCD
2044' 3E00        3804      LD        A,00H
2046' DD7700      3805      LD        (IX),A
2049' 3E5B        3806      LD        A,05BH
204B' DD7701      3807      LD        (IX+1),A      ; LEVEL 66 DOSE NOTE SU
                        PPORT
204E' CD2A20#     3808      CALL      ERROR
2051' 18D9        3809      JR        WVLLER
2053' 3AC227'     3810  WFD88: LD        A,(L4)      ; TO SEE ELEMENTARY OR
                        GROUP

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2056' FE45          3811          CP          A, 'E'
2058' 2813          3812          JR          Z, WD8800
205A' DD214220#    3813          LD          IX, ERRCD
205E' 3E00          3814          LD          A, 00H
2060' DD7700        3815          LD          (IX), A
2063' 3E5C          3816          LD          A, 05CH
2065' DD7701        3817          LD          (IX+1), A
2068' CD4F20#      3818          CALL        ERROR
206H' 18BF          3819          JR          WVLLER
                3820 ;
206D' CDAF0D'      3821 WD8800: CALL        FRNOTE
2070' 3AA725'      3822          LD          A, (NOTE)
2073' FEFE          3823          CP          A, 0FEH
2075' 2813          3824          JR          Z, WD8810
2077' DD215C20#    3825          LD          IX, ERRCD
207B' 3E00          3826          LD          A, 00H
207D' DD7700        3827          LD          (IX), A
2080' 3E5D          3828          LD          A, 05DH
2082' DD7701        3829          LD          (IX+1), A
2085' CD6920#      3830          CALL        ERROR
2088' 18A2          3831          JR          WVLLER
208A' CD7710'      3832 WD8810: CALL        DTNAME
208D' FE54          3833          CP          A, 'T'
208F' 2814          3834          JR          Z, WD8801
2091' DD217920#    3835          LD          IX, ERRCD
2095' 3E00          3836          LD          A, 00H
2097' DD7700        3837          LD          (IX), A
209A' 3E5D          3838          LD          A, 05DH
209C' DD7701        3839          LD          (IX+1), A
209F' CD8620#      3840          CALL        ERROR ; INVALID CONDITION NAM
                E
20A2' C3AF1E'      3841          JP          WDFNLI
20A5' 3E04          3842 WD8801: LD          A, 04H ; CONDITION NAME FLAG
20A7' 329A27'      3843          LD          (FF), A
20AA' 3E00          3844          LD          A, 00H
20AC' 329B27'      3845          LD          (FF+1), A
20AF' 329C27'      3846          LD          (FF+2), A
20B2' 329D27'      3847          LD          (FF+3), A
20B5' 3AA425'      3848          LD          A, (LENGTH)
20B8' 329E27'      3849          LD          (FF+4), A ; LENGTH OF DATANAME
20BB' 0600          3850          LD          B, 00H
20BD' 4F            3851          LD          C, A
20BE' E5            3852          PUSH        HL
20BF' D5            3853          PUSH        DE
20C0' 119A27'      3854          LD          DE, FF
20C3' 13            3855          INC         DE
20C4' 13            3856          INC         DE
20C5' 13            3857          INC         DE
20C6' 13            3858          INC         DE
20C7' 13            3859          INC         DE
20C8' 3A8725'      3860          LD          A, (HHHH)
20CB' 67            3861          LD          H, A
20CC' 3A8825'      3862          LD          A, (LLL)
20CF' 6F            3863          LD          L, A
20D0' EDB0          3864          LDIR ; STORE CONDITION NAME
20D2' D1            3865          POP         DE
20D3' E1            3866          POP         HL

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20D4' CDAF0D'      3867          CALL    FRNOTE          ; MUST BE VALUE
20D7' 3AA725'      3868          LD      A, (NOTE)
20DA' FE00         3869          CP      A, 00H
20DC' 2814         3870          JR      Z, WD8802
20DE' DD219320#   3871 WD88EH: LD      IX, ERRCD
20E2' 3E00         3872          LD      A, 00H
20E4' DD7700      3873          LD      (IX), A
20E7' 3E5E         3874          LD      A, 05EH
20E9' DD7701      3875          LD      (IX+1), A
20EC' CDA020#    3876          CALL    ERROR
20EF' C3AF1E'     3877          JP      WDFNLI
20F2' 3AA825'     3878 WD8802: LD      A, (NOTE+1)
20F5' FE9C        3879          CP      A, 09CH
20F7' 20E5        3880          JR      NZ, WD88EH
20F9' CDAF0D'     3881 WD88L2: CALL    FRNOTE
20FC' 3AA725'     3882          LD      A, (NOTE)
20FF' FE01        3883          CP      A, 01H
2101' 20F6        3884          JR      NZ, WD88L2
2103' 3AA825'     3885          LD      A, (NOTE+1)
2106' FE8C        3886          CP      A, 08CH
2108' 20EF        3887          JR      NZ, WD88L2
210A' CDD922'     3888          CALL    TABLE          ; KEEP CONDITION-NAME I
                                N
210D' C33C1E'     3889          JP      WFILE3          ; SYMBOL TABLE
                                3890 ; .....
                                3891 ;      END OF LEVEL 88
                                3892 ;      LV1021 : CHECK LEVEL 02-49 AND KEEP DATANAME
                                3893 ; .....
                                3894 ;
2110' 3AA225'     3895 WV1021: LD      A, (ITEM)
2113' FE45        3896          CP      A, 'E'          ; TO SEE ELEMENTARY OR
                                GROUP
2115' 2013        3897          JR      NZ, WV1022          ; GROUP
2117' DD21E020#  3898          LD      IX, ERRCD
211B' 3E00        3899          LD      A, 00H
211D' DD7700      3900          LD      (IX), A
2120' 3E5F        3901          LD      A, 05FH
2122' DD7701      3902          LD      (IX+1), A
2125' CDED20#    3903          CALL    ERROR
2128' 18CF        3904          JR      WD88L2
212A' CDAF0D'     3905 WV1022: CALL    FRNOTE          ; DATANAME EXPECTED
212D' 3AA725'     3906          LD      A, (NOTE)
2130' FEFE        3907          CP      A, 0FEH
2132' 2813        3908          JR      Z, WV1023
2134' DD211921#  3909          LD      IX, ERRCD
2138' 3E00        3910          LD      A, 00H
213A' DD7700      3911          LD      (IX), A
213D' 3E51        3912          LD      A, 051H          ; RESERVED WORD AS DATA
                                NAME
213F' DD7701      3913          LD      (IX+1), A
2142' CD2621#    3914          CALL    ERROR
2145' 18B2        3915          JR      WD88L2
2147' CD7710'     3916 WV1023: CALL    DTNAME          ; SEE IF IT CAN BE DATA
                                NAME .
214A' FE54        3917          CP      A, 'T'
214C' 2814        3918          JR      Z, WV1024
214E' DD213621#  3919          LD      IX, ERRCD

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2152'	3E00	3920	LD	A,00H
2154'	DD7700	3921	LD	(IX),A
2157'	3E51	3922	LD	A,051H
2159'	DD7701	3923	LD	(IX+1),A
215C'	CD4321#	3924	CALL	ERROR
215F'	C3AF1E'	3925	JP	WDFNLI
		3926	;WVLO24:	CALL GROUP
2162'	3E0G	3927	WVLO24: LD	A,06H
2164'	329A27'	3928	LD	(FF),A
2167'	3A0529'	3929	LD	A,(ADDR)
216A'	329B27'	3930	LD	(FF+1),A
216D'	3A0629'	3931	LD	A,(ADDR+1)
2170'	329C27'	3932	LD	(FF+2),A
2173'	3E00	3933	LD	A,00H
2175'	329D27'	3934	LD	(FF+3),A
2178'	3AA425'	3935	LD	A,(LENGTH)
217B'	329E27'	3936	LD	(FF+4),A
217E'	E5	3937	PUSH	HL
217F'	D5	3938	PUSH	DE
2180'	0600	3939	LD	B,00H
2182'	4F	3940	LD	C,A
2183'	3A8725'	3941	LD	A,(HHHH)
2186'	67	3942	LD	H,A
2187'	3A8825'	3943	LD	A,(LLLL)
218A'	6F	3944	LD	L,A
218B'	119A27'	3945	LD	DE,FF
218E'	13	3946	INC	DE
218F'	13	3947	INC	DE
2190'	13	3948	INC	DE
2191'	13	3949	INC	DE
2192'	13	3950	INC	DE
2193'	EDB0	3951	LDIR	
2195'	D1	3952	POP	DE
2196'	E1	3953	POP	HL
2197'	CDAF0D'	3954	CALL	FRNOTE
219A'	3AA725'	3955	LD	A,(NOTE)
219D'	FE01	3956	CP	A,01H
219F'	2807	3957	JR	Z,WDFNO2
21A1'	FE00	3958	CP	A,00H
21A3'	2827	3959	JR	Z,WTC002
21A5'	C34F1E'	3960	JP	WFILER
21A8'	3AA825'	3961	WDFNO2: LD	A,(NOTE+1)
21AB'	FE36	3962	CP	A,036H
21AD'	CAE21E'	3963	JP	Z,WFILE4
21B0'	FE8C	3964	CP	A,08CH
21B2'	C24F1E'	3965	JP	NZ,WFILER
21B5'	CDD922'	3966	CALL	TABLE
21B8'	CD5424'	3967	CALL	TRACK
21BB'	3AA725'	3968	LD	A,(NOTE)
21BE'	CD0F23'	3969	CALL	CONVRT
21C1'	3AC227'	3970	LD	A,(L4)
21C4'	FE01	3971	CP	A,01H
21C6'	F20E20'	3972	JP	P,WLV1.02
21C9'	C30117'	3973	JP	CHK02
21CC'	3E47	3974	WTC002: LD	A,'G'
21CE'	32A225'	3975	LD	(ITEM),A
21D1'	DD7E01	3976	LD	A,(IX+1)


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4086 ;*
*
4087 ;*          BEGIN SUBROUTINE FOR DATA DIVISION
*
4088 ;*
*
4089 ;*****
*****
4090 ;*****
*****
4091 ;*
*
4092 ;*          TABLE : SUBROUTINE FOR KEEP SYMBOL TABLE EL
ELEMENT *
4093 ;*
*
4094 ;*****
*****
22D9' E5      4095 TABLE: PUSH   HI.
22DA' D5      4096         PUSH   DE
22DB' C5      4097         PUSH   BC
22DC' DDE5    4098         PUSH   IX
22DE' DD21D328' 4099         LD     IX,KTRACK
22E2' 3A8525' 4100         LD     A,(DDD)
22E5' 57      4101         LD     D,A
22E6' DD7700  4102         LD     (IX),A          ; KEEP TRACK ADDRESS FO
R QUALIFICATION
22E9' 3A8625' 4103         LD     A,(EEE)
22EC' 5F      4104         LD     E,A          ; DE POINT AVAILABLE SP
ACE
22ED' DD7701  4105         LD     (IX+1),A
22F0' 219A27' 4106         LD     HL,FF          ; FOR SYMBOL TABLE
22F3' 0600    4107         LD     B,00H
22F5' 0E05    4108         LD     C,05H
22F7' EDB0    4109         LDIR
22F9' 1B      4110         DEC     DE          ; TO KNOW LENGTH OF TOK
EN
22FA' 1A      4111         LD     A,(DE)
22FB' 0600    4112         LD     B,00H
22FD' 4F      4113         LD     C,A
22FE' 13      4114         INC     DE
22FF' EDB0    4115         LDIR
2301' 7A      4116         LD     A,D
2302' 328525' 4117         LD     (DDD),A
2305' 7B      4118         LD     A,E
2306' 328625' 4119         LD     (EEE),A
2309' DDE1    4120         POP    IX
230B' C1      4121         POP    BC
230C' D1      4122         POP    DE
230D' E1      4123         POP    HL
230E' C9      4124         RET
4125 ;*****
*
4126 ;*
*
4127 ;*          CONVRT : CONVERT DECIMAL INTO BINARY
*

```

```

4128 ;*
*
4129 ;*****
*
230F' E5      4130 CONVRT: PUSH    HL
2310' D5      4131          PUSH    DE
2311' C5      4132          PUSH    BC
2312' DDE5    4133          PUSH    IX
2314' 3A8725' 4134          LD      A,(HHHH)
2317' 57      4135          LD      D,A
2318' 3A8825' 4136          LD      A,(LLLL)
231B' 5F      4137          LD      E,A          ; DE POINT DECIMAL NUME

RIC
231C' 3AA425' 4138          LD      A,(LENGTH) ; LENGTH OF NUMERIC
231F' 47      4139          LD      B,A
2320' 1A      4140          LD      A,(DE)
2321' E60F    4141          AND     A,0FH          ; TO ELIMINATE FIRST 4

BITS
2323' DD21C227' 4142          LD      IX,L4
2327' DD7700  4143          LD      (IX),A          ; FIRST BYTE
232A' 78      4144          LD      A,B
232B' FE01    4145          CP      A,01H
232D' 2827    4146          JR      Z,CONVOK
232F' 05      4147          DEC     B          ; FOR FIRST BYTE
2330' 3E00    4148          LD      A,00H
2332' 67      4149          LD      H,A          ; PREPARE VALUE TO MULT

IPLY
2333' DD7E00  4150          LD      A,(IX)
2336' 6F      4151          LD      L,A
2337' C5      4152 CNVLP1: PUSH    BC
2338' 29      4153          ADD     HL,HL          ; MULTIPLY BY 2
2339' E5      4154          PUSH   HL
233A' C1      4155          POP     BC          ; SAVE VALUE OF DOUBLE
233B' 29      4156          ADD     HL,HL          ; MULTIPLY BY 4
233C' 29      4157          ADD     HL,HL          ; MULTIPLY BY 8
233D' 09      4158          ADD     HL,BC          ; MULTIPLY BY 10
233E' 13      4159          INC     DE
233F' 1A      4160          LD      A,(DE)
2340' E60F    4161          AND     A,0FH          ; ELIMINATE FIRST 4 BIT

S
2342' 0600    4162          LD      B,00H
2344' 4F      4163          LD      C,A
2345' 09      4164          ADD     HL,BC
2346' C1      4165          POP     BC
2347' 10EE    4166          DJNZ   CNVLP1
2349' 7C      4167          LD      A,H
234A' FE00    4168          CP      A,00H
234C' 2804    4169          JR      Z,CNVOK1
234E' 3EFF    4170          LD      A,OFFH
2350' 1801    4171          JR      CNVOK2
2352' 7D      4172 CNVOK1: LD      A,L
2353' 32C227' 4173 CNVOK2: LD      (L4),A
2356' DDE1    4174 CONVOK: POP    IX
2358' C1      4175          POP     BC
2359' D1      4176          POP     DE
235A' E1      4177          POP     HL
4178 ;*****

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```

*
4179 ;*
*
4180 ;*          PICTUR : PICTURE VERIFICATION
*
4181 ;*
*
4182 ;*****
*
235B' CDAF0D' 4183 PICTUR: CALL    FRNOTE
235E' 3AA725' 4184          LD      A,(NOTE)
2361' FEFE    4185          CP      A,0FEH
2363' 2814    4186          JR      Z,PIC01
2365' DD21B922# 4187          LD      IX,ERRCD
2369' 3E00    4188          LD      A,00H
236B' DD7700  4189          LD      (IX),A
236E' 3E4A    4190          LD      A,04AH
2370' DD7701  4191          LD      (IX+1),A
2373' CDC622# 4192          CALL   ERROR
2376' 3E4E    4193          LD      A,'N'
2378' C9      4194          RET
4195 ;
4196 ;          INVALID PICTURE CHARACTER
4197 ;
2379' 3E00    4198 PIC01:  LD      A,00H
237B' 32682A' 4199          LD      (PICLN),A
237E' E5      4200 PIC02:  PUSH   HL
237F' D5      4201          PUSH  DE
2380' C5      4202          PUSH  BC
2381' 3A8725' 4203          LD      A,(HHHH)
2384' 67      4204          LD      H,A
2385' 3A8825' 4205          LD      A,(LLLL)
2388' 6F      4206          LD      L,A
2389' 3AA425' 4207          LD      A,(LENGTH)
238C' 47      4208          LD      B,A
238D' 7E      4209          LD      A,(HL)
238E' FE28    4210          CP      A,'('
2390' 2861    4211          JR      Z,PAREN1
2392' FE29    4212          CP      A,')'
2394' 282B    4213          JR      Z,PIC05
2396' CD0A24' 4214 PIC01:  CALL   FTAB
2399' FE4E    4215          CP      A,'N'
239B' 2017    4216          JR      NZ,PIC03
239D' DD216723# 4217          LD      IX,ERRCD
23A1' 3E00    4218          LD      A,00H
23A3' DD7700  4219          LD      (IX),A
23A6' 3E4B    4220          LD      A,04BH
23A8' DD7701  4221          LD      (IX+1),A
23AB' CD7423# 4222          CALL   ERROR
23AE' 3E4E    4223          LD      A,'N'
23B0' C1      4224 RETPIC:  POP    BC
23B1' D1      4225          POP    DE
23B2' E1      4226          POP    HL
23B3' C9      4227          RET
23B4' E5      4228 PIC03:  PUSH   HL
23B5' 21682A' 4229          LD      HL,PICLN
23B8' 86      4230          ADD   A,(HL)

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23B9' 77          4231          LD      (HL),A
23BA' E1          4232          POP     HL
23BB' 23          4233          INC     HL
23BC' 10D8        4234          DJNZ   PIC1P1
23BE' C1          4235 PIC04:  POP     BC
23BF' D1          4236          POP     DE
23C0' E1          4237          POP     HL
23C1' CDAF0D'     4238 PIC05:  CALL   FRNOTE
23C4' DD21A725'  4239          LD      IX,NOTE
23C8' DD7E00      4240          LD      A,(IX)
23CB' FEFE        4241          CP      A,0FEH
23CD' 28AF        4242          JR      Z,PIC02
23CF' FE01        4243          CP      A,01H
23D1' 2815        4244          JR      Z,PIC055
23D3' DD219F23#  4245 PICER1: LD      IX,ERRCD
23D7' 3E00        4246          LD      A,00H
23D9' DD7700      4247          LD      (IX),A
23DC' 3E4A        4248          LD      A,04AH
23DE' DD7701      4249          LD      (IX+1),A
23E1' CDAC23#     4250          CALL   ERROR
23E4' 3E4E        4251          LD      A,'N'
23E6' 18C8        4252          JR      RETPIC
23E8' DD7E01      4253 PIC055: LD      A,(IX+1)
23EB' FE8C        4254          CP      A,08CH
23ED' 20E4        4255          JR      NZ,PICER1
23EF' 3E54        4256          LD      A,'T'
23F1' 18BD        4257          JR      RETPIC
23F3' C1          4258 PAREN1: POP     BC
23F4' D1          4259          POP     DE
23F5' E1          4260          POP     HL
23F6' CDAF0D'     4261          CALL   FRNOTE
23F9' CD0F23'     4262          CALL   CONVRT
23FC' E5          4263          PUSH   HL
23FD' 21C227'     4264          LD      HL,L4
2400' 3A682A'     4265          LD      A,(PICLN)
2403' 86          4266          ADD    A,(HL)
2404' 32682A'     4267          LD      (PICLN),A
2407' E1          4268          POP     HL
2408' 18B7        4269          JR      PIC05
2408' 18B7        4270          ; * * * * *
240A' E5          4271 FTAB:  PUSH   HL
240B' D5          4272          PUSH   DE
240C' C5          4273          PUSH   BC
240D' DDE5        4274          PUSH   IX
240F' 0610        4275          LD      B,16
2411' 11332A'     4276          LD      DE,PICTAB
2414' 1A          4277 FTABL1: LD      A,(DE)
2415' BE          4278          CP      A,(HL)
2416' 282F        4279          JR      Z,PICOK1
2418' 13          4280          INC    DE
2419' 13          4281          INC    DE
241A' 13          4282          INC    DE
241B' 10F7        4283          DJNZ   FTABL1
241D' 1A          4284          LD      A,(DE)
241E' FE44        4285          CP      A,'D'
2420' 2808        4286          JR      Z,DB
2422' FE43        4287          CP      A,'C'
    
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2424' 280E      4288      JR      Z,CR
2426' 3E4E      4289      LD      A,'N'
2428' 1824      4290      JR      PICRET
242A' 13        4291 DB:    INC      DE
242B' 1A        4292      LD      A,(DE)
242C' FE42      4293      CP      A,'B'
242E' 280E      4294      JR      Z,PICOK
2430' 3E4E      4295      LD      A,'N'
2432' 181A      4296      JR      PICRET
2434' 13        4297 CR:    INC      DE
2435' 1A        4298      LD      A,(DE)
2436' FE52      4299      CP      A,'R'
2438' 2804      4300      JR      Z,PICOK
243A' 3E4E      4301      LD      A,'N'
243C' 1810      4302      JR      PICRET
243E' 3E11      4303 PICOK: LD      A,011H
2440' 32672A'   4304      LD      (TYPE),A
2443' 3E02      4305      LD      A,02H
2445' 1807      4306      JR      PICRET
2447' 14        4307 PICOK1: INC     D
2448' 1A        4308      LD      A,(DE)
2449' 32672A'   4309      LD      (TYPE),A
244C' 13        4310      INC     DE
244D' 1A        4311      LD      A,(DE)
244E' DDE1      4312 PICRET: POP    IX
2450' C1        4313      POP    BC
2451' D1        4314      POP    DE
2452' E1        4315      POP    HL
2453' C9        4316      RET
4317 ;
4318 ;
4319 ;@
4320 ;@          TRACK : TO KEEP TRACK TRACK-TABLE
4321 ;@
4322 ;
2454' E5        4323 TRACK:  PUSH   HL
2455' D5        4324      PUSH   DE
2456' C5        4325      PUSH   BC
2457' DDE5      4326      PUSH   IX
2459' 0664      4327      LD      B,0100      ; 100 ELEMENTS LOOP
245B' 3AC227'   4328      LD      A,(I4)      ; CURRENT LEVEL
245E' 210729'   4329      LD      HL,TRKTAB   ; START ADDRESS OF KEEP
-TRACK
2461' BE        4330 TRKLP1: CP      A,(HL)
2462' 2813      4331      JR      Z,TRFND      ; FOUND THE OLD SAME LE
VEL
2464' BE        4332      CP      A,(HL)
2465' FA7324'   4333      JP      M,TRNFND
2468' 23        4334      INC     HL           ; INC FOR START ADDRESS
BYTE
2469' 23        4335      INC     HL           ; INC FOR SECOND ADDRES
S BYTE
246A' 23        4336      INC     HL           ; INC FOR NEXT AVAILABL
E BYTE
246B' 10F4      4337      DJNZ   TRKLP1
246D' 11D528'   4338      LD      DE,TRKOVF   ; TRACK OVERFLOW MESSAG
E

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2470' C3D224'      4339          JP      ENDPGM
2473' 3AC227'      4340 TRNFND: LD      A, (L4)          ; KEEP CURRENT LEVLE NU
                    MBER
2476' 77           4341          LD      (HL), A
2477' 23           4342 TRNFND: INC     HL
2478' 3AD328'      4343          LD      A, (KTRACK)
247B' 77           4344          LD      (HL), A
247C' 23           4345          INC     HL
247D' 3AD428'      4346          LD      A, (KTRACK+1)
2480' 77           4347          LD      (HL), A
2481' 3EFF         4348          LD      A, OFFH
2483' 060A         4349          LD      B, 10          ; 10 BYTE FOR HIGH-VALU

                    E
2485' 23           4350 FNDLPI: INC     HL
2486' 77           4351          LD      (HL), A
2487' 10FC         4352          DJNZ   FNDLPI
2489' DDE1         4353          POP     IX
248B' C1           4354          POP     BC
248C' D1           4355          POP     DE
248D' E1           4356          POP     HL
248E' C9           4357          RET
                    ;*****
248F' E5           4358 ;*****
2490' D5           4359 ;*
2491' C5           4360 ;*          SCHTAB : SEARCH SYMBOL TABLE 50 TIMES *
2492' F5           4361 ;*
2493' 3E00         4362 ;*****
2495' 329125'      4363 SCHTAB: PUSH   HL
2498' F1           4364          PUSH   DE
2499' 21EC2A'      4365          PUSH   BC
249C' BE           4366          PUSH   AF
249D' 2006         4367          LD      A, 00H
249F' 3E54         4368          LD      (SCHCNT), A
24A1' C1           4369          POP     AF
24A2' D1           4370          LD      HL, SYMTAB
24A3' E1           4371 SCH00: CP      A, (HL)
24A4' C9           4372          JR      NZ, SCH01
24A5' F5           4373          LD      A, 'T'
24A6' 3A9125'      4374 SCHRET: POP     BC
24A9' FE32         4375          POP     DE
24AB' FAB324'      4376          POP     HL
24AE' F1           4377          RET
24AF' 3E4E         4378 SCH01: PUSH   AF
24B1' 18EE         4379          LD      A, (SCHCNT)
24B3' 3C           4380          CP      A, 50
24B4' 329125'      4381          JP      M, SCH011
24B7' 7E           4382          POP     AF
24B8' FE04         4383          LD      A, 'N'
24BA' F2C724'      4384          JR      SCHRET
24BD' 23           4385 SCH011: INC    A
24BE' 7E           4386          LD      (SCHCNT), A
24BF' 47           4387          LD      A, (HL)
24C0' 23           4388          CP      A, 04H
                    JP      P, SCH02
24C1' 23           4389          INC     HL
24C2' 23           4390          LD      A, (HL)
24C3' 23           4391          LD      B, A
24C4' 23           4392          INC     HL
24C5' 23           4393 SCH011: INC    HL

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24C1' 10FD      4394      DJNZ    SCH01L
24C3' 23       4395      INC     HL
24C4' F1       4396      POP     AF
24C5' 18D5     4397      JR      SCH00
24C7' 23       4398 SCH02: INC     HL
24C8' 23       4399      INC     HL
24C9' 23       4400      INC     HL
24CA' 23       4401      INC     HL
24CB' 7E       4402      LD      A,(HL)
24CC' 47       4403      LD      B,A
24CD' 18F1     4404      JR      SCH01L
                4405 ;*****+**** END SHTAB *****
                4406 ;

24CF' 116926'  4407 DATADV: LD      DE,COMPL
      (24D2')  4408 PROCDE: EQU     $
24D2' D5       4409 ENDPGM: PUSH   DE
24D3' E5       4410      PUSH   HL
24D4' C5       4411      PUSH   BC
24D5' 11A928'  4412      LD      DE,TMPFLE
24D8' 0E0F     4413      LD      C,CPMOPN
24DA' CD0500   4414      CALL   BDOS
24DD' FE03     4415      CP      A,03H
24DF' F23125'  4416      JP      P,PGMEND
24E2' 11A928'  4417 RDRTMP: LD      DE,TMPFLE
24E5' 0E14     4418      LD      C,RDRFLE
24E7' CD0500   4419      CALL   BDOS
24EA' FE00     4420      CP      A,00H
24EC' 203B     4421      JR      NZ,PGMEN
24EE' 0610     4422      LD      B,16      ; 16 ELEMENT IN 1 BUFFE

                R
24F0' 218000   4423      LD      HL,DMA
24F3' 7E       4424 TMP01: LD      A,(HL)
24F4' FE2A     4425      CP      A,'*'
24F6' 2831     4426      JR      Z,PGMEN
24F8' 23       4427      INC     HL
24F9' 23       4428      INC     HL      ; SKIP 2 BYTES FOR BLAN

                K
24FA' 7E       4429      LD      A,(HL)
24FB' DD21D523# 4430      LD      IX,ERRCD
24FF' FD216A0E# 4431      LD      IY,COUNT1
2503' DD7700   4432      LD      (IX),A
2506' 23       4433      INC     HL
2507' 7E       4434      LD      A,(HL)
2508' DD7701   4435      LD      (IX+1),A
250B' 23       4436      INC     HL
250C' 7E       4437      LD      A,(HL)
250D' FD7700   4438      LD      (IY),A
2510' 23       4439      INC     HL
2511' 7E       4440      LD      A,(HL)
2512' FD7701   4441      LD      (IY+1),A
2515' 23       4442      INC     HL
2516' 7E       4443      LD      A,(HL)
2517' FD7702   4444      LD      (IY+2),A
251A' 23       4445      INC     HL
251B' 7E       4446      LD      A,(HL)
251C' FD7703   4447      LD      (IY+3),A
251F' C5       4448      PUSH   BC
    
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2520' CDE223#      4449          CALL   ERROR           ; KEEP ADDITIONAL ERROR
                  MESSAGE
2523' C1          4450          POP     BC
2524' 23          4451          INC     HL
2525' 10CC        4452          DJNZ   TMP01
2527' 18B9        4453          JR      RDRTMP           ; READ NEXT RECORD
                  4454 ;
                  4455 ;
                  4456 ;
                  4457 ;
                  4458 ;
2529' 11A928'    4459 PGMEN:  LD      DE, TMPFLE
252C' 0E10        4460          LD      C, CPMCLS
252E' CD0500     4461          CALL   BDOS
2531' C1          4462 PGMEND: POP     BC
2532' E1          4463          POP     HL
2533' D1          4464          POP     DE
                  4465 ;
                  4466 ;~~~~~
                  4467 ;
                  4468 ;~~~~~
                  4469 ;%
                  4470 ;%              DELAY              %
                  4471 ;%
                  4472 ;~~~~~
                  4473 ;
2534' D5          4474          PUSH   DE
2535' C5          4475          PUSH   BC
2536' E5          4476          PUSH   HL
2537' 0601        4477          LD      B, 01H
2539' C5          4478 DELAY0: PUSH   BC
253A' 06FF        4479          LD      B, 0FFH
253C' 23          4480 DELAY:  INC     HL
253D' 10FD        4481          DJNZ   DELAY
253F' C1          4482          POP     BC
2540' 10F7        4483          DJNZ   DELAY0
2542' E1          4484          POP     HL
2543' C1          4485          POP     BC
2544' D1          4486          POP     DE
                  4487 ;
                  4488 ;~~~~~
                  4489 ;
2545' D5          4490          PUSH   DE
2546' C5          4491          PUSH   BC
2547' E5          4492          PUSH   HL
2548' 1E1B        4493          LD      E, 01BH           ; LOCATE 19,5
254A' 0E02        4494          LD      C, CONWRT
254C' CD0500     4495          CALL   BDOS
254F' 1E59        4496          LD      E, 'Y'
2551' 0E02        4497          LD      C, CONWRT
2553' CD0500     4498          CALL   BDOS
2556' 1E32        4499          LD      E, 32H
2558' 0E02        4500          LD      C, CONWRT
255A' CD0500     4501          CALL   BDOS
255D' 1E24        4502          LD      E, 24H
255F' 0E02        4503          LD      C, CONWRT
2561' CD0500     4504          CALL   BDOS
    
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2564' E1          4505          POP      HL
2565' C1          4506          POP      BC
2566' D1          4507          POP      DE
                4508 ;
                4509 ;
2567' 0E09        4510 ENDPNT: LD      C,PRTSTR
2569' CD0500      4511          CALL     BDOS
256C' CD0000#     4512          CALL     CLBUF3
256F' 115900#    4513          LD      DE,CBLSK3
2572' 0E10        4514          LD      C,CPMCLS
2574' CD0500      4515          CALL     BDOS          ; CLOSE CBLSK5.ERR
2577' 117D28'    4516          LD      DE,CBLSK4
257A' 0E10        4517          LD      C,CPMCLS
257C' CD0500      4518          CALL     BDOS
257F' D1          4519          POP      DE
2580' F1          4520          POP      AF
2581' C30000      4521          JP      0
                4522 ;
                4523 ;*****
                4524 ;*
                4525 ;*      START OF DATA DECLARATION
                4526 ;*
                4527 ;*****
                4528 ;
                4529 ;
                4530 ;
                4531 ;
                4532 ;
                4533 ;
2584' 00          4534 VERB:   DB      00H      ; KEEP FLAG TO SEE COBOL VERB O
                R NOT
2585' 00          4535 DDD:    DB      00H      ; KEEP ADDRESS
2586' 00          4536 EEE:    DB      00H      ; OF SYMBOL TABLE
2587' 00          4537 HHHH:  DB      00H      ; KEEP ADDRESS NON-RSW
2588' 00          4538 LLLL:  DB      00H
2589' 00          4539 KH:    DB      00H
258A' 00          4540 KL:    DB      00H
258B' FF          4541 ENDSM1: DB     OFFH      ; END OF HIGHEST
258C' FF          4542 ENDSM2: DB     OFFH      ; SYMBOL TABLE ADDRESS
258D' 00          4543 ID:    DB      00H
258E' 00          4544 ENV:   DB      00H
258F' 00          4545 DAT:   DB      00H
2590' 00          4546 PRO:   DB      00H
2591' 00          4547 SCHCNT: DB     00H      ; COUNTER FOR SCHTAB ROUTINE
2592' 00          4548 CHCNT: DB     00H      ; COUNT FOR ALPHABETIC OF DATA
                NAME
2593' 07192632    4549 NUMBER: DB     07H,19H,26H,32H,30H,3BH,2BH
                303B2B
259A' 20161612    4550          DB     20H,16H,16H,12H,0BH,09H,07H,08H
                0B090708
25A2' 00          4551 ITEM:  DB     00H      ; FLAG OF ELEMENTARY OR GROUP I
                TEM
25A3' (0001)      4552 AREA:  DS      1
25A4' (0001)      4553 LENGTH: DS     1
25A5' (0001)      4554 LEN:   DS     1
25A6' (0001)      4555 CONT:  DS     1      ; FLAG FOR IDENTIFY CONTINUE CA
                RD OR NOT

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25A7'	(0002)	4556 NOTE: DS	2
25A9'	CD0A5359	4557 OVF: DB	ODH,0AH,'SYMBOL TABLE OVERFLOWS'
	4D424F4C		
	20544142		
	4C45204F		
	56455246		
	4C4F5724		
25C1'	0D0A554E	4558 RDRERR: DB	ODH,0AH,'UNSUCCESSFUL READ FILE\$'
	53554343		
	45535346		
	554C2052		
	45414420		
	46494C45		
	24		
25DA'	434F424F	4559 ENDFIL: DB	'COBOL Pre-Compiler Phase II completely
		terminated\$'	
	4C205072		
	652D436F		
	6D70696C		
	65722050		
	68617365		
	20494920		
	636F6D70		
	6C657465		
	6C792074		
	65726D69		
	6E617465		
	6424		
260C'	0D0A4F50	4560 OPNERR: DB	ODH,0AH,'OPEN TOKEN FILE UNSUCCESSFUL\$'
	454E2054		
	4F4B454E		
	2046494C		
	4520554E		
	53554343		
	45535346		
	554C24		
262B'	0D0A4341	4561 OPERR: DB	ODH,0AH,'CANNOT OPEN CBLSK3.ERR\$'
	4E4E4F54		
	204F5045		
	4E204342		
	4C534B33		
	2E455252		
	24		
2644'	00	4562 X: DB	00H
2645'	00	4563 ELEMNT: DB	00H
2646'	0D0A4441	4564 NODATA: DB	ODH,0AH,'DATA DIVISION MISSING TERMINAT
		ED\$'	
	54412044		
	49564953		
	494F4E20		
	4D495353		
	494E4720		
	5445524D		
	494E4154		
	454424		
2669'	434F424F	4565 COMPL: DB	'COBOL Pre-Compiler Phase II completely
		terminated\$'	

4C205072
 652D436F
 6D70696C
 65722050
 68617365
 20494920
 636F6D70
 6C657465
 6C792074
 65726D69
 6E617465
 6424



269B' 0D0A4C4F 4566 LOGIC1: DB 0DH,0AH,'LOGIC ERROR IN PROGRAM AT CHKN
 XT\$'

47494320
 4552524F
 5220494E
 2050524F
 4752414D
 20415420
 43484B4E
 585424

26BE' 0D0A4C4F 4567 LOGIC2: DB 0DH,0AH,'LOGIC ERROR AT LOOPC1 IN ENVIR
 ONMENT\$'

47494320
 4552524F
 52204154
 204C4F4F
 50433120
 494E2045
 4E564952
 4F4E4D45
 4E5424

26E5' 0D0A4154 4568 LOGIC3: DB 0DH,0AH,'AT IOSEC LOGIC ERROR\$'

20494F53
 4543204C
 4F474943
 20455252
 4F5224

26FC' 0D0A4D49 4569 LOGIC4: DB 0DH,0AH,'MISSING IN CONFIGURATION SECTI
 ON\$'

5353494E
 4720494E
 20434F4E
 46494755
 52415449
 4F4E2053
 45435449
 4F4E24

271F' 0D0A4552 4570 LOGIC5: DB 0DH,0AH,'ERROR IN BIOSEC\$'

524F5220
 494E2042
 494F5345
 4324

2731' 0D0A4552 4571 LOGIC6: DB 0DH,0AH,'ERROR AT OBJC3\$'

524F5220
 4154204F

```

424A4333
24
2742' 0D0A4552      4572 LOGIC7: DB      0DH,0AH,'ERROR AT EFER6$'
524F5220
41542045
50455236
24
2753' 0D0A4552      4573 CRERR:  DB      0DH,0AH,'ERROR WHEN CREATE CBLSK5.ERR$'
524F5220
5748454E
20435245
41544520
43424C53
4B352E45
525224
2772' 00            4574 EP1:   DB      00H      ; FLAG FOR SOURCE-COMPUTER
2773' 00            4575 EP2:   DB      00H      ; FLAG FOR OBJECT-COMPUTER
2774' 00            4576 EP3:   DB      00H      ; FLAG FOR SPECIAL-NAMES
2775' 00            4577 PI2:   DB      00H
2776' 00            4578 PI3:   DB      00H
2777' 00            4579 PI4:   DB      00H
2778' 00            4580 PI5:   DB      00H
2779' 00            4581 PI6:   DB      00H
277A' 00            4582 PI7:   DB      00H
277B' (001F)        4583 FILE:  DS      31
279A' 00000000     4584 FF:    DB      00H,00H,00H,00H,00H      ; AREA TO KEEP
00
279F' (0023)       4585          DS      35      ; BEFORE TRANSFER TO SYMBOL TAB
LE
27C2' 00           4586 L4:    DB      00H      ; KEEP BINARY LEVEL NUMBER
4587 ;
4588 ;#####
4589 ;#
4590 ;#          LOCAL BUFFER FOR PROGRAM          #
4591 ;#          PURPOSED TO HANDLE LOOK-AHEAD PROCESS      #
4592 ;#
4593 ;#          INITIAL HIGH-VALUE 128 BYTE          #
4594 ;#
4595 ;#####
4596 ;
27C3' FFFFFFFF     4597 BUFFER:  DB      OFFH,OFFH,OFFH,OFFH,OFFH,OFFH,OFFH,OFFH
FFFFFFF
27CB' FFFFFFFF     4598          DB      OFFH,OFFH,OFFH,OFFH,OFFH,OFFH,OFFH,OFFH
FFFFFFF
27D3' FFFFFFFF     4599          DB      OFFH,OFFH,OFFH,OFFH,OFFH,OFFH,OFFH,OFFH
FFFFFFF
27DB' FFFFFFFF     4600          DB      OFFH,OFFH,OFFH,OFFH,OFFH,OFFH,OFFH,OFFH
FFFFFFF
27E3' FFFFFFFF     4601          DB      OFFH,OFFH,OFFH,OFFH,OFFH,OFFH,OFFH,OFFH
FFFFFFF
27EB' FFFFFFFF     4602          DB      OFFH,OFFH,OFFH,OFFH,OFFH,OFFH,OFFH,OFFH
FFFFFFF
27F3' FFFFFFFF     4603          DB      OFFH,OFFH,OFFH,OFFH,OFFH,OFFH,OFFH,OFFH
FFFFFFF
27FB' FFFFFFFF     4604          DB      OFFH,OFFH,OFFH,OFFH,OFFH,OFFH,OFFH,OFFH
FFFFFFF
2803' FFFFFFFF     4605          DB      OFFH,OFFH,OFFH,OFFH,OFFH,OFFH,OFFH,OFFH

```



```

      FFFFFFFF
280B' FFFFFFFF      4606      DB      OFFH,OFFH,OFFH,OFFH,OFFH,OFFH,OFFH,OFFH
      FFFFFFFF
2813' FFFFFFFF      4607      DB      OFFH,OFFH,OFFH,OFFH,OFFH,OFFH,OFFH,OFFH
      FFFFFFFF
281B' FFFFFFFF      4608      DB      OFFH,OFFH,OFFH,OFFH,OFFH,OFFH,OFFH,OFFH
      FFFFFFFF
2823' FFFFFFFF      4609      DB      OFFH,OFFH,OFFH,OFFH,OFFH,OFFH,OFFH,OFFH
      FFFFFFFF
282B' FFFFFFFF      4610      DB      OFFH,OFFH,OFFH,OFFH,OFFH,OFFH,OFFH,OFFH
      FFFFFFFF
2833' FFFFFFFF      4611      DB      OFFH,OFFH,OFFH,OFFH,OFFH,OFFH,OFFH,OFFH
      FFFFFFFF
283B' FFFFFFFF      4612      DB      OFFH,OFFH,OFFH,OFFH,OFFH,OFFH,OFFH,OFFH
      FFFFFFFF
      4613 ;
      4614 ;##### END OF INITIALIZED BUFFER VALUE #####
      #####
      4615 ;
      4616 ;#####
      4617 ;#
      4618 ;#      START TABLE OF VERB 00H      #
      4619 ;#      49 ELEMENTS      #
      4620 ;#      #
      4621 ;#####
2843' 08      4622 VERB00: DB      08H      ; GO (TO)
2844' 0A      4623      DB      0AH      ; IF
2845' 19      4624      DB      019H     ; ADD
2846' 2C      4625      DB      02CH     ; DIS
2847' 29      4626      DB      029H     ; SET
2848' 3A      4627      DB      03AH     ; SUM
2849' 3E      4628      DB      03EH     ; USE
284A' 41      4629      DB      041H     ; CALL
284B' 44      4630      DB      044H     ; COPY
284C' 49      4631      DB      049H     ; ELSE
284D' 4A      4632      DB      04AH     ; EXIT
284E' 55      4633      DB      055H     ; MOVE
284F' 56      4634      DB      056H     ; NEXT (SENTENCE)
2850' 58      4635      DB      058H     ; OPEN
2851' 5B      4636      DB      05BH     ; READ
2852' 5E      4637      DB      05EH     ; SEEK
2853' 5F      4638      DB      05FH     ; SEND
2854' 62      4639      DB      062H     ; SORT
2855' 63      4640      DB      063H     ; STOP
2856' 73      4641      DB      073H     ; APPLY
2857' 77      4642      DB      077H     ; CLOSE
2858' 79      4643      DB      079H     ; COUNT
2859' 7A      4644      DB      07AH     ; DEBUG
285A' 7B      4645      DB      07BH     ; EJECT
285B' 7D      4646      DB      07DH     ; ENTRY
285C' 89      4647      DB      089H     ; MERGE
285D' 92      4648      DB      092H     ; START
285E' 93      4649      DB      093H     ; STORE
285F' 9E      4650      DB      09EH     ; WRITE
2860' A0      4651      DB      0A0H     ; ACCEPT
2861' A7      4652      DB      0A7H     ; CANCEL
2862' AD      4653      DB      0ADH     ; DELETE

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2863' AF          4654      DB      0AFH      ; DIVIDE
2864' B0          4655      DB      0B0H      ; ENABLE
2865' B2          4656      DB      0B2H      ; EXTEND
2866' B5          4657      DB      0B5H      ; INSERT
2867' C3          4658      DB      0C3H      ; REREAD
2868' C4          4659      DB      0C4H      ; RETURN
2869' C6          4660      DB      0C6H      ; SEARCH
286A' CE          4661      DB      0CEH      ; STRING
286B' DC          4662      DB      0DCH      ; COMPUTE
286C' E0          4663      DB      0E0H      ; DISABLE
286D' E1          4664      DB      0E1H      ; DISPLAY
286E' E3          4665      DB      0E3H      ; EXAMINE
286F' E4          4666      DB      0E4H      ; EXHIBIT
2870' EA          4667      DB      0EAH      ; INSPECT
2871' F3          4668      DB      0F3H      ; PERFORM
2872' F8          4669      DB      0F8H      ; RECIEVE
2873' FA          4670      DB      0FAH      ; RELEASE
4671 ;
4672 ;##### END OF VERB00 TABLE #####
#
4673 ;
4674 ;#####
4675 ;# #
4676 ;#          START OF TABLE 01H          #
4677 ;#          9 ELEMENTS                    #
4678 ;# #
4679 ;#####
2874' 00          4680 VERB01: DB      00H      ; REWRITE
2875' 0C          4681      DB      0CH      ; GENERATE
2876' 0D          4682      DB      0DH      ; INDICATE
2877' 0E          4683      DB      0EH      ; INITIATE
2878' 0F          4684      DB      0FH      ; MULTIPLY
2879' 1E          4685      DB      01EH     ; SUBTRACT
287A' 26          4686      DB      026H     ; UNSTRING
287B' 3B          4687      DB      03BH     ; TERMINATE
287C' 3C          4688      DB      03CH     ; TRANSFORM
4689 ;
4690 ;##### END OF VERB01 TABLE #####
#
4691 ;
4692 ;COUNT1:      DB      30H,30H,30H,30H
287D' 0143424C   4693 CBLSK4: DB      01H,'CBLSK4 TKN',00H,00H,00H,00H
      534B3420
      20544B4E
      00000000
288D' (0010)     4694      DS      16
289D' 00000000   4695      DB      00H,00H,00H,00H
28A1' 43424C53   4696 CBLSK5: DB      'CBLSK5 '
      4B352020
28A9' 01          4697 TMPFILE: DB      01H
28AA' (0008)     4698 TMPNAM: DS      8
28B2' 544D5000   4699      DB      'TMP',00H,00H,00H,00H
      000000
28B9' (0010)     4700      DS      16
28C9' 00000000   4701      DB      00H,00H,00H,00H
4702 ;#####
4703 ;# #

```

```

4704 ;#          BEGIN TO DECLARE DATA FOR          #
4705 ;#          DATA DIVISION PARSE                #
4706 ;#          #                                     #
4707 ;#####
28CD' 00        4708 FSECT: DB      00H          ; FLAG FOR FILE SECTION
28CE' 00        4709 WSECT: DB      00H          ; FLAG FOR WORKING-STOR
                AGE SECTION
28CF' 00        4710 LSECT: DB      00H          ; FLAG FOR LINKAGE SECT
                ION
28D0' 00        4711 FND01: DB      00H
28D1' 00        4712 FND02: DB      00H
28D2' 00        4713 FFILE: DB      00H
28D3' 0000      4714 KTRACK: DB      00H,00H      ; KEEPTRACK POINTER OF
                SYMBOL TABLE
28D5' 0D0A5452 4715 TRKOVF: DB      0DH,0AH,'TRACK TABLE OVERFLOW (MORE THA
                N 100 ELEMENTS)$'
                41434B20
                5441424C
                45204F56
                4552464C
                4F572028
                4D4F5245
                20544841
                4E203130
                3020454C
                454D454E
                54532924
2905' (0002)   4716 ADDR:  DS      2
                4717 ;
                4718 ;#####
                4719 ;&
                4720 ;&          TRACK TABLE          &
                4721 ;&          &
                4722 ;&          INITIAL VALUE BY HIGH-VALUE  &
                4723 ;&          &
                4724 ;#####
                4725 ;&
2907' FFFFFFFF 4726 TRKTAB: DB      OFFH,OFFH,OFFH,OFFH,OFFH
                FF
290C' FFFFFFFF 4727          DB      OFFH,OFFH,OFFH,OFFH,OFFH
                FF
2911' FFFFFFFF 4728          DB      OFFH,OFFH,OFFH,OFFH,OFFH
                FF
2916' FFFFFFFF 4729          DB      OFFH,OFFH,OFFH,OFFH,OFFH
                FF
291B' FFFFFFFF 4730          DB      OFFH,OFFH,OFFH,OFFH,OFFH
                FF
2920' FFFFFFFF 4731          DB      OFFH,OFFH,OFFH,OFFH,OFFH
                FF
2925' FFFFFFFF 4732          DB      OFFH,OFFH,OFFH,OFFH,OFFH
                FF
292A' FFFFFFFF 4733          DB      OFFH,OFFH,OFFH,OFFH,OFFH
                FF
292F' FFFFFFFF 4734          DB      OFFH,OFFH,OFFH,OFFH,OFFH
                FF
2934' FFFFFFFF 4735          DB      OFFH,OFFH,OFFH,OFFH,OFFH
                FF

```

2939'	FFFFFFFF FF	4736	DB	OFFH, OFFH, OFFH, OFFH, OFFH
293E'	FFFFFFFF FF	4737	DB	OFFH, OFFH, OFFH, OFFH, OFFH
2943'	FFFFFFFF FF	4738	DB	OFFH, OFFH, OFFH, OFFH, OFFH
2948'	FFFFFFFF FF	4739	DB	OFFH, OFFH, OFFH, OFFH, OFFH
294D'	FFFFFFFF FF	4740	DB	OFFH, OFFH, OFFH, OFFH, OFFH
2952'	FFFFFFFF FF	4741	DB	OFFH, OFFH, OFFH, OFFH, OFFH
2957'	FFFFFFFF FF	4742	DB	OFFH, OFFH, OFFH, OFFH, OFFH
295C'	FFFFFFFF FF	4743	DB	OFFH, OFFH, OFFH, OFFH, OFFH
2961'	FFFFFFFF FF	4744	DB	OFFH, OFFH, OFFH, OFFH, OFFH
2966'	FFFFFFFF FF	4745	DB	OFFH, OFFH, OFFH, OFFH, OFFH
296B'	FFFFFFFF FF	4746	DB	OFFH, OFFH, OFFH, OFFH, OFFH
2970'	FFFFFFFF FF	4747	DB	OFFH, OFFH, OFFH, OFFH, OFFH
2975'	FFFFFFFF FF	4748	DB	OFFH, OFFH, OFFH, OFFH, OFFH
297A'	FFFFFFFF FF	4749	DB	OFFH, OFFH, OFFH, OFFH, OFFH
297F'	FFFFFFFF FF	4750	DB	OFFH, OFFH, OFFH, OFFH, OFFH
2984'	FFFFFFFF FF	4751	DB	OFFH, OFFH, OFFH, OFFH, OFFH
2989'	FFFFFFFF FF	4752	DB	OFFH, OFFH, OFFH, OFFH, OFFH
298E'	FFFFFFFF FF	4753	DB	OFFH, OFFH, OFFH, OFFH, OFFH
2993'	FFFFFFFF FF	4754	DB	OFFH, OFFH, OFFH, OFFH, OFFH
2998'	FFFFFFFF FF	4755	DB	OFFH, OFFH, OFFH, OFFH, OFFH
299D'	FFFFFFFF FF	4756	DB	OFFH, OFFH, OFFH, OFFH, OFFH
29A2'	FFFFFFFF FF	4757	DB	OFFH, OFFH, OFFH, OFFH, OFFH
29A7'	FFFFFFFF FF	4758	DB	OFFH, OFFH, OFFH, OFFH, OFFH
29AC'	FFFFFFFF FF	4759	DB	OFFH, OFFH, OFFH, OFFH, OFFH
29B1'	FFFFFFFF FF	4760	DB	OFFH, OFFH, OFFH, OFFH, OFFH
29B6'	FFFFFFFF FF	4761	DB	OFFH, OFFH, OFFH, OFFH, OFFH
29BB'	FFFFFFFF FF	4762	DB	OFFH, OFFH, OFFH, OFFH, OFFH
29C0'	FFFFFFFF FF	4763	DB	OFFH, OFFH, OFFH, OFFH, OFFH
29C5'	FFFFFFFF	4764	DB	OFFH, OFFH, OFFH, OFFH, OFFH

```

      FF
29CA' FFFFFFFF      4765      DB      OFFH,OFFH,OFFH,OFFH,OFFH
      FF
29CF' FFFFFFFF      4766      DB      OFFH,OFFH,OFFH,OFFH,OFFH
      FF
29D4' FFFFFFFF      4767      DB      OFFH,OFFH,OFFH,OFFH,OFFH
      FF
29D9' FFFFFFFF      4768      DB      OFFH,OFFH,OFFH,OFFH,OFFH
      FF
29DE' FFFFFFFF      4769      DB      OFFH,OFFH,OFFH,OFFH,OFFH
      FF
29E3' FFFFFFFF      4770      DB      OFFH,OFFH,OFFH,OFFH,OFFH
      FF
29E8' FFFFFFFF      4771      DB      OFFH,OFFH,OFFH,OFFH,OFFH
      FF
29ED' FFFFFFFF      4772      DB      OFFH,OFFH,OFFH,OFFH,OFFH
      FF
29F2' FFFFFFFF      4773      DB      OFFH,OFFH,OFFH,OFFH,OFFH
      FF
29F7' FFFFFFFF      4774      DB      OFFH,OFFH,OFFH,OFFH,OFFH
      FF
29FC' FFFFFFFF      4775      DB      OFFH,OFFH,OFFH,OFFH,OFFH
      FF
2A01' FFFFFFFF      4776      DB      OFFH,OFFH,OFFH,OFFH,OFFH
      FF
2A06' FFFFFFFF      4777      DB      OFFH,OFFH,OFFH,OFFH,OFFH
      FF
2A0B' FFFFFFFF      4778      DB      OFFH,OFFH,OFFH,OFFH,OFFH
      FF
2A10' FFFFFFFF      4779      DB      OFFH,OFFH,OFFH,OFFH,OFFH
      FF
2A15' FFFFFFFF      4780      DB      OFFH,OFFH,OFFH,OFFH,OFFH
      FF
2A1A' FFFFFFFF      4781      DB      OFFH,OFFH,OFFH,OFFH,OFFH
      FF
2A1F' FFFFFFFF      4782      DB      OFFH,OFFH,OFFH,OFFH,OFFH
      FF
2A24' FFFFFFFF      4783      DB      OFFH,OFFH,OFFH,OFFH,OFFH
      FF
2A29' FFFFFFFF      4784      DB      OFFH,OFFH,OFFH,OFFH,OFFH
      FF
2A2E' FFFFFFFF      4785      DB      OFFH,OFFH,OFFH,OFFH,OFFH
      FF
      4786 ;*****
      4787 ;*
      4788 ;*          PICTURE TABLE
      4789 ;*
      4790 ;*****
2A33' 390501      4791 PICTAB: DB      '9',05H,01H
2A36' 5A1101      4792      DB      'Z',11H,01H
2A39' 2A1101      4793      DB      '*',11H,01H
2A3C' 2E1101      4794      DB      '.',11H,01H
2A3F' 2C1101      4795      DB      ',',11H,01H
2A42' 241101      4796      DB      '$',11H,01H
2A45' 301101      4797      DB      '0',11H,01H
2A48' 421101      4798      DB      'B',11H,01H
2A4B' 2F1101      4799      DB      '/',11H,01H

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2A4E' 2B1101      4800      DB      'P',11H,01H
2A51' 2D1101      4801      DB      '- ',11H,01H
2A54' 501101      4802      DB      'P',11H,01H
2A57' 530500      4803      DB      'S',05H,00H
2A5A' 560500      4804      DB      'V',05H,00H
2A5D' 410601      4805      DB      'A',06H,01H
2A60' 580701      4806      DB      'X',07H,01H
2A63' 4442        4807      DB      'DB'
2A65' 4352        4808      DB      'CR'
2A67' 00          4809 TYPE:  DB      00H
2A68' 00          4810 PICLN: DB      00H
4811 ;
4812 ;
4813 ;
2A69' (0002)      4814 OLDSP: DS      2
2A6B' (0080)      4815          DS      128
      (2AEB')      4816 STKTOP: EQU    $
2AEB' (0001)      4817          DS      1
      (2AEC')      4818 SYMTAB: EQU    $
2AEC' (1000)      4819          DS      4096
3AEC' (0000)      4820          END

```

Errors 0

Program Length 3AEC (15084)

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0001 ;    CONSTANT FOR ERROR MESSAGE
(0001) 0002 MSG01 EQU    0001H    ;DATANAME NOT UNIQUE
(0002) 0003 MSG02 EQU    0002H    ;QUALIFIER NOT FOUND
(0003) 0004 MSG03 EQU    0003H    ;MISSING ENDING SUBSCRIPT
(0004) 0005 MSG04 EQU    0004H    ;IDENTIFIER NOT DECLARE
(0005) 0006 MSG05 EQU    0005H    ;UNEXPECT END OF STATEMENT
0007 ;    SKIP TO NEXT VERB OR PARAG
      RAPH.
(0006) 0008 MSG06 EQU    0006H    ;IDENTIFIER EXPECT AFTER AC
      CEPT
(0007) 0009 MSG07 EQU    0007H    ;MUST FOLLOW BY FROM IN ACC
      EPT STATEMENT
(0008) 0010 MSG08 EQU    0008H    ;DATE, DAY OR TIME REQUIRE
      IN ACCEPT STATEMENT
(0009) 0011 MSG09 EQU    0009H    ;IDENTIFIER EXPECT BUT RESE
      RVED WORD WAS FOUND
(000A) 0012 MSG0A EQU    000AH    ;WARNING MNEMONIC NAME REQU
      IRE
(000B) 0013 MSG0B EQU    000BH    ;FOUND NEXT STATEMENT BEFOR
      E END CURRENT STATEMENT
(000C) 0014 MSG0C EQU    000CH    ;NUMERIC IDENTIFIER REQUIRE
(000D) 0015 MSG0D EQU    000DH    ;NUMERIC IDENTIFIER OR NUME
      RIC LITERAL REQUIRE
(000E) 0016 MSG0E EQU    000EH    ;MISSING 'TO'
(000F) 0017 MSG0F EQU    000FH    ;ROUND EXPECT AFTER IDENTIF
      IER
(0010) 0018 MSG10 EQU    0010H    ;'TO' OR 'GIVING' REQUIRE
(0011) 0019 MSG11 EQU    0011H    ;ON SIZE ERRORS EXPECT
(0012) 0020 MSG12 EQU    0012H    ;PROCEDURE NAME IN CALL STA
      TEMENT MUST BE NON-NUM
(0013) 0021 MSG13 EQU    0013H    ;'USING' REQUIRE IN CALL ST
      ATEMENT
(0014) 0022 MSG14 EQU    0014H    ;DATANAME REQUIRE
(0015) 0023 MSG15 EQU    0015H    ;INPUT OR OUTPUT FILE REQUI
      RE
(0016) 0024 MSG16 EQU    0016H    ;IDENTIFIER OR LITERAL REQU
      IRE
(0017) 0025 MSG17 EQU    0017H    ;UPON REQUIRE AFTER DISPLAY
(0018) 0026 MSG18 EQU    0018H    ;ONLY 'PROGRAM' CAN FOLLOW
      'EXIT'
(0019) 0027 MSG19 EQU    0019H    ;'TO' REQUIRE
(001A) 0028 MSG1A EQU    001AH    ;IDENTIFIER REQUIRE
(001B) 0029 MSG1B EQU    001BH    ;'INTO' OR 'BY' REQUIRE AFT
      ER FIRST LITERAL OR IDEN
(001C) 0030 MSG1C EQU    001CH    ;NUMERIC LITERAL REQUIRE
(001D) 0031 MSG1D EQU    001DH    ;'GIVING' EXPECT,BUT NOT FO
      UND
(001E) 0032 MSG1E EQU    001EH    ;'REMAINDER' EXPECT BUT NOT
      FOUND
(001F) 0033 MSG1F EQU    001FH    ;'BY' REQUIRE AFTER IDENTIF
      IER
(0020) 0034 MSG20 EQU    0020H    ;'INPUT' OR 'OUTPUT' REQUIR
      E IN OPEN STATEMENT
(0021) 0035 MSG21 EQU    0021H    ;REQUIRE INPUT-FILE AFTER O
      PEN INPUT
(0022) 0036 MSG22 EQU    0022H    ;REQUIRE OUTPUT-FILE AFTER
      OPEN OUTPUT

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(0023) 0037 EMSG23 EQU 0023H ;REQUIRE INPUT-FILE AFTER R
      EAD
(0024) 0038 EMSG24 EQU 0024H ;'AT END' OR 'INTO' EXPECT
      AFTER READ
(0025) 0039 EMSG25 EQU 0025H ;'AT END' EXPECT IN READ ST
      ATEMENT
(0026) 0040 EMSG26 EQU 0026H ;'LITERAL NAME' OR 'RUN' EX
      PECT IN STOP STATEMENT.
(0027) 0041 EMSG27 EQU 0027H ;'FROM' EXPECT BUT NOT FOUN
      D
(0028) 0042 EMSG28 EQU 0028H ;'OUTPUT RECORD' EXPECT
(0029) 0043 EMSG29 EQU 0029H ;'FROM' 'BEFORE' OR 'AFTER'
      EXPECT
(002A) 0044 EMSG2A EQU 002AH ;'BEFORE' OR 'AFTER' EXPECT
(002B) 0045 EMSG2B EQU 002BH ;'LINE' OR 'LINES' EXPECT
      0046 ;
      0047 EXTRN NOTE
      0048 EXTRN GENMSG,NXTSTM,RECOVE,DATNAM,LITERL,RO
      UND
      0049 EXTRN FRNOTE,AHEAD
      0050 ;-----
      0051 ; ONSIZE : ONSIZE ERROR SUBROUTINE
      0052 ; IF CONSECUTIVE TOKEN IS NOT [ON] SIZE ERRO
      R
      0053 ; THEN GENERATE ERROR AT ON SIZE ERROR KEY W
      ORD.
      0054 ; BEFORE USE THIS ROUTINE YOU MUST SHURE THA
      T
      0055 ; CURRENT TOKEN IS STARTING AT PROPER STATE.
      0056 ; THIS ROUTINE ALWAYS POINT TO NEXT STATEMEN
      T AFTER
      0057 ; EXIT THE PROGRAM.
      0058 ; TOKEN STREAM IS [00,0F] 00,61 00,7F
      0059 ;
0000' CD0000# 0060 ONSIZE: CALL AHEAD
0003' ED5B0000# 0061 LD DE,(NOTE)
0007' 3E00 0062 LD A,00H ;ON OR SIZE ?
0009' BB 0063 CP A,E
000A' 2038 0064 JR NZ,ONSZER ;NO, NOT ONSIZE ERROR
000C' 7A 0065 LD A,D
000D' FE0F 0066 CP A,0FH ;IS THIS 'ON' KEYWORD
000F' 2806 0067 JR Z,SIZKW ;YES ,CHECK SIZE KEYWORD
0011' FE61 0068 CP A,061H ;SIZE ?
0013' 2816 0069 JR Z,ERRSKW ;CHECK ERROR KEYWORD
0015' 182D 0070 JR ONSZER ;MESSAGE ERROR
0017' CD0000# 0071 SIZKW: CALL FRNOTE ;SKIP ON TOKEN
001A' CD0100# 0072 CALL AHEAD ;LOOKFOR SIZE
001D' ED5B0500# 0073 LD DE,(NOTE)
0021' 7B 0074 LD A,E
0022' FE00 0075 CP A,00H
0024' 201E 0076 JR NZ,ONSZER
0026' 7A 0077 LD A,D
0027' FE61 0078 CP A,061H
0029' 2C19 0079 JR NZ,ONSZER ;NOT 'SIZE' THEN ERROR
002B' CD1800# 0080 ERRSKW: CALL FRNOTE
002E' CD1B00# 0081 CALL AHEAD ;CHECK 'ERRORS' KEYWORD

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0031' ED5B1F00# 0082 LD DE,(NOTE)
0035' 3E00 0083 LD A,00H
0037' BB 0084 CP A,E
0038' 200A 0085 JR NZ,ONSZER
003A' 3E7F 0086 LD A,07FH
003C' BA 0087 CP A,D
003D' 2005 0088 JR NZ,ONSZER
003F' CD2C00# 0089 CALL FRNOTE ;SKIP 'ERRORS' TO NEXT TO
                                KEN
0042' 1809 0090 JR ONSZEX ;EXIT ON SIZE ROUTINE
0044' 111100 0091 ONSZER: LD DE,EMSG11 ;'ON SIZE ERRORS' REQUIRE
0047' CD0000# 0092 CALL GENMSG
004A' CD0000# 0093 CALL RECOVE ;RECOVERY TO NEXT STATEME
                                NT
004D' C9 0094 ONSZEX: RET
0095 ;
0096 ;-----
0097 ; IDLIT: SUBROUTINE TO CHECK IDENTIFIER OR LITERAL
0098 ;
004E' CD0000# 0099 IDLIT: CALL LITERL
0051' FE46 0100 CP A,'F'
0053' 2003 0101 JR NZ,IDLITX
0055' CD0000# 0102 CALL DATNAM
0058' C9 0103 IDLITX: RET
0104 ;
0105 ;-----
0106 ; ACCEPT: SUBROUTINE TO PARSING ACCEPT STATEMENT
0107 ;
0059' CD5600# 0108 ACCEPT: CALL DATNAM ;CHECK IDENTIFIER
005C' FE46 0109 CP A,'F' ;IS IT NOT IDENTIFIER
005E' 2849 0110 JR Z,ACPER1 ;NO, IDENT EXPECT
0060' CD0000# 0111 CALL NXTSTM ;NEXT SENTENCE
0063' FE54 0112 CP A,'T'
0065' 2837 0113 JR Z,ACPOK ;YES ACCEPT OK.
0114 ;-----
0115 ; CHECK TOKEN 'FROM'
0116 ;-----
0067' CD4000# 0117 CALL FRNOTE ;MUST BE 'FROM' TOKEN
006A' ED5B3300# 0118 LD DE,(NOTE) ;GET TOKEN VALUE
006E' 3E00 0119 LD A,00H
0070' BB 0120 CP A,E
0071' 203E 0121 JR NZ,ACPER2 ;NOT 'FROM' THEN ERROR
0073' 3E4C 0122 LD A,04CH
0075' BA 0123 CP A,D
0076' 2039 0124 JR NZ,ACPER2 ;NOT 'FROM' THEN ERROR
0125 ;-----
0126 ; CHECK TOKEN 'DATE', 'DAY', 'TIME'
0127 ;-----
0078' CD6100# 0128 CALL NXTSTM
007B' FE54 0129 CP A,'T' ;ERROR IF END STATEMENT
007D' 2837 0130 JR Z,ACPER3 ;DATE TIME DAY OR MNEMONIC R
                                EQUIRE
007F' CD6800# 0131 CALL FRNOTE
0082' ED5B6C00# 0132 LD DE,(NOTE)
0086' 3E00 0133 LD A,00H
0088' BB 0134 CP A,E

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0089' 200D      0135      JR      NZ,MNEREQ ;MNEEMONIC REQUIRE
008B' 7A        0136      LD      A,D        ;GET NEXT BYTE TO REG 'A'
008C' FE47      0137      CP      A,047H
008E' 280E      0138      JR      Z,ACPOK   ;'DATE' THEN OK
0090' FE2B      0139      CP      A,02BH
0092' 280A      0140      JR      Z,ACPOK   ;'DAY' THEN OK
0094' FE6A      0141      CP      A,06AH
0096' 2806      0142      JR      Z,ACPOK   ;'TIME' THEN OK
0098' 110A00    0143 MNEREQ: LD      DE,EMSG0A ;WARNING MNEMONIC NAME REQUI
RE
009B' CD4800#   0144      CALL   GENMSG
0145 ;
009E' CD7900#   0146 ACPOK: CALL   NXTSTM ;CHECK NEXT STATEMENT
00A1' FE54      0147      CP      A,'T'
00A3' 2803      0148      JR      Z,ENDACP ;YES, THEN END OF ACCEPT
00A5' CD4B00#   0149 ENDEHR: CALL   RECOVE ;NO, RECOVERY TO NEXT STATEM
ENT
00A8' C9        0150 ENDACP: RET
00A9' 110600    0151 ACPER1: LD      DE,EMSG06 ;IDENTIFIER EXPECT AFTER ACC
EPT
00AC' CD9C00#   0152      CALL   GENMSG
00AF' 18F4      0153      JR      ENDERR
00B1' 110700    0154 ACPER2: LD      DE,EMSG07 ;MUST FOLLOW BY 'FROM'
00B4' 18F6      0155      JR      ACPER1+3
00B6' 110800    0156 ACPER3: LD      DE,EMSG08 ;DATE, TIME OR DAY EXPECT
00B9' 18F1      0157      JR      ACPER1+3
0158 ;
0159 ;
-----
0160 ; ADD : SUBROUTINE TO PARSING ADD STATEMENT
0161 ;
00BB' CD2F00#   0162 ADD: CALL   AHEAD ;CHECK ADD CORR
00BE' ED5B8400# 0163      LD      DE,(NOTE)
00C2' 3E00      0164      LD      A,00H ;CORR IS 00,45
00C4' BB        0165      CP      A,E
00C5' 2076      0166      JR      NZ,ADD2 ;NO, CHECK IDENTIFIER OR LIT
ERAL
00C7' 3E45      0167      LD      A,045H ;CORR ?
00C9' BA        0168      CP      A,D
00CA' 2071      0169      JR      NZ,ADD2 ;NO, CHECK IDENTIFIER OR LIT
ERAL
0170 ;
0171 ; CHECK ADD CORR FORMAT
0172 ;
-----
00CC' CD8000#   0173      CALL   FRNOTE ;SKIP PASS CORR
00CF' CD9F00#   0174      CALL   NXTSTM
00D2' FE54      0175      CP      A,'T'
00D4' 2850      0176      JR      Z,INCPAD ;INCOMPLETE ADD STATEMENT
00D6' CD5A00#   0177      CALL   DATNAM
00D9' FE46      0178      CP      A,'F' ; IDENTIFIER ?
00DB' 2851      0179      JR      Z,ADDE1A ;NO, THEN ERROR
00DD' FE53      0180      CP      A,'S'
00DF' 284D      0181      JR      Z,ADDE1A
00E1' CDD000#   0182      CALL   NXTSTM
00E4' FE54      0183      CP      A,'T'
00E6' 283E      0184      JR      Z,INCPAD ;INCOMPLETE ADD STATEMENT
00E8' CDCD00#   0185      CALL   FRNOTE

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00EB' ED5BC000# 0186 LD DE,(NOTE)
00EF' 3E00 0187 LD A,00H ;'TO' = 00,17
00F1' BB 0188 CP A,E
00F2' 202D 0189 JR NZ,TOREQ ;TO REQUIRE
00F4' 3E17 0190 LD A,017H
00F6' BA 0191 CP A,D
00F7' 2028 0192 JR NZ,TOREQ ;TO REQUIRE
00F9' CDE200# 0193 CALL NXTSTM
00FC' FE54 0194 CP A,'T'
00FE' 2826 0195 JR Z,INCPAD ;INCOMPLETE ADD STATEMENT
0100' CDD700# 0196 CALL DATNAM
0103' FE46 0197 CP A,'F' ; IDENTIFIER ?
0105' 2827 0198 JR Z,ADDE1A ;NO, IDENTIFIER REQUIRE
0107' FE53 0199 CP A,'S'
0109' 2823 0200 JR Z,ADDE1A
010B' CDFA00# 0201 CALL NXTSTM
010E' FE54 0202 CP A,'T' ;END STATEMENT ?
0110' 282A 0203 JR Z,ADDEXT ;YES, EXIT ADD ROUTINE
0112' CD0000# 0204 CALL ROUND ;NO, NEXT TOKEN MAY BE 'ROUN
D'
0115' CD0C01# 0205 CALL NXTSTM
0118' FE54 0206 CP A,'T'
011A' 2820 0207 JR Z,ADDEXT ;YES, END OF ADD CORR FORMAT
011C' CD0000' 0208 CALL ONSIZE ;NEXT TOKEN MUST BE ONSIZE E
RROR
011F' 181B 0209 JR ADDEXT ;GEN MESSAGE IF ERROR AND EX
IT
0210 ;
0121' 110E00 0211 TOREQ: LD DE,EMSGOE ;MISSING 'TO' AFTER IDENTIFI
ER
0212 JR ADDER1+3
0213 ;
0126' 110B00 0214 INCPAD: LD DE,EMSGOB ;END BEFORE ENDING STATEMENT
0129' CDAD00# 0215 CALL GENMSG
012C' 180E 0216 JR ADDEXT ;EXIT ADD ROUTINE
012E' 111A00 0217 ADDE1A: LD DE,EMSG1A ;IDENT REQUIRE
0131' 1803 0218 JR ADDER1+3
0133' 110C00 0219 ADDER1: LD DE,EMSGOC ;NUMERIC IDENTIFIER REQUIRE
0136' CD2A01# 0220 CALL GENMSG
0139' CDA600# 0221 CALL RECOVER ;RECOVER TO NEXT SENTENCE
013C' C9 0222 ADDEXT: RET
0223 ;
0224 ;-----
0225 ; ADD2: FORMAT' ADD IDENT TO IDENT [ROUND] ON SIZE
ERROR
0226 ; GIVING
0227 ;-----
013D' CD1601# 0228 ADD2: CALL NXTSTM
0140' FE54 0229 CP A,'T'
0142' 28E2 0230 JR Z,INCPAD ;INCOMPLETE ADD
0144' CD4E00' 0231 CALL IDLIT
0147' FE46 0232 CP A,'F'
0149' 2876 0233 JR Z,ADDER3 ;NUMERIC IDENTIFIER OR LITE
RAI.
014B' FE4E 0234 CP A,'N' ;NUMERIC ?
014D' 2072 0235 JR NZ,ADDER3 ;NO, NUMERIC REQUIRE
014F' CDBC00# 0236 CALL AHEAD

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0152' ED5BED00# 0237 LD DE,(NOTE)
0156' 7B 0238 LD A,E ;NEXT TOKEN IS RESERVED WOR
D
0157' FE00 0239 CP A,00H ;CHECK TOKEN 'TO'
0159' 2013 0240 JR NZ,ADD2A ;CONTINUE CHECK IDENT
015B' 7A 0241 LD A,D
015C' FE17 0242 CP A,017H ;IS THIS 'TO' ?
015E' 2831 0243 JR Z,AFTADD ;SKIP TO CHECK LAST IDENT
0160' CD3E01# 0244 CALL NXTSTM
0163' FE54 0245 CP A,'T'
0165' 28BF 0246 JR Z,INCPAD
0167' CD4E00' 0247 CALL IDLIT ;CHECK IDENT OR LITERAL
016A' FE4E 0248 CP A,'N'
016C' 2053 0249 JR NZ,ADDER3 ;MISSING NUMERIC IDENT LIT
016E' CD6101# 0250 ADD2A: CALL NXTSTM ;CHECK NEXT STATEMENT
0171' FE54 0251 CP A,'T'
0173' 28B1 0252 JR Z,INCPAD
0175' CD4E00' 0253 CALL IDLIT
0178' FE4E 0254 CP A,'N'
017A' 28F2 0255 JR Z,ADD2A
017C' CDE900# 0256 CALL FRNOTE
017F' ED5B5401# 0257 LD DE,(NOTE)
0183' 7B 0258 LD A,E
0184' FE00 0259 CP A,00H ;CHECK TO OR GIVING
0186' 203F 0260 JR NZ,ADDER1 ;NO THEN ERROR
0188' 7A 0261 LD A,D
0189' FE17 0262 CP A,017H ;IS THIS 'TO' ?
018B' 2804 0263 JR Z,AFTADD ;YES, CHECK REMAINING PART
018D' FEB4 0264 CP A,0B4H ;IS THIS 'GIVING'
018F' 2036 0265 JR NZ,ADDER4 ;NO, TO OR GIVING REQUIRE
0191' CD6F01# 0266 AFTADD: CALL NXTSTM
0194' FE54 0267 CP A,'T'
0196' 288E 0268 JR Z,INCPAD ;IF END STATEMENT THEN ERR
0198' CD0101# 0269 AFDLPI: CALL DATNAM ;GET DATA NAME
019B' FE4E 0270 CP A,'N' ;IS THIS NUMERIC DATANAME
019D' C23301' 0271 JP NZ,ADDER1 ;NUMERIC IDENT REQUIRE
01A0' CD9201# 0272 CALL NXTSTM
01A3' FE54 0273 CP A,'T' ;END OF STATEMENT ?
01A5' 2819 0274 JR Z,ADD2EX ;YES, END ADD STATEMENT
01A7' CD1301# 0275 CALL ROUND
01AA' CDA101# 0276 CALL NXTSTM ;TO END OF SENTENCE
01AD' FE54 0277 CP A,'T'
01AF' 280F 0278 JR Z,ADD2EX
01B1' CD5001# 0279 CALL AHEAD
01B4' ED5B8101# 0280 LD DE,(NOTE)
01B8' 7B 0281 LD A,E
01B9' FEFE 0282 CP A,0FEH ;NEXT TOKEN IS NOT RESERVE
01BB' 28DB 0283 JR Z,AFDLP1 ;CONTINUE IF MAY BE IDENT
01BD' CD0000' 0284 CALL ONSIZE ;CHECK ON SIZE ERROR
01C0' C9 0285 ADD2EX: RET ;BEFORE EXIT
0286 ;
01C1' 110D00 0287 ADDER3: LD DE,EMSG0D ;NUMERIC LITERAL OR IDENT R
EQ
01C4' C33601' 0288 JP ADDER1+3
01C7' 111000 0289 ADDER4: LD DE,EMSG10 ;TO OR GIVING EXPECT
01CA' 18F8 0290 JR ADDER3+3
0291 ;

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0292 ; CALLS: CALL STATEMENT
0293 ;
01CC' CDAB01# 0294 CALLS: CALL NXTSTM ;PREVENT ENDING STATEMENT
01CF' FE54 0295 CP A,'T'
01D1' 2836 0296 JR Z,CALEOB ;END BEFORE FINISH PARSING
01D3' CD4E00' 0297 CALL IDLIT
01D6' FE43 0298 CP A,'C' ;MUST BE NON-NUMERIC IDENT
OR LITR
01D8' 2034 0299 JR NZ,CALE12 ;CALL ERROR #12
01DA' CDCD01# 0300 CALL NXTSTM
01DD' FE54 0301 CP A,'T'
01DF' 2840 0302 JR Z,CALEXT ;END OF STATEMENT THEN EXIT
01E1' CD7D01# 0303 CALL FRNOTE
01E4' ED5BB601# 0304 LD DE,(NOTE) ;CHECK 'USING' TOKEN
01E8' 3E00 0305 LD A,00H
01EA' BB 0306 CP A,E
01EB' 2026 0307 JR NZ,CALE13 ;USING REQUIRE AFTER CALL
01ED' 3E9B 0308 LD A,09BH
01EF' BA 0309 CP A,D
01F0' 2021 0310 JR NZ,CALE13
01F2' CDD801# 0311 CALL NXTSTM
01F5' FE54 0312 CP A,'T'
01F7' 2810 0313 JR Z,CALEOB
01F9' CD9901# 0314 NXTPRM: CALL DATNAM ;CHECK PARAMETER
01FC' FE46 0315 CP A,'F'
01FE' 2818 0316 JR Z,CALE14 ;DATA NAME EXPECT
0200' CDF301# 0317 CALL NXTSTM
0203' FE54 0318 CP A,'T'
0205' 20F2 0319 JR NZ,NXTPRM ;CHECK NEXT PARAMETER
0207' 1818 0320 JR CALEXT ;END OF PARSING
0209' 110B00 0321 CALEOB: LD DE,EMSGOB ;END STATEMENT BEFORE FINIS
H
020C' 180D 0322 JR CALE14+3
020E' 111200 0323 CALE12: LD DE,EMSG12 ;PROCEDURE NAME MUST BE NON
-NUMERIC
0211' 1808 0324 JR CALE14+3
0213' 111300 0325 CALE13: LD DE,EMSG13 ;MUST BE FOLLOWED BY 'USING
'
0216' 1803 0326 JR CALE14+3
0218' 111400 0327 CALE14: LD DE,EMSG14 ;END STATEMENT BEFORE FINIS
H
021B' CD3701# 0328 CALL GENMSG
021E' CD3A01# 0329 CALL RECOVE ;RECOVERY PROGRESS
0221' C9 0330 CALEXT: RET
0331 ;-----
0332 ; CLOSE: SUBROUTINE CLOSE STATEMENT
0222' CDFA01# 0333 CLOSE: CALL DATNAM
0225' FE53 0334 CP A,'S' ;MUST BE SPECIAL IN TABLE
0227' 2014 0335 JR NZ,CLSE15 ;ERROR #15
0229' DD7E00 0336 LD A,(IX) ;GET IDENT FLAG
022C' FE02 0337 CP A,02H ;MUST BE FLAG 02
022E' 2804 0338 JR Z,CLSTAG
0230' FE03 0339 CP A,03H
0232' 2009 0340 JR NZ,CLSE15
0234' CD0102# 0341 CLSTAG: CALL NXTSTM

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0237' FE54          0342          CP      A,'T'
0239' 20E7          0343          JR      NZ,CLOSE      ;CONTINUE WITH OTHER TOKEN
023B' 1809          0344          JR      CLSEXT        ;UNTIL END OF STATEMENT
023D' 111500        0345 CLSE15:      LD      DE,EMSG15    ;INPUT OR OUTPUT FILE REQ
0240' CD1C02#       0346          CALL   GENMSG
0243' CD1F02#       0347          CALL   RECOVE        ;AND RECOVERY
0246' C9            0348 CLSEXT:      RET
0349 ;-----
0350 ; DISPLAY:  SCAN DISPLAY STATEMENT
0351 ;
0247' CD3502#       0352 DISPLY:      CALL   NXTSTM
024A' FE54          0353          CP      A,'T'
024C' 285C          0354          JR      Z,DISE0B
024E' CDB201#       0355 DISPL1:      CALL   AHEAD
0251' ED5BE601#     0356          LD      DE,(NOTE)
0255' D5            0357          PUSH   DE            ;SAVE TOKEN NOTE
0256' CD4E00'       0358          CALL   IDLIT
0259' D1            0359          POP    DE
025A' FE46          0360          CP      A,'F'        ;FOUND ENTRY IN TABLE
025C' 2007          0361          JR      NZ,DISPL2    ;IDENT NOT DECLARE
025E' 3EFE          0362          LD      A,0FEH       ;NOT RESERVE WORD ?
0260' BB            0363          CP      A,E
0261' 2842          0364          JR      Z,DISE04     ;IDENTIFIER NOT DECLA
                                HE
0263' 184A          0365          JR      DISE16        ;REQUIRE IDENTIFIER
0265' DD7E00        0366 DISPL2:      LD      A,(IX)
0268' FE05          0367          CP      A,05H
026A' 3843          0368          JR      C,DISE16
026C' CD4802#       0369          CALL   NXTSTM
026F' FE54          0370          CP      A,'T'
0271' 284A          0371          JR      Z,DISEXT     ;END STATEMENT THEN E
                                XIT
0273' CD4F02#       0372          CALL   AHEAD
0276' ED5B5302#     0373          LD      DE,(NOTE)    ;GET TOKEN
027A' 3EFE          0374          LD      A,0FEH
027C' BB            0375          CP      A,E          ;NOT RESERVED WORD
027D' 28CF          0376          JR      Z,DISPL1     ;CONTINUE CHECK IDENT
027F' 3E00          0377          LD      A,00
0281' BB            0378          CP      A,E
0282' 2030          0379          JR      NZ,DISE17    ;UPON REQUIRE AFTER D
                                ISPL
0284' 3E6D          0380          LD      A,06DH
0286' BA            0381          CP      A,D
0287' 202B          0382          JR      NZ,DISE17    ;UPON REQUIRE AFTER D
                                ISPL
0289' CDE201#       0383          CALL   FRNOTE
028C' CD6D02#       0384          CALL   NXTSTM
028F' FE54          0385          CP      A,'T'
0291' 2817          0386          JR      Z,DISE0B     ;MUST NOT END WITH UP
                                ON
0293' 110A00        0387          LD      DE,EMSG0A    ;WARING MNEMONIC NAME
                                REQ
0296' CD4102#       0388          CALL   GENMSG
0299' CD8A02#       0389          CALL   FRNOTE        ;SKIP PASS TOKEN
029C' CD8D02#       0390          CALL   NXTSTM
029F' FE54          0391          CP      A,'T'
02A1' 281A          0392          JR      Z,DISEXT

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02A3' 1815          0393          JR      DSX
02A5' 110400       0394 DISE04:   LD      DE,EMSG04
02A8' 180D         0395          JR      DISE17+3
02AA' 110B00       0396 DISE0B:   LD      DE,EMSG0B
02AD' 1808         0397          JR      DISE17+3
02AF' 111600       0398 DISE16:   LD      DE,EMSG16
02B2' 1803         0399          JR      DISE17+3
02B4' 111700       0400 DISE17:   LD      DE,EMSG17
02B7' CD9702#     0401          CALL   GENMSG
02BA' CD4402#     0402 DSX:      CALL   RECOVE
02BD' C9           0403 DISEXT:   RET
                   0404 ; -----
                   0405 ; DIVIDE: PARSING DIVIDE STATEMENT
                   0406 ;
02BE' CD9D02#     0407 DIVIDE:   CALL   NXTSTM
02C1' FE54         0408          CP      A,'T'
02C3' CAF003'     0409          JP      Z,DIVEOB      ;END OF STATEMENT THEN ERRO
                   R
02C6' CD4E00'     0410          CALL   IDLIT      ;CHECK IDEN OR LITERAL
02C9' FE4E         0411          CP      A,'N'
02CB' C2FA03'     0412          JP      NZ,DIVEOD   ;NUMERIC IDENT OR LITERAL R
                   EQ
02CE' CDBF02#     0413          CALL   NXTSTM
02D1' FE54         0414          CP      A,'T'
02D3' CAF003'     0415          JP      Z,DIVEOB
02D6' CD9A02#     0416          CALL   FHNOTE
02D9' ED5B7802#   0417          LD      DE,(NOTE)
02DD' 7B           0418          LD      A,E
02DE' FE90         0419          CP      A,00H
02E0' C2FF03'     0420          JP      NZ,DIVE1B   ;INTO OR BY REQUIRE
02E3' 7A           0421          LD      A,D
02E4' FE02         0422          CP      A,02H      ;BY ?
02E6' 287F        0423          JR      Z,DIVFM3    ;YES, DIVIDE FORMAT 3
02E8' FE4D         0424          CP      A,04DH      ;
02EA' C2FF03'     0425          JP      NZ,DIVE1B   ;IF NOT INTO THEN ERROR ?
                   0426 ;
                   0427 ; -----
                   0428 ; DIVIDE FORMAT 1,2,4
                   0429 ; -----
02ED' CDCF02#     0430          CALL   NXTSTM
02F0' FE54         0431          CP      A,'T'
02F2' CAF003'     0432          JP      Z,DIVEOB
02F5' CD4F00#     0433          CALL   LITERL     ;CHECK LITERAL
02F8' FE46         0434          CP      A,'F'
02FA' 2807        0435          JR      Z,DIVIDN
02FC' FE4E         0436          CP      A,'N'
02FE' C20404'     0437          JP      NZ,DIVE1C   ;NUMERIC LITERAL REQ
0301' 1873        0438          JR      DIVF3A     ;CHECK GIVING
0303' CD2302#     0439 DIVIDN:   CALL   DATNAM      ;CHECK IDENTIFIER
0306' FE4E         0440          CP      A,'N'      ;NUMERIC IDENT ?
0308' C2F503'     0441          JP      NZ,DIVE0C
030B' CDEE02#     0442          CALL   NXTSTM
030E' FE54         0443          CP      A,'T'
0310' CA1704'     0444          JP      Z,DIVEXT    ;IF END THEN OK
0313' CDA801#     0445          CALL   ROUND
0316' FE54         0446          CP      A,'T'
0318' 2815        0447          JR      Z,DIVST1    ;NEXT STEP

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031A' CDD702#      0448      CALL  FRNOTE      ;CHECK GIVING
031D' ED5BDB02#    0449      LD    DE, (NOTE)
0321' 7B           0450      ID    A,E
0322' FE00         0451      CP    A,00
0324' C20904'     0452      JP    NZ,DIVEID  ;GIVING REQUIRE
0327' 7A           0453      LD    A,D
0328' FEB4         0454      CP    A,0B4H
032A' C20904'     0455      JP    NZ,DIVEID  ;GIVING REQUIRE
032D' 185A         0456      JR    DIVF3B
032F' CD0C03#     0457 DIVST1:  CALL  NXTSTM
0332' FE54         0458      CP    A,'T'
0334' CA1701'     0459      JP    Z,DIVEXT
0337' CD7402#     0460      CALL  AHEAD
033A' 3A1F03#     0461      LD    A,(NOTE)
033D' FEFE         0462      CP    A,0FEH
033F' C2EB03'     0463      JP    NZ,CKONSZ  ;CHECK ONSIZE ERROR
0342' CD0403#     0464      CALL  DATNAM
0345' FE4E         0465      CP    A,'N'
0347' C2F503'     0466      JP    NZ,DIVEOC  ;NUMERIC IDENTIFIER REQUIRE
034A' CD1403#     0467      CALL  ROUND      ;DUMMY SKIP ROUND
034D' CD3003#     0468 DIVWHL:  CALL  NXTSTM      ;WHILE IN DATANAME DO
0350' FE54         0469      CP    A,'T'
0352' CA1704'     0470      JP    Z,DIVEXT
0355' CD4303#     0471      CALL  DATNAM
0358' FE46         0472      CP    A,'F'
035A' CAEB03'     0473      JP    Z,CKONSZ  ;CHECK ONSIZE
035D' FE4E         0474      CP    A,'N'
035F' C2F503'     0475      JP    NZ,DIVEOC  ;NUMERIC IDENTIFIER REQUIRE
0362' CD4B03#     0476      CALL  ROUND      ;DUMMY SKIP ROUND
0365' 18E6         0477      JR    DIVWHL      ;LOOP CHECK IDENT
0478 ;
0367' CD4E00'     0479 DIVFM3:  CALL  IDLIT
036A' FE4E         0480      CP    A,'N'      ;NUMERIC LITERAL OR IDENT
036C' C2FA03'     0481      JP    NZ,DIVEOD
036F' CD4E03#     0482      CALL  NXTSTM
0372' FE54         0483      CP    A,'T'
0374' 287A         0484      JR    Z,DIVEOB
0376' CD1B03#     0485 DIVF3A:  CALL  FRNOTE
0379' ED5B3B03#   0486      LD    DE,(NOTE)
037D' 7B           0487      LD    A,E
037E' FE00         0488      CP    A,00H
0380' C20904'     0489      JP    NZ,DIVEID
0383' 7A           0490      LD    A,D
0384' FEB4         0491      CP    A,0B4H      ;GIVING REQUIRE
0386' C20904'     0492      JP    NZ,DIVEID
0389' CD7003#     0493 DIVF3B:  CALL  NXTSTM
038C' FE54         0494      CP    A,'T'
038E' 2860         0495      JR    Z,DIVEOB
0390' CD5603#     0496      CALL  DATNAM
0393' FE4E         0497      CP    A,'N'      ;NUMERIC IDENT REQUIRE
0395' 205E         0498      JR    NZ,DIVEOC
0397' CD6303#     0499      CALL  ROUND      ;DUMMY READ ROUND IF ANY
039A' CD8A03#     0500      CALL  NXTSTM
039D' FE54         0501      CP    A,'T'
039F' 2876         0502      JR    Z,DIVEXT   ;SKIP IF END STATEMENT
03A1' CD3803#     0503      CALL  AHEAD
03A4' ED5B7B03#   0504      LD    DE,(NOTE)

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03A8' 7B          0505      LD      A,E
03A9' FEFE       0506      CP      A,0FEH      ;NOT RESERVE ?
03AB' 281D       0507      JR      Z,DIVEN4   ;CHECK IDENT [ROUND]
03AD' FE00       0508      CP      A,00H
03AF' 283A       0509      JR      Z,CKONSZ   ;CHECK ONSIZE ERROR
03B1' FE01       0510      CP      A,01H
03B3' 2059       0511      JR      NZ,DIVE1E  ;REMAINDER REQUIRE
03B5' 7A         0512      LD      A,D
03B6' FE37       0513      CP      A,037H
03B8' 2054       0514      JR      NZ,DIVE1E  ;REMAINDER REQUIRE
03BA' CD9103#    0515      CALL   DATNAM
03BD' FE4E       0516      CP      A,'N'
03BF' 2034       0517      JR      NZ,DIVE0C  ;NUMERIC IDENT REQUIRE
03C1' CD9B03#    0518      CALL   NXTSTM
03C4' FE54       0519      CP      A,'T'
03C6' 284F       0520      JR      Z,DIVEXT
03C8' 1821       0521      JR      CKONSZ     ;GO TO CHECK ONSIZE
03CA' CDBB03#    0522 DIVEN1:  CALL   DATNAM
03CD' FE4E       0523      CP      A,'N'     ;CHECK NUMERIC IDENT
03CF' 2024       0524      JR      NZ,DIVE0C  ;NUMERIC IDENT REQUIRE
03D1' CD9803#    0525      CALL   ROUND      ;DUMMY READ ROUND
03D4' CDC203#    0526 DIVENL:  CALL   NXTSTM     ;DIVIDE IDENT LOOP
03D7' FE54       0527      CP      A,'T'
03D9' 283C       0528      JR      Z,DIVEXT
03DB' CDCB03#    0529      CALL   DATNAM
03DE' FE46       0530      CP      A,'F'     ;FOUND DATA NAME
03E0' 2809       0531      JR      Z,CKONSZ  ;CHECK ON SIZE ERROR
03E2' FE4E       0532      CP      A,'N'
03E4' 200F       0533      JR      NZ,DIVE0C ;NUMERIC DATA NAME REQ
03E6' CDD203#    0534      CALL   ROUND      ;DUMMY READ ROUND
03E9' 18E9       0535      JR      DIVENL    ;LOOP FOR DIVIDE IDENT
03EB' CD0000'    0536 CKONSZ:  CALL   ONSIZE
03EE' 1827       0537      JR      DIVEXT
03F0' 110B00     0538 DIVE0B:  LD      DE,EMSG0B
03F3' 181C       0539      JR      DIVE1E+3
03F5' 110C00     0540 DIVE0C:  LD      DE,EMSG0C
03F8' 1817       0541      JR      DIVE1E+3
03FA' 110D00     0542 DIVE0D:  LD      DE,EMSG0D
03FD' 1812       0543      JR      DIVE1E+3
03FF' 111B00     0544 DIVE1B:  LD      DE,EMSG1B
0402' 180D       0545      JR      DIVE1E+3
0404' 111C00     0546 DIVE1C:  LD      DE,EMSG1C
0407' 1808       0547      JR      DIVE1E+3
0409' 111D00     0548 DIVE1D:  LD      DE,EMSG1D
040C' 1803       0549      JR      DIVE1E+3
040E' 111E00     0550 DIVE1E:  LD      DE,EMSG1E
0411' CDB802#    0551      CALL   GENMSG
0414' CDBB02#    0552      CALL   RECOVE
0417' C9         0553 DIVEXT:  RET
                    0554 ;
                    0555 ;
                    0556 ; EXIT:  SCAN EXIT PROGRAM
0418' CDD503#    0557 EXIT:    CALL   NXTSTM
041B' FE54       0558      CP      A,'T'
041D' 2823       0559      JR      Z,EXTTEXT ;YES EXIT PROGRAM
041F' CD7703#    0560      CALL   FRNOTE
0422' ED5BA603# 0561      LD      DE,(NOTE)

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0426' 3E00      0562      LD      A,00
0428' BB        0563      CP      A,E
0429' 200E      0564      JR      NZ,EXTE18
042B' 3EF7      0565      LD      A,0F7H
042D' BA        0566      CP      A,D
042E' 2009      0567      JR      NZ,EXTE18      ; PROGRAM REQUIRE
0430' CD1904#   0568      CALL   NXTSTM
0433' FE54      0569      CP      A,'T'
0435' 280B      0570      JR      Z,EXTEXT
0437' 1806      0571      JR      EXTX
0439' 111800    0572 EXTE18: LD      DE,EMSG18
043C' CD1204#   0573      CALL   GENMSG
043F' CD1504#   0574 EXTX:   CALL   RECOVE
0442' C9        0575 EXTEXT: RET
0576 ; -----
0577 ; MOVE: SCAN MOVE STATEMENT
0578 ;
0443' CDA203#   0579 MOVE:   CALL   AHEAD
0446' ED5B2404# 0580      LD      DE,(NOTE)
044A' 7B        0581      LD      A,E
044B' FE00      0582      CP      A,00H
044D' 2063      0583      JR      NZ,MOVE2
044F' 7A        0584      LD      A,D
0450' FE45      0585      CP      A,045H
0452' 205E      0586      JR      NZ,MOVE2      ;CHECK MOVE FORMAT2
0587 ; -----
0588 ; MOVE CORR IDENT1 TO IDENT2
0454' CD2004#   0589      CALL   FRNOTE      ; SKIP CORR
0457' CDDC03#   0590      CALL   DATNAM
045A' FE46      0591      CP      A,'F'
045C' 284A      0592      JR      Z,MOVE1A      ;MOVE RECOVERY
045E' FE53      0593      CP      A,'S'
0460' 2846      0594      JR      Z,MOVE1A      ;DATA NAME REQ
0462' CD3104#   0595      CALL   NXTSTM
0465' FE54      0596      CP      A,'T'
0467' 2830      0597      JR      Z,MOVE0B      ;END BEFORE FINISH
0469' CD5504#   0598      CALL   FRNOTE
046C' ED5B4804# 0599      LD      DE,(NOTE)
0470' 7B        0600      LD      A,E
0471' FE00      0601      CP      A,00H
0473' 202E      0602      JR      NZ,MOVE19      ;'TO' REQUIRE
0475' 7A        0603      LD      A,D
0476' FE17      0604      CP      A,017H
0478' 2029      0605      JR      NZ,MOVE19      ;'TO' REQUIRE
047A' CD6304#   0606      CALL   NXTSTM
047D' FE54      0607      CP      A,'T'
047F' 2818      0608      JR      Z,MOVE0B      ;PREVENT ENDING
0481' CD5804#   0609      CALL   DATNAM      ;DATANAMAE REQUIRE
0484' FE46      0610      CP      A,'F'
0486' 2820      0611      JR      Z,MOVE1A      ;MOVE RECOVERY
0488' FE53      0612      CP      A,'S'
048A' CAA804'   0613      JP      Z,MOVE1A
048D' CD7B04#   0614      CALL   NXTSTM
0490' FE54      0615      CP      A,'T'
0492' 281D      0616      JR      Z,MOVEXT
0494' CD4004#   0617      CALL   RECOVE      ;RECOVER TO NEXT STATEMEN

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0497' 1818          0618          JR      MOVEXT
0499' 110B00       0619 MOVE0B:   LD      DE,EMSG0B      ;ENDING BEFORE FINISH
049C' 180D         0620          JR      MOVE1A+3
049E' 111600       0621 MOVE16:   LD      DE,EMSG16      ;IDENT OR LITERAL REQ
04A1' 1808         0622          JR      MOVE1A+3
04A3' 111900       0623 MOVE19:   LD      DE,EMSG19      ;'TO' REQUIRE
04A6' 1803         0624          JR      MOVE1A+3
04A8' 111A00       0625 MOVE1A:   LD      DE,EMSG1A      ;IDENTIFIER ERQUIRE
04AB' CD3D04#      0626          CALL   GENMSG
04AE' CD9504#      0627          CALL   RECOVE
04B1' C9           0628 MOVEXT:   RET
0629 ;-----
0630 ; MOVE FORMAT 2 :  MOVE  IDENT1 TO IDENT2 [,IDENT3]...
0631 ;
04B2' CD4E00'      0632 MOVE2:     CALL   IDLIT
04B5' FE46         0633          CP      A,'F'
04B7' 28E5         0634          JR      Z,MOVE16      ;IDENT OR LIT REQUIRE
04B9' CD8E04#      0635          CALL   NXTSTM
04BC' FE54         0636          CP      A,'T'
04BE' 28D9         0637          JR      Z,MOVE0B      ;ENDING BEFORE FINISH
04C0' CD6A04#      0638          CALL   FRNOTE
04C3' ED5B6E04#    0639          LD      DE,(NOTE)
04C7' 7B           0640          LD      A,E
04C8' FE00         0641          CP      A,00H
04CA' 20D7         0642          JR      NZ,MOVE19      ;'TO' REQUIRE
04CC' 7A           0643          LD      A,D
04CD' FE17         0644          CP      A,017H
04CF' 20D2         0645          JR      NZ,MOVE19      ;'TO' REQUIRE
04D1' CD8A04#      0646          CALL   NXTSTM
04D4' FE54         0647          CP      A,'T'
04D6' 28C1         0648          JR      Z,MOVE0B      ;ENDING BEFORE FINISH
04D8' CD8204#      0649          CALL   DATNAM
04DB' FE46         0650          CP      A,'F'
04DD' 28C9         0651          JR      Z,MOVE1A      ;IDENTIFIER REQUIRE
04DF' CDD204#      0652 MOVLPI:  CALL   NXTSTM
04E2' FE54         0653          CP      A,'T'
04E4' 28CB         0654          JR      Z,MOVEXT      ;END STATEMENT
04E6' CDD904#      0655          CALL   DATNAM
04E9' FE4E         0656          CP      A,'N'
04EB' 28F2         0657          JR      Z,MOVLPI
04ED' FE43         0658          CP      A,'C'
04EF' 28EE         0659          JR      Z,MOVLPI
04F1' CDE004#      0660          CALL   NXTSTM
04F4' FE54         0661          CP      A,'T'
04F6' 28B9         0662          JR      Z,MOVEXT
04F8' 18AE         0663          JR      MOVE1A
0664 ;-----
0665 ; MULTIP:  MULTIPLY STATEMENT
0666 ;
04FA' CDF204#      0667 MULTIP:  CALL   NXTSTM
04FD' FE54         0668          CP      A,'T'
04FF' CAB905'      0669          JP      Z,MULE0B      ;MULTIPLY ERROR
0502' CD4E00'      0670          CALL   IDLIT
0505' FE46         0671          CP      A,'F'
0507' CABE05'      0672          JP      Z,MULE16      ;IDENTIFIER OR LITERAL REQ

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050A' CDFB04#      0673      CALL  NXTSTM
050D' FE54        0674      CP    A, 'T'
050F' CAB905'    0675      JP    Z, MULEOB      ; INCOMPLETE MULTIPLY
0512' CDC104#    0676      CALL  FRNOTE
0515' ED5BC504#  0677      LD    DE, (NOTE)    ; CHECK NOTE
0519' 7B         0678      LD    A, E
051A' FE00       0679      CP    A, 00H
051C' C2CD05'    0680      JP    NZ, MULE1F     ; BY REQUIRE
051F' 7A         0681      LD    A, D
0520' FE02       0682      CP    A, 02H
0522' C2CD05'    0683      JP    NZ, MULE1F     ; BY REQUIRE
0525' CD0B05#    0684      CALL  NXTSTM
0528' FE54       0685      CP    A, 'T'
052A' CAB905'    0686      JP    Z, MULEOB     ; SKIP IF END
052D' CDF602#    0687      CALL  LITERL
0530' FE46       0688      CP    A, 'F'
0532' C25C05'    0689      JP    NZ, MULG1V     ; CHECK LITERAL GIVING
0535' CDE704#    0690      CALL  DATNAM
0538' FE46       0691      CP    A, 'F'
053A' CABE05'    0692      JP    Z, MULE1G     ; IDENT OR LITERAL REQ
053D' CD2605#    0693      CALL  NXTSTM
0540' FE54       0694      CP    A, 'T'
0542' CAD605'    0695      JP    Z, MULEXT     ; YES, END OF STATEMENT
0545' CD4404#    0696      CALL  AHEAD
0548' ED5B1705#  0697      LD    DE, (NOTE)
054C' 7B         0698      LD    A, E
054D' FE00       0699      CP    A, 00H
054F' 2028       0700      JR    NZ, MULRND     ; CHECK ROUND
0551' 7A         0701      LD    A, D
0552' FEB4       0702      CP    A, 0B4H       ; CHECK GIVING ?
0554' C2C805'    0703      JP    NZ, MULE1D     ; GIVING REQUIRE
0557' CD1305#    0704      CALL  FRNOTE        ; SKIP GIVING
055A' 1828       0705      JR    MULID3        ; CHECK IDENTIFIER 3
055C' CD3E05#    0706 MULG1V:  CALL  NXTSTM
055F' FE54       0707      CP    A, 'T'
0561' CAB905'    0708      JP    Z, MULEOB     ; SKIP IF ERROR
0564' CD5805#    0709      CALL  FRNOTE
0567' ED5B4A05#  0710      LD    DE, (NOTE)
056B' 7B         0711      LD    A, E
056C' FE00       0712      CP    A, 00H
056E' C2C805'    0713      JP    NZ, MULE1D     ; GIVING REQUIRE
0571' 7A         0714      LD    A, D
0572' FEB4       0715      CP    A, 0B4H
0574' C2C805'    0716      JP    NZ, MULE1D
0577' 180B       0717      JR    MULID3
0579' CDE703#    0718 MULRND:  CALL  ROUND         ; DUMMY SKIP ROUND
057C' CD5D05#    0719      CALL  NXTSTM
057F' FE54       0720      CP    A, 'T'
0581' CAD605'    0721      JP    Z, MULEXT     ; SKIP IF END
0584' CD3605#    0722 MULID3:  CALL  DATNAM
0587' FF46       0723      CP    A, 'F'
0589' CAC305'    0724      JP    Z, MULE1A     ; IDENTIFIER REQUIRE
058C' CD7A05#    0725      CALL  ROUND         ; DUMMY SKIP ROUND
058F' CD7D05#    0726 NULLP:  CALL  NXTSTM
0592' FE54       0727      CP    A, 'T'
0594' CAD605'    0728      JP    Z, MULEXT     ; SKIP IF END
0597' CD4605#    0729      CALL  AHEAD

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059A' 3A6905#      0730      LD      A,(NOTE)
059D' FEFE         0731      CP      A,OFEH      ;RESERVED WORD ?
059F' CAAF05'     0732      JP      Z,MULONZ   ;YES CHECK ONSIZE
05A2' CD8505#     0733      CALL   DATNAM
05A5' FE46        0734      CP      A,'F'
05A7' CAB405'     0735      JP      Z,MULE04   ;IDENT NOT DECLARE
05AA' CD8D05#     0736      CALL   ROUND      ;DUMMY SKIP ROUND
05AD' 18E0        0737      JR      MULLP
05AF' CD0000'     0738 MULONZ:  CALL   ONSIZE     ;CHECK ONSIZE ERROR
05B2' 1822        0739      JR      MULEXT
05B4' 110400      0740 MULE04:  LD      DE,EMSG04
05B7' 1817        0741      JR      MULEIF+3
05B9' 110B00      0742 MULE0B:  LD      DE,EMSG0B
05BC' 1812        0743      JR      MULEIF+3
05BE' 111600      0744 MULE16:  LD      DE,EMSG16
05C1' 180D        0745      JR      MULEIF+3
05C3' 111A00      0746 MULE1A:  LD      DE,EMSG1A
05C6' 1808        0747      JR      MULEIF+3
05C8' 111D00      0748 MULE1D:  LD      DE,EMSG1D
05CB' 1803        0749      JR      MULEIF+3
05CD' 111F00      0750 MULE1F:  LD      DE,EMSG1F
05D0' CDAC04#     0751      CALL   GENMSG
05D3' CDAF04#     0752      CALL   RECOVE
05D6' C9          0753 MULEXT:  RET
0754 ; -----
0755 ; OPEN : OPEN STATEMENT
0756 ;
05D7' CD9005#     0757 OPEN:   CALL   NXTSTM
05DA' FE54        0758      CP      A,'T'
05DC' CA4106'     0759      JP      Z,OPNE0B
05DF' CD6505#     0760      CALL   FRNOTE
05E2' ED5B9B05#  0761      LD      DE,(NOTE)
05E6' 7B          0762      LD      A,E
05E7' FE00        0763      CP      A,00H
05E9' 205B        0764      JR      NZ,OPNE20  ;INPUT OR OUTPUT REQUIRE
05EB' 7A          0765      LD      A,D
05EC' FE85        0766      CP      A,085H
05EE' 282B        0767      JR      Z,OPNINP  ;CHECK OPEN INPUT FILE
05F0' FEBD        0768      CP      A,0BDH
05F2' C24606'     0769      JP      NZ,OPNE20  ;INPUT OR OUTPUT REQUIRE
0770 ; OPEN OUTPUT
05F5' CDA305#     0771 OPNOP:  CALL   DATNAM
05F8' FE53        0772      CP      A,'S'
05FA' C25006'     0773      JP      NZ,OPNE22  ;REQUIRE OUTPUT FILE
05FD' DD7E00      0774      LD      A,(IX)
0600' FE03        0775      CP      A,03H
0602' C25006'     0776      JP      NZ,OPNE22  ;REQUIRE OUTPUT FILE
0605' CDD805#     0777      CALL   NXTSTM
0608' FE54        0778      CP      A,'T'
060A' CA5906'     0779      JP      Z,OPNEXT   ;YES END OF STATEMENT
060D' CD9805#     0780      CALL   AHEAD
0610' 3AE405#     0781      LD      A,(NOTE)
0613' FEFE        0782      CP      A,OFEH      ;MAY BE FILE NAME ?
0615' CAF505'     0783      JP      Z,OPNOP    ;LOOP CHECK OPEN FILE
0618' C3D705'     0784      JP      OPEN       ;CHECK ANOTHER INPUT OR O
UTPUT
0785 ; OPEN INPUT

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061E' CBF605#      0786 OPNINP:  CALL  DATNAM
061E' FE53         0787         CP    A,'S'
0620' C24B06'     0788         JP    NZ,OPNE21      ;REQUIRE INPUT FILE
0623' DD7E00      0789         LD    A,(IX)
0626' FE02        0790         CP    A,02H
0628' C24B06'     0791         JP    NZ,OPNE21      ;REQUIRE INPUT FILE
062B' CD0606#     0792         CALL  NXTSTM
062E' FE54        0793         CP    A,'T'
0630' CA5906'     0794         JP    Z,OPNEXT       ;YES END OF STATEMENT
0633' CD0E06#     0795         CALL  AHEAD
0636' 3A1106#     0796         LD    A,(NOTE)
0639' FEFE        0797         CP    A,0FEH       ;MAY BE FILE NAME ?
063B' CA1B06'     0798         JP    Z,OPNINP       ;LOOP CHECK OPEN FILE
063E' C3D705'     0799         JP    OPEN          ;CHECK ANOTHER INPUT OR O
                                UTPUT
0641' 110B00      0800 OPNE0B:  LD    DE,MSG0B
0644' 180D        0801         JR    OPNE22+3      ;UNEXPECT END OF STATEMEN
                                T
0646' 112000      0802 OPNE20:  LD    DE,MSG20
0649' 1808        0803         JR    OPNE22+3      ;INPUT OR OUTPUT REQUIRE
064B' 112100      0804 OPNE21:  LD    DE,MSG21
064E' 1803        0805         JR    OPNE22+3      ;REQUIRE INPUT-FILE IN OP
                                EN INPUT
0650' 112200      0806 OPNE22:  LD    DE,MSG22      ;REQUIRE OUTPUT-FILE IN O
                                PEN OUTPUT
0653' CDD105#     0807         CALL  GENMSG
0656' CDD405#     0808         CALL  RECOVE
0659' C9          0809 OPNEXT:  RET
                                0810 ;
                                0811 ;
                                -----
                                0812 ; HEAD : PARSING READ STATEMENT
                                0813 ;
065A' CD2C06#     0814 READ:    CALL  NXTSTM
065D' FE54        0815         CP    A,'T'
065F' CADA06'     0816         JP    Z,RDE0B
0662' CD1C06#     0817         CALL  DATNAM
0665' FE53        0818         CP    A,'S'
0667' C2E406'     0819         JP    NZ,RDE23      ;REQUIRE INPUT FILE AFTER
                                READ
066A' DD7E00      0820         LD    A,(IX)       ;GET FLAG
066D' FE02        0821         CP    A,02H
066F' C2E406'     0822         JP    NZ,RDE23      ;REQUIRE INPUT FILE
0672' CD5B06#     0823         CALL  NXTSTM
0675' FE54        0824         CP    A,'T'       ;END OF STATEMENT
0677' CAF706'     0825         JP    Z,RDEXT
067A' CD3406#     0826         CALL  AHEAD
067D' ED5B3706#   0827         LD    DE,(NOTE)   ;LOOK AHEAD FOR RECORD
0681' 7B          0828         LD    A,E
0682' FE00        0829         CP    A,00H       ;CHECK FOR INTO
0684' C2E906'     0830         JP    NZ,RDE24      ;EXPECT AT END OR INTO
0687' 7A          0831         LD    A,D
0688' FE4D        0832         CP    A,04DH       ;CHECK INTO
068A' C2A106'     0833         JP    NZ,RATEND     ;CHECK AT END
068D' CD7306#     0834         CALL  NXTSTM
0690' FE54        0835         CP    A,'T'
0692' CADA06'     0836         JP    Z,RDE0B

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0695' CD6306#      0837      CALL  DATNAM
0698' FE46         0838      CP    A,'F'
069A' CADF06'     0839      JP    Z,RDE1A      ; IDENTIFIER REQUIRE
069D' FE53         0840      CP    A,'S'
069F' 283E        0841      JR    Z,RDE1A      ; GO TO CHECK AT END
06A1' CD8E06#     0842 RATEND:  CALL  NXTSTM
06A4' FE54         0843      CP    A,'T'
06A6' CAF706'     0844      JP    Z,RDEXT      ; NO, AT END REQUIRE
06A9' CDE005#     0845      CALL  FRNOTE
06AC' ED5B7F06#  0846      LD    DE,(NOTE)
06B0' 7B          0847      LD    A,E
06B1' FE00        0848      CP    A,00
06B3' C2EE06'     0849      JP    NZ,RDE25
06B6' 7A          0850      LD    A,D
06B7' FE01        0851      CP    A,01H      ; AT ?
06B9' C2C706'     0852      JP    NZ,RDEND    ; NO, SKIP TO CHECK END
06BC' CDA206#     0853      CALL  NXTSTM
06BF' FE54         0854      CP    A,'T'
06C1' CADA06'     0855      JP    Z,RDE0B
06C4' CDAA06#     0856      CALL  FRNOTE
06C7' ED5BAE06#  0857 RDEND:  LD    DE,(NOTE)  ; CHECK END ?
06CB' 7B          0858      LD    A,E
06CC' FE00        0859      CP    A,00H
06CE' C2EE06'     0860      JP    NZ,RDE25
06D1' 7A          0861      LD    A,D
06D2' FE2F        0862      CP    A,02FH    ; TOKEN 'END' ?
06D4' C2EE06'     0863      JP    NZ,RDE25
06D7' C3F706'     0864      JP    RDEXT
06DA' 110B00      0865 RDE0B:  LD    DE,EMSG0B
06DD' 1812        0866      JR    RDE25+3
06DF' 111A00      0867 RDE1A:  LD    DE,EMSG1A
06E2' 180D        0868      JR    RDE25+3
06E4' 112300      0869 RDE23:  LD    DE,EMSG23
06E7' 1808        0870      JR    RDE25+3
06E9' 112400      0871 RDE24:  LD    DE,EMSG24
06EC' 1803        0872      JR    RDE25+3
06EE' 112500      0873 RDE25:  LD    DE,EMSG25
06F1' CD5406#     0874      CALL  GENMSG
06F4' CD5706#     0875      CALL  RECOVE
06F7' C9          0876 RDEXT:  RET
0877 ;
0878 ; -----
0879 ; STOP : PARSING STOP STATEMENT
0880 ;
06F8' C0BD06#     0881 STOP:   CALL  NXTSTM
06FB' FE54         0882      CP    A,'T'
06FD' CA2B07'     0883      JP    Z,STPE0B    ; STOP ERROR MESSAGE 0B
0700' CD7B06#     0884      CALL  AHEAD
0703' ED5BC906#  0885      LD    DE,(NOTE)
0707' 7B          0886      LD    A,E
0708' FE00        0887      CP    A,00H
070A' 200B        0888      JR    NZ,STPLIT  ; CHECK LITERAL
070C' 7A          0889      LD    A,D
070D' FE38        0890      CP    A,038H    ; CHECK RUN TOKEN
070F' 2006        0891      JR    ,NZ,STPLIT ; NO THEN CHECK LITERAL
0711' CDC506#     0892      CALL  FRNOTE
0714' C31E07'     0893      JP    CHKEOS     ; GOTO CHECK END OF STATE

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0717' CD2E05#      0894 STPLIT:  CALL  LITERL      ;CHECK LITERAL
071A' FE46        0895          CP    A,'F'
071C' 2812        0896          JR    Z,STPE26      ;LITERAL NAME REQUIRE
071E' CDF906#    0897 CHKEOS:  CALL  NXTSTM
0721' FE54        0898          CP    A,'T'
0723' CA3907'    0899          JP    Z,STPEXT
0726' CDF506#    0900          CALL  RECOVE
0729' 180E        0901          JR    STPEXT      ;EXIT
072B' 110B00     0902 STPE0B:  LD    DE,EMSG0B
072E' 1803        0903          JR    STPE26+3
0730' 112600     0904 STPE26:  LD    DE,EMSG26
0733' CDF206#    0905          CALL  GENMSG
0736' CD2707#    0906          CALL  RECOVE
0739' C9          0907 STPEXT:  RET
0908 ;
0909 ;
0910 ; SUBTRC : SUBBTRACT STATEMENT
0911 ;
073A' CD1F07#    0912 SUBTRC:  CALL  NXTSTM
073D' FE54        0913          CP    A,'T'
073F' CA8308'    0914          JP    Z,SUBEOB
0742' CD0107#    0915          CALL  AHEAD
0745' ED5B0507#  0916          LD    DE,(NOTE)
0749' 7B          0917          LD    A,E
074A' FE00        0918          CP    A,00
074C' C2AB07'    0919          JP    NZ,SUBT2
074F' 7A          0920          LD    A,D
0750' FE45        0921          CP    A,045H
0752' C2AB07'    0922          JP    NZ,SUBT2
0755' CD1207#    0923          CALL  FRNOTE      ;SKIP PASS CORR
0924 ;
0925 ; SUBTRACT CORR IDENT FROM IDENT [ROUND] [ON SIZE ERROR
]
0926 ;
0758' CD3B07#    0927          CALL  NXTSTM
075B' FE54        0928          CP    A,'T'
075D' CA8308'    0929          JP    Z,SUBEOB
0760' CD9606#    0930          CALL  DATNAM
0763' FE46        0931          CP    A,'F'
0765' CA9208'    0932          JP    Z,SUBE1A      ;IDENT REQ
0768' FE53        0933          CP    A,'S'
076A' CA9208'    0934          JP    Z,SUBE1A
076D' CD5907#    0935          CALL  NXTSTM
0770' FE54        0936          CP    A,'T'
0772' CA8308'    0937          JP    Z,SUBEOB
0775' CD5607#    0938          CALL  FRNOTE
0778' ED5B4707#  0939          LD    DE,(NOTE)
077C' 7B          0940          LD    A,E
077D' FE00        0941          CP    A,00H
077F' C2A108'    0942          JP    NZ,SUBE27
0782' 7A          0943          LD    A,D
0783' FE4C        0944          CP    A,04CH      ;FROM REQUIRE
0785' C2A108'    0945          JP    NZ,SUBE27
0788' CD6E07#    0946          CALL  NXTSTM
078B' FE54        0947          CP    A,'T'
078D' CA8308'    0948          JP    Z,SUBEOB
0790' CD6107#    0949          CALL  DATNAM

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0793' FE46          0950          CP      A, 'F'
0795' CA9208'      0951          JP      Z, SUBE1A          ; IDENT REQUIRE
0798' FE53          0952          CP      A, 'S'
079A' CA9208'      0953          JP      Z, SUBE1A          ; IDENT REQUIRE
079D' CDAB05#      0954          CALL   ROUND              ; DUMMY SKIP ROUND IF ANY
07A0' CD8907#      0955          CALL   NXTSTM
07A3' FE54          0956          CP      A, 'T'
07A5' CAAA08'      0957          JP      Z, SUBEXT          ; SKIP TO END STATE
07A8' C34F08'      0958          JP      SUBONZ             ; GOTO CHECK ONSIZE
0959 ; -----
0960 ; SUBTRACT IDENT1.. FROM IDENTM [ROUND] IDENTN [ROUND]
      ONSIZE
0961 ; IDENT FROM GIVING .....
07AB' CD4E00'      0962 SUBT2:  CALL   IDLIT
07AE' FE4E          0963          CP      A, 'N'             ; CHECK NUMERIC LIT OR ID
      ENT
07B0' C28D08'      0964          JP      NZ, SUBE0D          ; REQUIRE
07B3' CDA107#      0965          CALL   NXTSTM
07B6' FE54          0966          CP      A, 'T'
07B8' CA8308'      0967          JP      Z, SUBE0B
07BB' CDB407#      0968 SUBTAG:  CALL   NXTSTM
07BE' FE54          0969          CP      A, 'T'
07C0' CA8308'      0970          JP      Z, SUBE0B
07C3' CD4307#      0971          CALL   AHEAD
07C6' 3A7A07#      0972          LD      A, (NOTE)          ; GET FIRST TOKEN RESERVE
?
07C9' FEFE          0973          CP      A, OFEH
07CB' 200B          0974          JR      NZ, SUBFRM          ; CHECK FROM
07CD' CD4E00'      0975          CALL   IDLIT
07D0' FE4E          0976          CP      A, 'N'
07D2' C28D08'      0977          JP      NZ, SUBE0D          ; ERROR IF NOT NUMERIC
07D5' C3BB07'      0978          JP      SUBTAG
07D8' CD7607#      0979 SUBFRM:  CALL   FRNOTE
07DB' ED5BC707#    0980          LD      DE, (NOTE)
07DF' 7B           0981          LD      A, E
07E0' FE00          0982          CP      A, 00H
07E2' C2A108'      0983          JP      NZ, SUBE27          ; 'FROM' REQUIRE
07E5' 7A           0984          LD      A, D
07E6' FE4C          0985          CP      A, 04CH
07E8' C2A108'      0986          JP      NZ, SUBE27          ; 'FROM' REQUIRE
07EB' CDBC07#      0987          CALL   NXTSTM
07EE' FE54          0988          CP      A, 'T'
07F0' CA8308'      0989          JP      Z, SUBE0B
07F3' CD1807#      0990          CALL   LITERL             ; CHECK LITERAL
07F6' FE46          0991          CP      A, 'F'
07F8' CA5508'      0992          JP      Z, SUBID           ; GOTO CHECK IDENT
07FB' FE4E          0993          CP      A, 'N'
07FD' C29708'      0994          JP      NZ, SUBE1C          ; NUMERIC LITERAL REQUIRE
0800' CDEC07#      0995 SUBGIV:  CALL   NXTSTM
0803' FE54          0996          CP      A, 'T'
0805' CA8308'      0997          JP      Z, SUBE0B
0808' CDD907#      0998          CALL   FRNOTE
080B' ED5BDD07#    0999          LD      DE, (NOTE)
080F' 7B           1000          LD      A, E
0810' FE00          1001          CP      A, 00H
0812' C29C08'      1002          JP      NZ, SUBE1D          ; GIVING REQUIRE
0815' 7A           1003          LD      A, D
    
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0816' FEB4          1004      CP      A,0B4H
0818' C29C08'      1005      JP      NZ,SUBE1D      ;GIVING REQUIRE
081B' CD0108#      1006      CALL    NXTSTM
081E' FE54          1007      CP      A,'T'
0820' CA8308'      1008      JP      Z,SUBE0B
0823' CD9107#      1009      CALL    DATNAM
0826' FE4E          1010      CP      A,'N'
0828' C28808'      1011      JP      NZ,SUBE0C      ;NUMERIC IDENTIFIER REQ
082B' CD9E07#      1012      CALL    ROUND          ;DUMMY SKIP ROUND
082E' CD1C08#      1013  SUBID2:  CALL    NXTSTM
0831' FE54          1014      CP      A,'T'
0833' CAAA08'      1015      JP      Z,SUBEXT      ;END OF STATEMENT
0836' CDC407#      1016      CALL    AHEAD
0839' 3A0D08#      1017      LD      A,(NOTE)
083C' FEFE          1018      CP      A,0FEH      ;NEXT IS RESERVE WORD
083E' C24F08'      1019      JP      NZ,SUBONZ     ;CHECK ON SIZE
0841' CD2408#      1020      CALL    DATNAM
0844' FE4E          1021      CP      A,'N'
0846' C28808'      1022      JP      NZ,SUBE0C      ;NUMERIC IDENT REQUIRE
0849' CD2C08#      1023      CALL    ROUND
084C' C32E08'      1024      JP      SUBID2
084F' CD0000'      1025  SUBONZ:  CALL    ONSIZE        ;CALL ONSIZE
0852' C3AA08'      1026      JP      SUBEXT        ;AND EXIT
0855' CD4208#      1027  SUBID:  CALL    DATNAM
0858' FE4E          1028      CP      A,'N'
085A' C28808'      1029      JP      NZ,SUBE0C      ;NUMERIC IDENTIFIER REQUI

RE
085D' CD4A08#      1030      CALL    ROUND          ;DUMMY SKIP ROUND
0860' CD2F08#      1031      CALL    NXTSTM
0863' FE54          1032      CP      A,'T'
0865' CAAA08'      1033      JP      Z,SUBEXT      ;SKIP IF END OF STATEMENT
0868' CD3708#      1034      CALL    AHEAD
086B' ED5B3A08#    1035      LD      DE,(NOTE)
086F' 7B           1036      LD      A,E
0870' FEFE          1037      CP      A,0FEH      ;IDENTIFIER ?
0872' CA2E08'      1038      JP      Z,SUBID2     ;YES, GOTO CHECK IDENTIFI

ER
0875' FE00          1039      CP      A,00H
0877' C24F08'      1040      JP      NZ,SUBONZ     ;IF NOT GIVING THEN CHECK

ONSIZE
087A' 7A           1041      LD      A,D
087B' FEB4          1042      CP      A,0B4H      ;GIVING OR NOT
087D' C24F08'      1043      JP      NZ,SUBONZ     ;NO, CHECK ON SIZE
0880' C30008'      1044      JP      SUBGIV        ;SKIP TO CHEECK GIVING FO

RMAT
0883' 110B00       1045  SUBE0B:  LD      DE,EMSG0B
0886' 181C         1046      JR      SUBE27+3
0888' 110C00       1047  SUBE0C:  LD      DE,EMSG0C
088B' 1817         1048      JR      SUBE27+3
088D' 110D00       1049  SUBE0D:  LD      DE,EMSG0D
0890' 1812         1050      JR      SUBE27+3
0892' 111A00       1051  SUBE1A:  LD      DE,EMSG1A
0895' 180D         1052      JR      SUBE27+3
0897' 111C00       1053  SUBE1C:  LD      DE,EMSG1C
089A' 1808         1054      JR      SUBE27+3
089C' 111D00       1055  SUBE1D:  LD      DE,EMSG1D
089F' 1803         1056      JR      SUBE27+3

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08A1' 112700      1057 SUBE27:  LD      DE,EMSG27
08A4' CD3407#    1058          CALL   GENMSG
08A7' CD3707#    1059          CALL   RECOVE
08AA' C9         1060 SUBEXT:  RET
                  1061 ;
                  1062 ;-----
                  1063 ; WRITE: WRITE STATEMENT
                  1064 ;
08AB' CD6108#    1065 WRITE:  CALL   NXTSTM
08AE' FE54       1066          CP     A,'T'
08B0' CA6609'    1067          JP     Z,WRTE0B
08B3' CD5608#    1068          CALL   DATNAM
08B6' FE43       1069          CP     A,'C'
08B8' C27509'    1070          JP     NZ,WRTE28      ; REQUIRE OUTPUT RECORD
08BB' DD7E00     1071          LD     A,(IX)
08BE' FE13       1072          CP     A,013H      ; OUTPUT RECORD ?
08C0' C27509'    1073          JP     NZ,WRTE28
08C3' CDAC08#    1074          CALL   NXTSTM
08C6' FE54       1075          CP     A,'T'
08C8' CA8D09'    1076          JP     Z,WRTEXT      ; END OF STATEMENT THEN
                  EXIT
08CB' CD0908#    1077          CALL   FRNOTE
08CE' ED5B6D08#  1078          LD     DE,(NOTE)
08D2' 7B         1079          LD     A,E
08D3' FE00       1080          CP     A,00H
08D5' C27A09'    1081          JP     NZ,WRTE29      ; 'FROM' 'BEFOR' OR 'AFT
                  ER' EXPECT
08D8' 7A         1082          LD     A,D
08D9' FE4C       1083          CP     A,04CH      ; IS THIS FROM
08DB' C2F608'    1084          JP     NZ,WRTBEP      ; NO GO TO CHECK BEFORE
08DE' CDB408#    1085          CALL   DATNAM
08E1' FE46       1086          CP     A,'F'
08E3' CA7009'    1087          JP     Z,WRTE1A      ; IDENTIFIER REQUIRE
08E6' FE53       1088          CP     A,'S'
08E8' CA7009'    1089          JP     Z,WRTE1A
08EB' CDC408#    1090          CALL   NXTSTM
08EE' FE54       1091          CP     A,'T'
08F0' CA8D09'    1092          JP     Z,WRTEXT      ; YES END OF STATEMENT
08F3' CDCC08#    1093          CALL   FRNOTE
08F6' ED5BD008#  1094 WRTBEF: LD     DE,(NOTE)
08FA' 7B         1095          LD     A,E
08FB' FE00       1096          CP     A,00H
08FD' C27F09'    1097          JP     NZ,WRTE2A      ; REQUIRE BEFORE OR AFT
                  ER
0900' 7A         1098          LD     A,D
0901' FE71       1099          CP     A,071H      ; CHECK BEFORE OR AFTER
0903' C27F09'    1100          JP     NZ,WRTE2A      ; REQUIRE BEFORE OR AFT
                  ER
0906' CD6908#    1101          CALL   AHEAD      ; FOR OPTIONAL ADVANCE
0909' ED5BF808#  1102          LD     DE,(NOTE)
090D' 7B         1103          LD     A,E
090E' FE01       1104          CP     A,01H
0910' C21C09'    1105          JP     NZ,WRTLIN
0913' 7A         1106          LD     A,D
0914' FE27       1107          CP     A,027H      ; ADVANCING ?
0916' C21C09'    1108          JP     NZ,WRTLIN
0919' CDF408#    1109          CALL   FRNOTE      ; SKIP PASS ADVANCING

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091C' CD0709#      1110 WRFLIN:  CALL  AHEAD
091F' ED5B0B09#   1111          LD   DE,(NOTE)      ;CHECK PAGE
0923' 7B          1112          LD   A,E
0924' FE00        1113          CP   A,00H
0926' C24009'     1114          JP   NZ,WRTNUM      ;WRITE WITH NUMBER
0929' 7A          1115          LD   A,D
092A' FE59        1116          CP   A,059H
092C' C24009'     1117          JP   NZ,WRTNUM
092F' CD1A09#     1118          CALL FRNOTE      ;SKIP PASS PAGE
0932' CDEC08#     1119 WRTX:   CALL  NXTSTM
0935' FE54        1120          CP   A,'T'
0937' CA8D09'     1121          JP   Z,WRTEXT
093A' CDA808#     1122          CALL RECOVE      ;RECOVER IF NOT END OF
                                STATE
093D' C38D09'     1123          JP   WRTEXT
0940' CD4E00'     1124 WRTNUM:  CALL  IDLIT
0943' FE4E        1125          CP   A,'N'
0945' C26B09'     1126          JP   NZ,WRTEND      ;NUMERIC LITERAL OR ID
                                ENT REQUIRE
0948' CD3309#     1127          CALL  NXTSTM
094B' FE54        1128          CP   A,'T'
094D' CA8D09'     1129          JP   Z,WRTEXT      ;IF END STATE
0950' CD3009#     1130          CALL  FRNOTE      ;IT MUST BE LINE OR LI
                                NES
0953' ED5B2109#   1131          LD   DE,(NOTE)
0957' 7B          1132          LD   A,E
0958' FE00        1133          CP   A,00H
095A' C28409'     1134          JP   NZ,WRT2B      ;LINE REQUIRE
095D' 7A          1135          LD   A,D
095E' FE52        1136          CP   A,052H
0960' C28409'     1137          JP   NZ,WRT2B      ;LINE REQUIRE
0963' C33209'     1138          JP   WRTX
0966' 110B00      1139 WRT2OB:  LD   DE,MSG0B
0969' 181C        1140          JR   WRT2B+3
096B' 110D00      1141 WRT2OD:  LD   DE,MSG0D
096E' 1817        1142          JR   WRT2B+3
0970' 111A00      1143 WRT21A:  LD   DE,MSG1A
0973' 1812        1144          JR   WRT2B+3
0975' 112800      1145 WRT228:  LD   DE,MSG28
0978' 180D        1146          JR   WRT2B+3
097A' 112900      1147 WRT229:  LD   DE,MSG29
097D' 1808        1148          JR   WRT2B+3
097F' 112A00      1149 WRT22A:  LD   DE,MSG2A
0982' 1803        1150          JR   WRT2B+3
0984' 112B00      1151 WRT22B:  LD   DE,MSG2B
0987' CDA508#     1152          CALL GENMSG
098A' CD3B09#     1153          CALL RECOVE
098D' C9          1154 WRT22T:  RET

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Errors 0

Program length 098E (2446)

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0001 ; CONSTANT FOR ERROR MESSAGE
(0001) 0002 MSG01 EQU 0001H ;DATANAME NOT UNIQUE
(0002) 0003 MSG02 EQU 0002H ;QUALIFIER NOT FOUND
(0003) 0004 MSG03 EQU 0003H ;MISSING ENDING SUBSCRIPT
(0004) 0005 MSG04 EQU 0004H ;IDENTIFIER NOT DECLARE
(0005) 0006 MSG05 EQU 0005H ;UNEXPECT END OF STATEMENT
0007 ; SKIP TO NEXT VERB OR PARAG
      RAPH.
(0006) 0008 MSG06 EQU 0006H ; IDENTIFIER EXPECT AFTER AC
      CEPT
(0007) 0009 MSG07 EQU 0007H ;MUST FOLLOW BY FROM IN ACC
      EPT STATEMENT
(0008) 0010 MSG08 EQU 0008H ;DATE, DAY OR TIME REQUIRE
      IN ACCEPT STATEMENT
(0009) 0011 MSG09 EQU 0009H ; IDENTIFIER EXPECT BUT RESE
      RVED WORD WAS FOUND
(000A) 0012 MSG0A EQU 000AH ;WARNING MNEMONIC NAME REQU
      IRE
(000B) 0013 MSG0B EQU 000BH ; FOUND NEXT STATEMENT BEFOR
      E END CURRENT STATEMENT
(000C) 0014 MSG0C EQU 000CH ;NUMERIC IDENTIFIER REQUIRE
(000D) 0015 MSG0D EQU 000DH ;NUMERIC IDENTIFIER OR NUME
      RIC LITERAL REQUIRE
(000E) 0016 MSG0E EQU 000EH ;MISSING 'TO'
(000F) 0017 MSG0F EQU 000FH ;
(0010) 0018 MSG10 EQU 0010H ;
0019 ;
0020 EXTRN COMPAR,FRNOTE,AHEAD,ERROR
0021 EXTRN SYMTAB,NOTE,LENGTH
0022 EXTRN HHHH,LLLL,ERRCD,AREA,VERB
0023 REL
0024 ; -----
0025 ; SEARCH : TO SEARCH NAME IN SYMBOL TABLE
0026 ; INPUT : IX - POINTER TO ENTRY TO BEGIN SEARCH
0027 ; DE -- OBJECT NAME TO SEARCH
0028 ; A - LENGTH OF OBJECT
0029 ;
0030 ; OUTPUT : IX - POINT TO ENTRY WHICH FOUND
0031 ; OR END OF TABLE ADDRESS
0032 ; A - 'T' IF FOUND OBJECT IN SYMBOL T
      ABLE
0033 ; - 'F' OR OBJECT NOT PRESENT
0034 ; (UNIQ)- 'T' UNIQUE DATANAME
0035 ; - 'F' NOT UNIQUE DATANAME
0036 ;
0037 ; FLAG = 00 - 04
(0000) 0038 FG EQU 0 ; IDENTIFIER FLAG
(0001) 0039 LN EQU 1 ; LENGTH OF NAME
(0002) 0040 NMCONT EQU 2 ; CONTENT OF NAME BEGIN HERE
0041 ;
0042 ; FLAG = 05 -13
(0000) 0043 FLAG EQU 0 ; IDENTIFIER FLAG
(0001) 0044 GRPADR EQU 1 ; GROUP ADDRESS POINTER
(0003) 0045 SIZE EQU 3 ; SIZE OF DATA-NAME IN BYTE
(0004) 0046 NAMELN EQU 4 ; LENGTH OF DATA-NAME IN BYT

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(0005)      0047 NAME      EQU      5          ;BEGINING OF DATA NAME
            0048 ;
0000' E5      0049 SEARCH:  PUSH     HL
0001' C5      0050          PUSH     BC
0002' 324A00' 0051          LD      (STRLEN), A    ;SAVE STRING LENGTH
0005' CD4B00' 0052          CALL   SRCHLP
0008' F5      0053          PUSH     AF          ;SAVE FOUND FLAG
0009' FE54    0054          CP      A, 'T'        ;FIRST CHECK TRUE
000B' 202D    0055          JR      NZ, NOTUN1    ;NOT FOUND IN TABLE
000D' DD224700' 0056         LD      (ENTPTR), IX    ;SAVE ENTRY POINTER
0011' DD7E00  0057         LD      A, (IX)        ;CHECK ANY DATA IN TABL
            E
0014' 010000  0058         LD      BC, 0000      ;CLEAR BC REGISTER
0017' FE05    0059         CP      A, 05         ;BELOW NUMERIC DATA
0019' 380B    0060         JR      C, ADDLN1    ;FORMAT HEADER 1
001B' DD4E04  0061         LD      C, (IX+NAMELN)
001E' DD09    0062         ADD     IX, BC
0020' 0E05    0063         LD      C, 05         ;PLUS OFFSET HEADER
0022' DD09    0064         ADD     IX, BC        ;TO NEW ENTRY
0024' 1809    0065         JR      UNICLK
0026' DD4E01  0066 ADDLN1:  LD      C, (IX+LN)    ;FORMAT 1 LENGTH
0029' DD09    0067         ADD     IX, BC        ;PLUS LENGTH
002B' DD23    0068         INC     IX
002D' DD23    0069         INC     IX          ;PLUS 2 BYTE FOR HEADER
002F' CD4B00' 0070 UNICLK:  CALL   SRCHLP        ;SEARCH FOR UNIQUE
0032' FE54    0071         CP      A, 'T'        ;SAME NAME IN TABLE ?
0034' 2804    0072         JR      Z, NOTUN1    ;SKIP IF NOT UNIQUE
0036' 3E54    0073         LD      A, 'T'
0038' 1802    0074         JR      NOTUN2    ;EXIT SEARCH ROUTINE
003A' 3E46    0075 NOTUN1:  LD      A, 'F'        ;SET NOT UNIQUE DATA
003C' 324900' 0076 NOTUN2:  LD      (UNIQ), A    ;LOAD UNIQUE FLAG
003F' F1      0077         POP     AF          ;RESTORE FOUND FLAG
0040' DD2A4700' 0078        LD      IX, (ENTPTR) ;RESTORE ENTRY POINTER
0044' C1      0079         POP     BC
0045' E1      0080         POP     HL
0046' C9      0081         RET
0047' 0000    0082 ENTPTR:  DW      0
0049' (0001)  0083 UNIQ:   DS      1
004A' (0001)  0084 STRLEN:  DS      1
            0085 ;-----
004B' DD7E00  0086 SRCHLP:  LD      A, (IX+FLAG) ;CHECK FLAG BYTE
004E' FE05    0087          CP      A, 05         ;RANGE IN DATA NAME
0050' 3028    0088          JR      NC, DATA1P    ;YES, SKIP TO DATA NAME
            LOOP
            0089 ;
            0090 ; PROGRAM-ID THRU CONDITION NAME
0052' 3A4A00' 0091          LD      A, (STRLEN) ;GET STRING LENGTH TO C
            COMPARE
0055' DD8E01  0092          CP      A, (IX+LN)    ;IS LENGTH EQUAL IN SYM
            TAB
0058' 2015    0093          JR      NZ, NXTENT    ; NO, SKIP TO NEXT ENT
            RY
            0094 ;
005A' E5      0095          PUSH     HL
005B' DDE5    0096          PUSH     IX
005D' DDE5    0097          PUSH     IX          ;HL = IX = ENTRY POINTE
            R

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005F' E1          0098          POP          HL          ;POINT TO ENTRY IN SYMB
                   OL
0060' 23          0099          INC          HL
0061' 23          0100          INC          HL          ;POINT TO NAME CONTENT
0062' DD4E01      0101          LD           B, (IX+LN)  ;GET LENGTH OF STRING
0065' CD0000#     0102          CALL        COMPAR
0068' DDE1        0103          POP          IX
006A' E1          0104          POP          HL
006B' FE54        0105          CP           A, 'T'      ;IS STRING EQUAL
006D' 283E        0106          JR           Z, FOUND    ;YES FOUND ENTRY IN SYM

                   TAB
                   0107 ;
006F' 0600        0108 NXTENT:   LD           B, 0
0071' DD4E01      0109          LD           C, (IX+LN)  ;GET LENGTH OF NAME
0074' 03          0110          INC          BC
0075' 03          0111          INC          BC          ;PLUS PREFIX HEADER
0076' DD09        0112          ADD          IX, BC      ;POINT TO NEXT ENTRY
0078' 18D1        0113          JR           SRCHLP      ;NEXT ENTRY TO SEARCH
                   0114 ;
007A' 3EFF        0115 DATALP: LD           A, OFFH
007C' DD8E00      0116          CP           A, (IX+FLAG) ;END OF TABLE ?
007E' 2830        0117          JR           Z, EOFTAB   ;YES, SKIP TO END OF TA

                   BLE
                   0118 ;
0081' 3A4A00'     0119          LD           A, (STRLEN) ;GET STRING LENGTH
0084' DD8E04      0120          CP           A, (IX+NAMELN) ;COMPARE WITH NAME LEN

                   GTH
0087' 2017        0121          JR           NZ, NEXTEN  ;NO, SKIP TO NEXT ENTR
                   Y
                   0122 ;
0089' DDE5        0123          PUSH        IX
008B' 010500      0124          LD           BC, NAME    ;OFFSET OF NAME IN ENT

                   RY
008E' DD09        0125          ADD          IX, BC      ;IX POINT TO NAME IN T

                   ABLE
0090' DDE5        0126          PUSH        IX
0092' E1          0127          POP          HL          ;LOAD IN TO HL = NAME

                   ADDR
0093' 3A4A00'     0128          LD           A, (STRLEN) ;GET STRING LENGTH
0096' 47          0129          LD           B, A
0097' CD6600#     0130          CALL        COMPAR
009A' DDE1        0131          POP          IX          ;RESTORE IX POINTER
009C' FE54        0132          CP           A, 'T'      ;ENTRY FOUND ?
009E' 280D        0133          JR           Z, FOUND    ;YES, FOUND
00A0' 0600        0134 NEXTEN:   LD           B, 0
00A2' DD4E04      0135          LD           C, (IX+NAMELN) ;BC = LENGTH OF NAME
00A5' DD09        0136          ADD          IX, BC
00A7' 0E05        0137          LD           C, NAME     ;BC = NAME OFFSET
00A9' DD09        0138          ADD          IX, BC      ;IX = POINT TO NEXT EN

                   TRY
00AB' 189E        0139          JR           SRCHLP      ;GO TO SEARCH LOOP
00AD' 3E54        0140 FOUND:   LD           A, 'T'      ;FLAG TRUE ON RETURN
00AF' 1802        0141          JR           EXIT
00B1' 3E46        0142 EOFTAB:  LD           A, 'F'      ;FLAG FALSE ON RETURN
00B3' C9          0143 EXIT:    RET
                   0144 ;

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0145 ;
0146 ;DATNAM: CHECK NEXT TOKEN IS DATANAME OR NOT.
0147 ; RECONIZE DATA NAME WHICH HAS QUALIFICATION.
0148 ; RECOVERY WHEN ERROR HAS OCCURED.
0149 ;
0150 ; REMARK: TOKEN POINTER NOT MOVE WHEN FOUND RES
        ERVED WORD
0151 ;
0152 ; INPUT NONE
0153 ;
0154 ; OUTPUT A = 'N' DATANAME IS NUMERIC
0155 ;          'C' DATANAME IS NON-NUMERIC
0156 ;          'S' SPECIAL ITEM (BETWEEN FLAG
        00 04)
0157 ;          'F' NOT DATANAME
0158 ; IX = POINTER TO ENTRY OF SYMBOL FOUN
        D
0159 ; HL = POINTER TO NEXT TOKEN
0160 ENTRY DATNAM
        (00B4')
0161 DATNAM: EQU $
00B4' CD0000# 0162 CALL AHEAD ;GET NEXT TOKEN
00B7' 3A0000# 0163 LD A,(NOTE) ;GET FIRST TOKEN TYPE
00BA' FEFE 0164 CP A,0FEH ;NOT RESERVE ?
00BC' C2C301' 0165 JP NZ,NOTFND ;YES, NOT FOUND DATANAME
00BF' 3A0000# 0166 LD A,(HHHH) ;GET HIGH ORDER ADDRESS
00C2' 57 0167 LD D,A ;STORE IN D
00C3' 3A0000# 0168 LD A,(LLLL) ;GET LOW ORDER ADDRESS
00C6' 5F 0169 LD E,A ;STORE IN E
00C7' 3A0000# 0170 LD A,(LENGTH) ;GET LENGTH OF TOKEN
00CA' DD210000# 0171 LD IX,SYMTAB ;POINT TO BEGIN OF SYMBO
        L
00CE' CD0000' 0172 CALL SEARCH ;SEARCH IN SYMBOL TABLE
00D1' FE54 0173 CP A,'T' ;FOUND ENTRY ?
00D3' C2C301' 0174 JP NZ,NOTFND ;NO, NOT FOUND ENTRY
00D6' DDE5 0175 PUSH IX
00D8' CD0000# 0176 CALL FRNOTE ;SKIP PASS FIRST TOKEN N
        AME
00DB' DDE1 0177 POP IX
00DD' DD7E00 0178 LD A,(IX+FLAG) ;CHECK IDENT-FLAG
00E0' FE05 0179 CP A,05 ;IS THIS DATANAME ?
00E2' DAC001' 0180 JP C,SPCIAL ;SKIP IF SPECIAL ENTRY
00E5' DD22E601' 0181 LD (SUBGRP),IX ;SAVE ENTRY OF DATANAME
00E9' CDB500# 0182 CALL AHEAD ;LOOK AHEAD FOR QUALIFIE
        R
00EC' ED5BB800# 0183 LD DE,(NOTE) ;GET TOKEN TYPE
00F0' 3E00 0184 LD A,00H ;CHECK FOR 'IN' OR 'OF'
00F2' BB 0185 CP A,E ;FIRST BYTE IS 00H
00F3' 205E 0186 JR NZ,DATCHK ;NO, NO QUALIFIER CHECK
        UNIQUE
00F5' 3E0B 0187 LD A,0BH ;NEXT BYTE IS 0BH
00F7' BA 0188 CP A,D
00F8' 2059 0189 JR NZ,DATCHK ;NO, NO QUALIFIER CHECK
        UNIQUE
00FA' CDD900# 0190 CALL FRNOTE ;SKIP 'OF' OR 'IN'
00FD' CDFB00# 0191 CALL FRNOTE ;GET PARENT TOKEN
0100' 22E401' 0192 MATCH: LD (NXTTOK),HL ;SAVE HL POINTER
0103' DD21CC00# 0193 LD IX,SYMTAB ;POINT TO SYMBOL TABLE

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0107' 3AC000#      0194      LD      A,(HHHH)
010A' 57           0195      LD      D,A
010B' 3AC400#      0196      LD      A,(LLLL)
010E' 5F           0197      LD      E,A          ;DE = POINTER TO TOKEN N

AME
010F' 3AC800#      0198      LD      A,(LENGTH)  ;AND LENGTH
0112' CD0000'      0199      CALL   SEARCH
0115' FE54         0200      CP      A,'T'        ;FOUND PARENT IN TABLE
0117' C2B301'      0201      JP      NZ,QUALER    ;SKIP IF NO PARENT
011A' DD22E801'    0202      LD      (PARNT),IX   ;SAVE PARENT ADDRESS
011E' ED4BE801'    0203 CPPARN: LD      BC,(PARNT)   ;PARENT ADDRESS IN BC
0122' DD2AE601'    0204      LD      IX,(SUBGRP) ;IX = SUBGROUP ADDRESS
0126' 78           0205      LD      A,B          ;HIGH BYTE IN B
0127' DDBE01       0206      CP      A,(IX+GRPADR) ;COMPARE WITH CHILD
012A' 2066         0207      JR      NZ,TRYNXT    ;TRY NEXT CHILD
012C' 79           0208      LD      A,C          ;LOWBYTE IN C
012D' DDBE02       0209      CP      A,(IX+GRPADR+1) ;COMPARE WITH CHILD
0130' 2830         0210      JR      Z,DATAOK    ;SKIP IF CHILD OK
0211 ;
0212 ;QUALIFIER GROUP NOT FOUND,TRY TO SEARCH NEXT ENTRY WITH
HIN PARENT
0213 ;          (HHHH)(LLLL) POINT TO PARENT GROUP NAME
0214 ;
0132' DD2AE601'    0215 TRYNXT: LD      IX,(SUBGRP) ;GET SUBGROUP ADDRESS
0136' 110400       0216      LD      DE,NAMELN   ;NAME LENGTH OFFSET
0139' DD19         0217      ADD     IX,DE        ;POINT TO NAME LENGTH
013B' DD5E00       0218      LD      E,(IX)      ;GET LENGTH TO DE
013E' 7B           0219      LD      A,E          ;AND REG A TO USE FOR S

EARCH
013F' DD23         0220      INC     IX          ;POINT TO NAME OF SUBGRO
UP
0141' DDE5         0221      PUSH   IX
0143' DD19         0222      ADD     IX,DE        ;IX POINT TO NEXT ENTRY
0145' D1           0223      POP    DE          ;DE POINT TO SUBGROUP NA
ME
0146' CD0000'      0224      CALL   SEARCH        ;TRY TO FIND SAME SUBGRO
UP NAME
0149' FE54         0225      CP      A,'T'        ;IS STILL HAS SUBGRUP IN
TABLE
014B' 2066         0226      JR      NZ,QUALER    ;QUALIFIER ERROR
014D' DD22E601'    0227      LD      (SUBGRP),IX  ;SAVE SUBGROUP ADDRESS
0151' 18CB         0228      JR      CPPARN       ;TRY TO MATCH ANOTHER EN
TRY
0229 ;
0153' 3A4900'      0230 DATCHK: LD      A,(UNIQ)  ;CHECK UNIQUE DATANAME
0156' FE54         0231      CP      A,'T'
0158' 2808         0232      JR      Z,DATAOK    ;YES ,DATANAME IS CORREC
T
015A' 110100       0233      LD      DE,EMSG01   ;SET NOT UNIQUE MESSAGE
015D' CDB302'      0234      CALL   GENMSG
0160' 1861         0235      JR      NOTFND
0236 ;
0237 ; TRY TO FIND SUBSCRIPT
0238 ;
0162' CDEA00#      0239 DATAOK: CALL   AHEAD    ;LOOK AHEAD FOR '('
0165' ED5BEE00#    0240      LD      DE,(NOTE)
0169' 3E01         0241      LD      A,01H

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016B' BB          0242      CP      A,E
016C' 2858        0243      JR      Z, IDCORT      ;SKIP IF NOT '('
016E' 3E8D        0244      LD      A, 08DH
0170' BA          0245      CP      A,D
0171' 2053        0246      JR      NZ, IDCORT      ;SKIP IF NOT '('
0173' CDFE00#     0247      CALL   FRNOTE        ;SKIP '('
0176' CD6301#     0248 TAG:    CALL   AHEAD          ;LOOK FOR NEXT TOKEN
0179' 3A0000#     0249      LD      A, (AREA)
017C' FE42        0250      CP      A, 'B'
017E' 2017        0251      JR      NZ, AREAA
0180' ED5B6701#  0252      LD      DE, (NOTE)
0184' 3E01        0253      LD      A, 01H
0186' BB          0254      CP      A,E
0187' 2009        0255      JR      NZ, NXTG      ;SKIP IF NOT BEGIN WITH
                        01H
0189' 7A          0256      LD      A,D
018A' FE8E        0257      CP      A, 08EH      ;TOKEN ')' ?
018C' 2316        0258      JR      Z, SKIPRP    ;YES , SKIP ')'
018E' FE8C        0259      CP      A, 08CH      ;TOKEN '.' ?
0190' 2817        0260      JR      Z, ENDST
0192' CD7401#     0261 NXTG:    CALL   FRNOTE
0195' 18DF        0262      JR      TAG
0197' 3A0801#     0263 AREAA:   LD      A, (HHHH)
019A' 57          0264      LD      D, A
019B' 3A0C01#     0265      LD      A, (LLLL)
019E' 5F          0266      LD      E, A
019F' 1A          0267      LD      A, (DE)
01A0' FE2D        0268      CP      A, '-'      ;SKIP TO NEXT LINE
01A2' 28EE        0269      JR      Z, NXTG
01A4' CD9301#     0270 SKIPRP:  CALL   FRNOTE        ;SKIP ')'
01A7' 181D        0271      JR      IDCORT
0272 ;
0273 ; MISSING ENDING BRACKET
0274 ;
01A9' 110300      0275 ENDST:   LD      DE, EMSG03   ;MISSING ENDING SUBSCRIP
                        T
01AC' CDB302'     0276      CALL   GENMSG
01AF' 3E46        0277      LD      A, 'F'      ;FOUND NEXT PARAGRAPH
01B1' 1808        0278      JR      EXTDAT      ;END IDENTIFIER FORMAT 1
0279 ;
01B3' 110200      0280 QUALER:  LD      DE, EMSG02   ;SET MESSAGE QUALIFIER E
                        RROR
01B6' CDB302'     0281      CALL   GENMSG
01B9' 3E46        0282      LD      A, 'F'
01BB' DD2AE601'   0283 EXTDAT:  LD      IX, (SUBGRP) ;GET SUBGROUP ADDRESS
01BF' C9          0284      RET
01C0' 3E53        0285 SPCIAL:  LD      A, 'S'
01C2' C9          0286      RET
01C3' 3E46        0287 NOTFND:  LD      A, 'F'
01C5' C9          0288      RET
01C6' DD2AE601'   0289 IDCORT:  LD      IX, (SUBGRP)
01CA' DD7E00      0290      LD      A, (IX)
01CD' FE05        0291      CP      A, 05H
01CF' 2810        0292      JR      Z, IDNUM
01D1' FE08        0293      CP      A, 08H
01D3' 280C        0294      JR      Z, IDNUM
01D5' FE0B        0295      CP      A, 0BH

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01D7' 2808      0296      JR      Z, IDNUM
01D9' FE0E      0297      CP      A, 0EH
01DB' 2804      0298      JR      Z, IDNUM
01DD' 3E43      0299      LD      A, 'C'
01DF' 1802      0300      JR      EXTID
01E1' 3E4E      0301 IDNUM:  LD      A, 'N'
01E3' C9        0302 EXTID:  RET
01F4' 0000      0303 NXTTOK: DW      0          ;NEXT TOKEN ADDRESS
01E6' 0000      0304 SUBGRP: DW      0          ;ENTRY ADDRESS OF SUBGR
                                OUP
01E8' 0000      0305 PARNT:  DW      0          ;ENTRY ADDRESS OF PAREN
                                T
                                0306 ;-----
                                0307 ; LITERL:  FIND LITERAL CONSTANT
                                0308 ; INPUT :   NONE
                                0309 ; OUTPUT:   A = 'N'  NUMERIC LITERAL
                                0310 ;           'C'  NON-NUMERIC LITERAL
                                0311 ;           'F'  NOT LITERAL
                                0312 ; ENTRY LITERL
01EA' CD7701#   0313 LITERL:  CALL AHEAD          ;TEST NEXT TOKEN
01ED' 3A8201#   0314      LD      A, (NOTE)
01F0' FEFE      0315      CP      A, 0FEH          ;CHECK RESERVE WORD
01F2' 2803      0316      JR      Z, NOTRSV          ;SKIP IF NOT RESERVE WO
                                RD
01F4' C39D02'   0317      JP      NOTLIT          ; IT IS NOT LITERAL
01F7' ED5B9801# 0318 NOTRSV:  LD      DE, (HHHH)          ; (LLLL+HHHH) IN DE
01FB' 7A        0319      LD      A, D              ;GET LOW ADDRESS
01FC' 53        0320      LD      D, E
01FD' 5F        0321      LD      E, A              ;DE - (HHHH+LLLL) TOKEN
                                ADDRESS
01FE' 3A1001#   0322      LD      A, (LENGTH)          ;GET LENGTH OF TOKEN
0201' 47        0323      LD      B, A              ;AND USE FOR COUNTER
0202' 1A        0324      LD      A, (DE)           ;GET CHAR TO A
0203' FE27      0325      CP      A, ''''          ;CHECK QUOTATION MARK
0205' 2842      0326      JR      Z, CHKCHR          ;YES CHARACTER LITERAL
0207' FE2B      0327      CP      A, '+'            ;IS IT PLUS SIGN ?
0209' 2804      0328      JR      Z, SKIPSN          ;YES CHECK FIRST NUMERI
                                C PART
020B' FE2D      0329      CP      A, '-'            ;IS IT MINUS SIGN ?
020D' 2005      0330      JR      NZ, CHKPT          ;NO, CHECK FIRST NUMERI
                                C PART
020F' 13        0331 SKIPSN:  INC      DE              ;SKIP SIGN
0210' 05        0332      DEC      B
0211' CA9D02'   0333      JP      Z, NOTLIT          ;ERROR IF ONLY SIGN PRE
                                SENT
0214' 1A        0334 CHKPT:  LD      A, (DE)           ;CHECK DECIMAL POINT
0215' FE2E      0335      CP      A, '.'            ;DECIMAL POINT PRECEED
                                DIGIT ?
0217' 2007      0336      JR      NZ, CHRDIG          ;NO, CHECK FIRST DIGIT
                                PART
0219' 78        0337 CHKDPT:  LD      A, B
021A' FE01      0338      CP      A, 01H          ;IF ONLY DECIMAL POINT
021C' 287F      0339      JR      Z, NOTLIT          ; THEN IT IS NOT NUMERI
                                C
021E' 1812      0340      JR      SECNUM          ; ELSE CHECK SECOND NUM
                                ERIC PART

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0341 ;
0220' 1A          0342 CHKDIG: LD  A,(DE)          ;CHECK 999999 PART OF N
                   UERIC
0221' FE30        0343          CP  A,'0'          ;999999.NNNN
0223' 3809        0344          JR  C,CHKDOT
0225' FE3A        0345          CP  A,'9'+1
0227' 3074        0346          JR  NC,NOTLIT      ;IF CHAR IN 0..9 DO NEX
                   T CHAR
0229' 13          0347          INC  DE
022A' 10F4        0348          DJNZ CHKDIG
022C' 1814        0349          JR  NUMLIT      ;IF END OF DATA THEN NU
                   MERIC OK
022E' FE2E        0350 CHKDOT: CP  A,'.'          ;CHECK DOT CHARACTER
0230' 206B        0351          JR  NZ,NOTLIT    ;IF <> DOT THEN NOT LIT
                   ERAL
0232' 13          0352 SECNUM: INC  DE          ;SECOND PART OF NUMERIC
0233' 05          0353          DEC  B
0234' 280C        0354          JR  Z,NUMLIT
0236' 1A          0355 SECDIG: LD  A,(DE)          ;GET FRACTIONAL PART OF
                   DIGIT
0237' FE30        0356          CP  A,'0'          ;99999.NNNN (NNNN PAR
                   T)
0239' 3862        0357          JR  C,NOTLIT
023B' FE3A        0358          CP  A,'9'+1
023D' 305E        0359          JR  NC,NOTLIT    ;ONLY NUMERIC IS REQUIR
                   E
023F' 13          0360          INC  DE
0240' 10F4        0361          DJNZ SECDIG    ;CONTINUE TO CHECK 2ND
                   PART
0242' CDA501#     0362 NUMLIT: CALL FRNOTE      ;SKIP NUMERIC LITERAL
0245' 3E4E        0363          LD  A,'N'          ;NUMERIC LITERAL
0247' 1856        0364          JR  EXIT1
0365 ;
0366 ;
0249' CD4302#     0367 CHKCHR: CALL FRNOTE      ;SKIP QUOTE
024C' CD4A02#     0368          CALL FRNOTE      ;GET NEXT TOKEN
024F' CDEB01#     0369 LOOPCK: CALL AHEAD
0252' 3A7A01#     0370          LD  A,(AREA)      ;WHICH AREA A OR B ?
0255' FE42        0371          CP  A,'B'          ;IN AREA B ?
0257' 2830        0372          JR  Z,ENDQOT      ;YES, CHECK ENDING QUOT
                   E
0259' 3AF901#     0373          LD  A,(HHHH)
025C' 57          0374          LD  D,A          ;OOP, IT IS IN AREA A
025D' 3A9C01#     0375          LD  A,(LLLL)
0260' 5F          0376          LD  E,A          ;DE POINT TO TOKEN
0261' 1A          0377          LD  A,(DE)
0262' FE2D        0378          CP  A,'-'          ;CONTINUATION IN AREA A
                   ?
0264' 201B        0379          JR  NZ,MISQOT    ;NO, THEN IT MISSING QU
                   OTE
0266' CD4D02#     0380          CALL FRNOTE      ;PASSING CONTINUE
0269' CD5002#     0381          CALL AHEAD      ;CHECK NEXT TOKEN
026C' 3A5A02#     0382          LD  A,(HHHH)
026F' 57          0383          LD  D,A
0270' 3A5E02#     0384          LD  A,(LLLL)
0273' 5F          0385          LD  E,A          ;DE POINT TO TOKEN
0274' 1A          0386          LD  A,(DE)

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0275' FE27          0387          CP   A,'''''          ;CHECK QUOTE IN BEGIN O
                    F AREA B
0277' 2003          0388          JR   NZ,SKIPB          ;NO SKIP PASS CONTENT I
                    N AREA B
0279' CD6702#      0389          CALL FRNOTE          ;SKIP BEGIN QUOTE
027C' CD7A02#      0390 SKIPB:    CALL FRNOTE          ;SKIP CONTENT
027F' 18CE          0391          JR   LOOPCK
0281' 110E00       0392 MISQOT:  LD   DE,EMSGOE      ;MISSING ENDING QUOTE
0284' CDB302'      0393          CALL GENMSG
0287' 1810          0394          JR   CHRLIT
0289' 3A6D02#      0395 ENDQOT:  LD   A,(HHHH)
028C' 57            0396          LD   D,A
028D' 3A7102#      0397          LD   A,(LLLL)
0290' 5F            0398          LD   E,A
0291' 1A            0399          LD   A,(DE)          ;DE POINT TO TOKEN
0292' FE27          0400          CP   A,'''''          ;CHECK END LITERAL WITH
                    QUOTE ?
0294' 20EB          0401          JR   NZ,MISQOT      ;NO, MISSING QUOTE
0296' CD7D02#      0402          CALL FRNOTE          ;SKIP PASS ENDING QUOTE
0299' 3E43          0403 CHRLIT:  LD   A,'C'
029B' 1802          0404          JR   EXIT1
029D' 3E46          0405 NOTLIT:  LD   A,'F'
029F' C9            0406 EXIT1:   RET
                    0407 ;
                    0408 ;-----
0409 ; RECOVE:    RECOVER SUBROUTINE
0410 ;           OBJECTIVE : -- TO SKIP PASS ANY TOKEN UNTIL
                    FOUND ONE OF BELOW
0411 ;           1. FULL STOP (SKIP PASS FULL
                    L STOP)
0412 ;           2. NEXT VERB
0413 ;           3. NEXT PARAGRAPH
0414 ;
02A0' 110500       0415 RECOVE:  LD   DE,EMSG05      ;MESSAGE #5 SKIP TO NEXT V
                    ERB OR PARAGRAPH
02A3' CDB302'      0416          CALL GENMSG          ;AND GENERATE MESSAGE
02A6' CDC502'      0417 RECOV1:  CALL NXTSTM
02A9' FE54          0418          CP   A,'T'          ;BEGIN OF NEXT STATEMENT ?
02AB' 2805          0419          JR   Z,RECVEK      ;YES, EXIT RECOVERY ROUTIN
                    E
02AD' CD9702#      0420          CALL FRNOTE          ;SKIP CURRENT TOKEN
02B0' 18F4          0421          JR   RECOV1      ;CONTINUE TO SKIP NEXT TOK
                    EN
02B2' C9            0422 RECVEK:  RET
                    0423 ;
                    0424 ;-----
0425 ; GENMSG:    GENERATE MESSAGE SUBROUTINE
0426 ;           OBJECTIVE - TO GENERATE ERROR MESSAGE
0427 ;           INPUT :- DE = ERROR CODE IN HEXADECIMAL
02B3' E5            0428 GENMSG:  PUSH HL
02B4' DDE5          0429          PUSH IX
02B6' ED530000#    0430          LD   (ERRCD),DE
02BA' DD21B802#    0431          LD   IX,ERRCD
02BE' CD0000#      0432          CALL ERROR
02C1' DDE1          0433          POP  IX

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02C3' E1          0434          POP   HL
02C4' C9          0435          RET
0436 ; -----
0437 ;   NXTSTM:   LOOK AHEAD ROUTINE FOR NEXT STATEMNET
0438 ;             OBJECTIVE : - TO CHECK NEXT TOKEN IS
0439 ;                   1. NEXT SENTENCE
0440 ;                   2. NEXT PARAGRAPH
0441 ;                   3. FULL STOP (MUST BE DUMMY
    HEAD TO SKIP)
0442 ;             OUTPUT : - A = 'T' IF NEXT SENTENCE OR PA
    RAGRAPH
0443 ;                   'F' IF NOT END SENTENCE
0444 ;
02C5' CD6A02#    0445 NXTSTM:   CALL  AHEAD
02C8' ED5BEE01#  0446          LD   DE,(NOTE) ;GET TOKEN VALUE
02CC' 3E01       0447          LD   A,01H
02CE' BE         0448          CP   A,E ;FIRST BYTE OF NOTE IS 01H
    ?
02CF' 2005       0449          JR   NZ,STMCHK ;NO, CHECK OTHER CASE
02D1' 3E8C       0450          LD   A,08CH
02D3' BA         0451          CP   A,D ;NEXT BYTE OF NOTE IS 08CH
    ?
02D4' 2821       0452          JR   Z,DOTSKP ;YES, IT IS FULL STOP
02D6' 3A0000#    0453 STMCHK:   LD   A,(VERB) ;NEXT TOKEN IS VERB
02D9' FE54       0454          CP   A,'T' ;YES, ALL DONE
02DB' 281D       0455          JR   Z,STMOK
02DD' 3A5302#    0456          LD   A,(AREA) ;NEXT TOKEN IS NEXT PARAGRAPH
    APH
02E0' FE41       0457          CP   A,'A' ;ANY CHAR IN AREA A ?
02E2' 2010       0458          JR   NZ,NOTSTM ;NO NOT END SENTENCE
02E4' 3A8A02#    0459          LD   A,(HHHH)
02E7' 57         0460          LD   D,A
02E8' 3A8E02#    0461          LD   A,(LLLL)
02EB' 5F         0462          LD   E,A ;DE = TOKEN POINTER
02EC' 1A         0463          LD   A,(DE) ;GET FIRST CHARACTER IN AREA
    EA A
02ED' FE2D       0464          CP   A,'-' ;IS IT CONTINUATION ?
02EF' 2009       0465          JR   NZ,STMOK ;NEXT STATEMENT IF FOUND NEXT
    EXT PARAGRAPH
02F1' CD4E02#    0466          CALL FRNOTE ;ELSE SKIP PASS CONTINUE MARK
    ARK
02F4' 3E46       0467 NOTSTM:   LD   A,'F' ;MARK NOT END SENTENCE
02F6' C9         0468          RET
0469 ;
02F7' CDF202#    0470 DOTSKP:   CALL FRNOTE ;SKIP PASS FULL STOP
02FA' 3E54       0471 STMOK:   LD   A,'T'
02FC' C9         0472          RET
0473 ;
0474 ; -----
0475 ;   ROUND:   SUBROUTINE CHECK NEXT TOKEN IS 'ROUND' OPTION
0476 ;             OUTPUT : A = 'T' NEXT TOKEN IS ROUND
0477 ;                   'F' NEXT TOKEN IS NOT ROUND
02FD' CD6602#    0478 ROUND:   CALL  AHEAD
0300' ED5BCA02#  0479          LD   DE,(NOTE)
0304' 3E01       0480          LD   A,01H ;'ROUNDED' 01,01
    
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0306' BB          0481          CP      A,E
0307' 2063        0482          JR      NZ,NOTRND ;NOT ROUND
0309' BA          0483          CP      A,D
030A' 2803        0484          JR      Z,RNDEXT ;SKIP TO ROUND EXIT PONT
030C' 3E46        0485 NOTRND: LD      A,'F'
030E' C9          0486          RET
030F' CDF802#    0487 RNDEXT: CALL  FRNOTE ;SKIP KEYWORD ROUNDED
0312' 3E54        0488          LD      A,'T'
0314' C9          0489          RET
                                0490 ;

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0315' (0000)     0491          END

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Errors 0

Program Length 0315 (789)



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(0000)      0001 WBOOT: EQU      00H      ; WARM BOOT OR RESET SYSTEM
(0001)      0002 CONRDR: EQU     01H      ; READ CONSOLE CHARACTER
(0002)      0003 CONWRT: EQU     02H      ; WRITE CONSOLE CHARACTER
(0005)      0004 LSTWRT: EQU     05H      ; WRITE LIST CHARACTER
(0009)      0005 BUFWRT: EQU     09H      ; WRITE CONSOLE BUFFER
(000A)      0006 BUFRDR: EQU     0AH      ; READ CONSOLE BUFFER
(000B)      0007 CONST: EQU      0BH      ; READ CONSOLE STATUS
(000F)      0008 CPMOPN: EQU     0FH      ; OPEN FILE
(0010)      0009 CPMCLS: EQU     10H      ; CLOSE FILE
(0011)      0010 SRCFST: EQU     11H      ; SEARCH FOR FIRST OCCURRENCE
(0012)      0011 SRCNXT: EQU     12H      ; SEARCH NEXT OCCURRENCE
(0013)      0012 DLTFLE: EQU     13H      ; DELETE FILE FROM DIRECTORY
(0014)      0013 RDRFLE: EQU     14H      ; READ SEQUENTIAL FILE
(0015)      0014 WRTFLE: EQU     15H      ; WRITE SEQUENTIAL FILE
(0016)      0015 CRTFLE: EQU     16H      ; CREATE FILE
(0017)      0016 RENFLE: EQU     17H      ; RENAME FILE
(001A)      0017 STDMA: EQU      1AH      ; SET DMA ADDRESS
(001B)      0018 GTALOC: EQU     1BH      ; GET ADDRESS OF ALLOCATION
(001F)      0019 GTBLK: EQU      1FH      ; GET ADDRESS OF DISK PARAMETER

(0020)      0020 GTUSER: EQU     20H      ; GET OR SET USER CODE
(0021)      0021 KDRRND: EQU     21H      ; READ RANDOM FILE
(0022)      0022 WRTRND: EQU     22H      ; WRITE RANDOM FILE
(0023)      0023 CPFLSZ: EQU     23H      ; COMPUTE FILE SIZE
(0024)      0024 STRND: EQU      24H      ; SET RANDOM RECORD POINTER
(0025)      0025 RSTDRV: EQU     25H      ; RESET DRIVE
(0028)      0026 WRTRDZ: EQU     28H      ; WRITE RANDOM WITH ZERO FILL
(0005)      0027 BDOS: EQU       05H      ; BDOS FUNCTION
(0080)      0028 DMA: EQU        80H      ; DMA ADDRESS
(0009)      0029 PRTSTR EQU      009H
(0014)      0030 CPMRDR EQU      014H
0031 ;
0032 ;
0033          REL
0000' ED737A19' 0034 MSSGE: LD      (OLDSP),SP
0004' 31FC19'   0035          LD      SP,STKTOP
0036 ;*****
0037 ;
0038 ; CLEAR SCREEN ESC 4 J
0039 ;
0040 ;*****
0007' 1E1B      0041          LD      E,1BH      ; ESCAPE CODE
0009' 0E02      0042          LD      C,CONWRT
000B' CD0500    0043          CALL   BDOS
000E' 1E4A      0044          LD      E,'J'
0010' 0E02      0045          LD      C,CONWRT
0012' CD0500    0046          CALL   BDOS
0015' CD7106'   0047          CALL   SCHEAD
0048 ;*****
0018' 11260B'   0049          LD      DE,CBLSK1
001B' 0E0F      0050          LD      C,CPMOPN
001D' CD0500    0051          CALL   BDOS      ; OPEN PRINT FILE
0020' 11510A'   0052          LD      DE,OPNERR    ; ERROR MESSAGE OPEN FI
          LE
0023' FEFF      0053          CP      A,OFFH
0025' CA3905'   0054          JP      Z,ENDPGM    ; IF OPEN ERROR GOTO EN

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0055 ;*****
0028' C5      0056 OPEN:  PUSH  BC
0029' E5      0057          PUSH  HL
002A' D5      0058          PUSH  DE
002B' 11920B' 0059          LD    DE,CBLSK9      ; CBLSK9.PRN
002E' 0E11    0060          LD    C,SRCFST
0030' CD0500  0061          CALL  BDOS          ; SEARCH TO SEE WHETHER
                                EXIST
0033' 3C      0062          INC   A              ; OR NOT
0034' 2808    0063          JR    Z,CREATE
0036' 11920B' 0064          LD    DE,CBLSK9
0039' 0E13    0065          LD    C,DLTFLE      ; DELETE FILE IF EXIST
003B' CD0500  0066          CALL  BDOS
003E' 11920B' 0067 CREATE: LD    DE,CBLSK9
0041' 0E16    0068          LD    C,CRTFLE      ; CREATE FILE FUNCTION
0043' CD0500  0069          CALL  BDOS
0046' 11A20A' 0070          LD    DE,CHERR
0049' FFFF    0071          CP    A,OFFH
004B' CA3905' 0072          JP    Z,ENDPGM
004E' 3E0C    0073          LD    A,12          ; FORM FEED
0050' 328000  0074          LD    (DMA),A
0053' E5      0075          PUSH  HL
0054' D5      0076          PUSH  DE
0055' C5      0077          PUSH  BC
0056' 21FE06' 0078          LD    HL,HEAD
0059' 0E00    0079          LD    B,00H
005B' 0E4F    0080          LD    C,79
005D' 118000  0081          LD    DE,DMA
0060' 13      0082          INC   DE
0061' EDB0    0083          LDIR
0063' 062E    0084          LD    B,46
0065' 3EFF    0085          LD    A,OFFH
0067' 12      0086 BBLOOP: LD    (DE),A
0068' 13      0087          INC   DE
0069' 10FC    0088          DJNZ  BBLOOP
006B' CDEE05' 0089          CALL  WRITE
006E' 064E    0090          LD    B,78
0070' 3E20    0091          LD    A,' '
0072' 118000  0092          LD    DE,DMA
0075' 12      0093 BBLOP1: LD    (DE),A
0076' 13      0094          INC   DE
0077' 10FC    0095          DJNZ  BBLOP1
0079' 3E0D    0096          LD    A,0DH
007B' 13      0097          INC   DE
007C' 12      0098          LD    (DE),A
007D' 13      0099          INC   DE
007E' 3E0A    0100          LD    A,0AH
0080' 12      0101          LD    (DE),A
0081' 13      0102          INC   DE
0082' 062E    0103          LD    B,46
0084' 3EFF    0104          LD    A,OFFH
0086' 13      0105 BBLOP2: INC   DE
0087' 12      0106          LD    (DE),A
0088' 10FC    0107          DJNZ  BBLOP2
008A' CDEE05' 0108          CALL  WRITE
008D' C1      0109          POP  BC
008E' D1      0110          POP  DE

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008F' E1          0111      POP      HL
0090' D1          0112      POP      DE
0091' E1          0113      POP      HL
0092' C1          0114      POP      BC
0093' 11260B'    0115 READ:  LD      DE,CBLSKI
0096' 0E14       0116      LD      C,RDRFLE
0098' CD0500     0117      CALL   BDOS          ; READ CBLSKI.PRN FILE
                   0118 ;      LD      DE,ENDFIL
009B' FE00       0119      CP      A,00H
009D' C24701'    0120      JP      NZ,NEXT
00A0' 3A4D07'    0121      LD      A,(LINE)
                   0122 ;      CP      A,55
00A3' FE1E       0123      CP      A,30
00A5' FA0401'    0124      JP      M,RDRNXT
00A8' 116107'    0125      LD      DE,DUM
00AB' 218000     0126      LD      HL,DMA
00AE' 0600       0127      LD      B,00H
00B0' 0E80       0128      LD      C,128
00B2' EDB0       0129      LDIR
00B4' CD7106'    0130      CALL   SCHEAD
00B7' 3E0C       0131      LD      A,12          ; FORM FEED
00B9' 328000     0132      LD      (DMA),A
00BC' E5         0133      PUSH   HL
00BD' D5         0134      PUSH   DE
00BE' C5         0135      PUSH   BC
00BF' 21FE06'    0136      LD      HL,HEAD
00C2' 0600       0137      LD      B,00H
00C4' 0E4F       0138      LD      C,79
00C6' 118000     0139      LD      DE,DMA
00C9' 13         0140      INC    DE
00CA' EDB0       0141      LDIR
00CC' 0631       0142      LD      B,49
00CE' 3EFF       0143      LD      A,OFFH
00D0' 12         0144 FFLOOP: LD      (DE),A
00D1' 13         0145      INC    DE
00D2' 10FC       0146      DJNZ   FFLOOP
00D4' CDEE05'    0147      CALL   WRITE
00D7' 064E       0148      LD      B,78
00D9' 3E20       0149      LD      A,' '
00DB' 118000     0150      LD      DE,DMA
00DE' 12         0151 FFLOP1: LD      (DE),A
00DF' 13         0152      INC    DE
00E0' 10FC       0153      DJNZ   FFLOP1
00E2' 3E0D       0154      LD      A,0DH
00E4' 13         0155      INC    DE
00E5' 12         0156      LD      (DE),A
00E6' 13         0157      INC    DE
00E7' 3E0A       0158      LD      A,0AH
00E9' 12         0159      LD      (DE),A
00EA' 062E       0160      LD      B,46
00EC' 3EFF       0161      LD      A,OFFH
00EE' 13         0162 FFLOP2: INC    DE
00EF' 12         0163      LD      (DE),A
00F0' 10FC       0164      DJNZ   FFLOP2
00F2' CDEE05'    0165      CALL   WRITE
00F5' C1         0166      POP      BC
00F6' D1         0167      POP      DE

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00F7' E1          0168          POP      HL
00F8' 216107'    0169          LD       HL,DUM
00FB' 118000     0170          LD       DE,DMA
00FE' 0600      0171          LD       B,00H
0100' 0E80      0172          LD       C,128
0102' EDB0      0173          LD IR
0104' 3C        0174 HDRNXT: INC   A
0105' 324D07'   0175          LD       (LINE),A
0108' 0650      0176          LD       B,80
010A' 218000     0177          LD       HL,DMA
010D' C5        0178 READIP: PUSH  BC
010E' 5E        0179          LD       E,(HL)
010F' 0E02      0180          LD       C,CONWRT
0111' E5        0181          PUSH    HL
0112' CD0500     0182          CALL   BDOS
0115' E1        0183          POP     HL
0116' 23        0184          INC    HL
0117' C1        0185          POP     BC
0118' 10F3      0186          DJNZ   READIP
0187 ; ++++++
0188 ;
0189 ; START COPY TO CBLSK9.PRN
0190 ;
0191 ; ++++++
011A' E5        0192          PUSH    HL
011B' C5        0193          PUSH    BC
011C' 0600      0194          LD       B,00H
011E' 218000     0195          LD       HL,DMA
0121' 0E50      0196          LD       C,80
0123' 09        0197          ADD     HL,BC
0124' 2B        0198 LOX:  DEC     HL
0125' 7E        0199          LD       A,(HL)
0126' FE20      0200          CP      A,' '
0128' 28FA      0201          JR      Z,LOX
012A' 23        0202          INC     HL
012B' 3E0D      0203          LD       A,ODH
012D' 77        0204          LD       (HL),A
012E' 3E0A      0205          LD       A,0AH
0130' 23        0206          INC     HL
0131' 77        0207          LD       (HL),A
0132' 0614      0208          LD       B,20
0134' 3EFF      0209          LD       A,OFFH
0136' 23        0210          INC     HL
0137' 77        0211 LOY:  LD       (HL),A
0138' 23        0212          INC     HL
0139' 10FC      0213          DJNZ   LOY
013B' DD218000  0214          LD       IX,DMA
013F' 3EFF      0215          LD       A,OFFH
0216 ; LD       (IX+80),A
0217 ; LD       (IX+81),A
0218 ; LD       (IX+80),A
0219 ; LD       (IX+81),A
0220 ; LD       (IX+82),A
0221 ; LD       (IX+83),A
0222 ; LD       (IX+84),A
0223 ; LD       (IX+85),A
0224 ; LD       (IX+86),A

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0225 ; LD (IX+87),A
0226 ; LD (IX+88),A
0227 ; LD (IX+89),A
0228 ; LD (IX+90),A
0229 ; LD (IX+91),A
0230 ; LD (IX+92),A
0231 ; LD (IX+93),A
0232 ; LD (IX+94),A
0233 ; LD (IX+95),A
0234 ; LD (IX+96),A
0235 ; LD (IX+97),A
0236 ; LD (IX+98),A
0237 ; LD (IX+99),A
0238 ; LD (IX+100),A
0239 ; LD (IX+101),A
0240 ; LD (IX+102),A
0241 ; LD (IX+103),A
0242 ; LD (IX+104),A
0243 ; LD (IX+105),A
0244 ; LD (IX+106),A
0245 ; LD (IX+107),A
0246 ; LD (IX+108),A
0247 ; LD (IX+109),A
0248 ; LD (IX+110),A
0249 ; LD (IX+111),A
0250 ; LD (IX+112),A
0251 ; LD (IX+113),A
0252 ; LD (IX+114),A
0253 ; LD (IX+115),A
0254 ; LD (IX+116),A
0255 ; LD (IX+117),A
0256 ; LD (IX+118),A
0257 ; LD (IX+119),A
0258 ; LD (IX+120),A
0259 ; LD (IX+121),A
0260 ; LD (IX+122),A
0261 ; LD (IX+123),A
0262 ; LD (IX+124),A
0263 ; LD (IX+125),A
0264 ; LD (IX+126),A
0265 ; LD (IX+127),A
0266 ; LD DE,CBLSK9
0267 ; LD C,WRTFLE
0268 ; CALL BDOS
0141' CDEF05' 0269 CALL WRITE
0144' C39300' 0270 JP READ
0271 ;
0272 ;
0147' 21FD19' 0273 NEXT: LD HL,DATA
014A' 7C 0274 LD A,H
014B' 32C40A' 0275 LD (KLAST),A
014E' 7D 0276 LD A,L
014F' 32C50A' 0277 LD (KLAST+1),A
0152' 11260B' 0278 LD DE,CBLSK1
0155' 0E10 0279 LD C,CPMCLS ; CLOSE CBLSK1.PRN
0157' E5 0280 PUSH HL
0158' CD0500 0281 CALL BDOS

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015B' E1          0282          POP      HL
015C' 114A0B'    0283 READ1: LD      DE,CBLSK3      ; CBLSK3.ERR
015F' 0E0F       0284          LD      C,CPMOPN
0161' E5         0285          PUSH   HL
0162' CD0500     0286          CALL   BDOS
0165' E1         0287          POP      HL
0166' 11890A'    0288          LD      DE,ERRSK3
0169' FEFF       0289          CP      A,OFFH
016B' CA3905'    0290          JP      Z,ENDPGM
016E' 114A0B'    0291 READ20: LD      DE,CBLSK3
0171' 0E14       0292          LD      C,RDRFLE
0173' E5         0293          PUSH   HL
0174' CD0500     0294          CALL   BDOS
0177' E1         0295          POP      HL
0178' FE00       0296          CP      A,00H
017A' 200D       0297          JR      NZ,RDRER2
017C' 118000     0298          LD      DE,DMA          ; FOR BLOCK TRANSFER
017F' EB         0299          EX      DE,HL          ; HL POINT DMA
0180' 0600       0300          LD      B,00H          ; DE POINT DATA AREA
0182' 0E80       0301          LD      C,128
0184' EDB0       0302          LD1R
0186' EB         0303          EX      DE,HL          ; BLOCK TRANSFER ALREAD

                                Y
0187' 18E5       0304          JR      READ20
0189' 11FD19'    0305 RDRER2: LD      DE,DATA
018C' 7A         0306          LD      A,D          ; ADDRESS OF DATA
018D' BC         0307          CP      A,H
018E' 2004       0308          JR      NZ,RDRERX
0190' 7B         0309          LD      A,E
0191' BD         0310          CP      A,L
0192' 2807       0311          JR      Z,BREADX
0194' 2B         0312 RDRERX: DEC     HL          ; POINT LAST DATA BYTE
0195' 7E         0313          LD      A,(HL)
0196' FE2A       0314          CP      A,'*'
0198' 28FA       0315          JR      Z,RDRERX
019A' 23         0316 BREAD2: INC     HL          ; POINT NEXT AVAILABLE
                                ADDRESS
019B' E5         0317 BREADX: PUSH   HL
019C' 114A0B'    0318          LD      DE,CBLSK3      ; CLOSE CBLSK3.ERR
019F' 0E10       0319          LD      C,CPMCLS
01A1' CD0500     0320          CALL   BDOS
01A4' 116E0B'    0321          LD      DE,CBLSK5      ; CBLSK5.ERR
01A7' 0E0F       0322          LD      C,CPMOPN      ; OPEN CBLSK5.ERR
01A9' CD0500     0323          CALL   BDOS
01AC' E1         0324          POP      HL
01AD' 11700A'    0325          LD      DE,ERRSK5
01B0' FEFF       0326          CP      A,OFFH
01B2' CA3905'    0327          JP      Z,ENDPGM
01B5' 116E0B'    0328 READ2: LD      DE,CBLSK5
01B8' 0E14       0329          LD      C,RDRFLE      ; READ CBLSK5.ERR
01BA' E5         0330          PUSH   HL
01BB' CD0500     0331          CALL   BDOS
01BE' E1         0332          POP      HL
01BF' FE00       0333          CP      A,00H          ; END ERROR FILE
01C1' 200D       0334          JR      NZ,BSORT      ; GO TO SORT
01C3' 118000     0335          LD      DE,DMA          ; FOR BLOCK TRANSFER
01C6' EB         0336          EX      DE,HL          ; DE POINT AVAILABLE AR
    
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                                EA
01C7' 0600          0337      LD      B,00H          ; HL POINT DMA
01C9' 0E80          0338      LD      C,128
01CB' EDB0          0339      LDIR
01CD' EB           0340      EX      DE,HL          ; HL POINT NEXT AVAILAB

                                LE AREA
01CE' 18E5          0341      JR      READ2
                                0342 ;
                                0343 ;
                                0344 ;
01D0' 11FD19'      0345 BSORT: LD      DE,DATA
01D3' 7C           0346      LD      A,H
01D4' BA           0347      CP      A,D
01D5' 2005          0348      JR      NZ,BSORT1
01D7' 7D           0349      LD      A,L
01D8' BB           0350      CP      A,E
01D9' CA7E02'      0351      JP      Z,ASORT
01DC' 2B           0352 BSORT1: DEC     HL
01DD' 7E           0353      LD      A,(HL)          ; END BUFFER FILE FLAG
01DE' FE2A          0354      CP      A,'*'
01E0' 28FA          0355      JR      Z,BSORT1
01E2' 7C           0356      LD      A,H
01E3' 32C20A'      0357      LD      (LAST),A          ; KEEP LAST ELEMENT ADD

                                RESS
01E6' 7D           0358      LD      A,L
01E7' 32C30A'      0359      LD      (LAST+1),A
01EA' E5           0360      PUSH   HL
01EB' 23           0361      INC    HL
01EC' 7C           0362      LD      A,H
01ED' 32C40A'      0363      LD      (KLAST),A
01F0' 7D           0364      LD      A,L
01F1' 32C50A'      0365      LD      (KLAST+1),A
01F4' E1           0366      POP    HL
                                0367 ;
0368 ;*****
0369 ;*
0370 ;*      BEGIN SORT PROCEDURE
0371 ;*
0372 ;*      Format of error element
0373 ;*      bbccNNNN 8 bytes
0374 ;*
0375 ;*      bb      - Blank 2 bytes
0376 ;*      cc      - error code 2 bytes
0377 ;*      NNNN   - line number
0378 ;*
0379 ;*****
0380 ;
01F5' 21FD19'      0381 SORT:  LD      HL,DATA
01F8' E5           0382 SORT0:  PUSH   HL          ; HL POINT Nth ELEMENT
01F9' 0608          0383      LD      B,08H
01FB' 23           0384 SORT1:  INC    HL
01FC' 10FD          0385      DJNZ  SORT1
01FE' EB           0386      EX      DE,HL          ; DE POINT (N+1)th ELEM

                                ENT
01FF' E1           0387      POP    HL          ; HL POINT Nth ELEMENT
0200' 185F          0388      JR      CHECK
0202' E5           0389 CHKRET: PUSH   HL

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0203' D5          0390      PUSH   DE
0204' 23          0391      INC    HL           ; SKIP 2 BYTES FOR bb
0205' 23          0392      INC    HL
0206' 13          0393      INC    DE
0207' 13          0394      INC    DE
0208' 23          0395      INC    HL           ; SKIP 2 BYTES FOR cc
0209' 23          0396      INC    HL
020A' 13          0397      INC    DE
020B' 13          0398      INC    DE
020C' 0604        0399      LD     B,04H       ; LINE NO 4 BYTES COMPA
                                RE
020E' 1A          0400  COMPARE: LD     A,(DE)
020F' BE          0401      CP     A,(HL)
0210' FA4902'    0402      JP     M,SWAP
0213' BE          0403      CP     A,(HL)
0214' F21B02'    0404      JP     P,ENDCP
0217' 23          0405      INC    HL
0218' 13          0406      INC    DE
0219' 10F3        0407      DJNZ  COMPARE
021B' D1          0408  ENDCP:  POP    DE
021C' E1          0409      POP    HL
021D' 3AC20A'    0410  CHKPNT: LD     A,(LAST)       ; TO SEE LAST ELEMENT O
                                R NOT
0220' 13          0411      INC    DE
0221' 13          0412      INC    DE
0222' 13          0413      INC    DE
0223' 13          0414      INC    DE
0224' 13          0415      INC    DE
0225' 13          0416      INC    DE
0226' 13          0417      INC    DE           ; DE POINT LAST BYTE OF
0227' BA          0418      CP     A,D           ; Nth ELEMENT
0228' 2018        0419      JR     NZ,NEXT0
022A' 3AC30A'    0420      LD     A,(LAST+1)
022D' BB          0421      CP     A,E
022E' 2012        0422      JR     NZ,NEXT0
0230' 1B          0423      DEC    DE
0231' 1B          0424      DEC    DE
0232' 1B          0425      DEC    DE
0233' 1B          0426      DEC    DE
0234' 1B          0427      DEC    DE
0235' 1B          0428      DEC    DE
0236' 1B          0429      DEC    DE
0237' 1B          0430      DEC    DE           ; DE POINT NEW LAST ELE
                                MENT
0238' 7A          0431      LD     A,D           ; AT THIS POINT WE MAKE
                                SURE
0239' 32C20A'    0432      LD     (LAST),A       ; THAT THE BIGGEST NUMB
                                ER
023C' 7B          0433      LD     A,E           ; IS SUNK DOWN AT THE B
                                OTTOM
023D' 32C30A'    0434      LD     (LAST+1),A
0240' 18B3        0435      JR     SORT           ; THE NEXT LOOP
                                0436 ;
                                0437 ;
0242' 0608        0438  NEXT0:  LD     B,08H
0244' 23          0439  NEXTLP: INC    HL
0245' 10FD        0440      DJNZ  NEXTLP

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0247' 18AF          0441          JR          SORT0
                   0442 ;
                   0443 ;
0249' D1           0444 SWAP:    POP          DE
024A' E1           0445          POP          HL
024B' E5           0446          PUSH         HL
024C' D5           0447          PUSH         DE
024D' 0608         0448          LD           B,08H          ; SWAP 8 BYTES
024F' 7E           0449 SWAP1:   LD           A,(HL)
0250' 32C0A'       0450          LD           (DUMMY),A
0253' 1A           0451          LD           A,(DE)
0254' 77           0452          LD           (HL),A
0255' 3ACD0A'      0453          LD           A,(DUMMY)
0258' 12           0454          LD           (DE),A
0259' 13           0455          INC          DE
025A' 23           0456          INC          HL
025B' 10F2         0457          DJNZ        SWAP1
025D' D1           0458          POP          DE
025E' E1           0459          POP          HL
025F' 18BC         0460          JR          CHKPNT
                   0461 ;
                   0462 ;-----
0463 ;          AFTER SORT          ;
                   0464 ;-----
                   0465 ;
0261' E5           0466 CHECK:    PUSH         HL
0262' D5           0467          PUSH         DE
0263' 2B           0468          DEC          HL
0264' 1A           0469          LD           A,(DE)
0265' FE2A         0470          CP           A,'*'
0267' 280C         0471          JR          Z,CHKGO
0269' 3AC20A'      0472          LD           A,(LAST)
026C' BC           0473          CP           A,H
026D' 200A         0474          JR          NZ,RETCHK
026F' 3AC30A'      0475          LD           A,(LAST+1)
0272' BD           0476          CP           A,I
0273' 2004         0477          JR          NZ,RETCHK
0275' D1           0478 CHKGO:    POP          DE
0276' E1           0479          POP          HL
0277' 1805         0480          JR          ASORT
0279' D1           0481 RETCHK:   POP          DE
027A' E1           0482          POP          HL
027B' C30202'      0483          JP          CHKRET
                   0484 ;
                   0485 ;@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@
0486 ;@
0487 ;@          GENERATE MESSAGE AFTER SORT          @
0488 ;@
0489 ;@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@
0490 ;
027E' 1E0D         0491 ASORT:    LD           E,0DH
0280' 0E02         0492          LD           C,CONWRT
0282' CD0500       0493          CALL        BDOS
0285' 1E0A         0494          LD           E,0AH
0287' 0E02         0495          LD           C,CONWRT
0289' CD0500       0496          CALL        BDOS
028C' CD7106'      0497          CALL        SCHEAD

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028F' 0602      0498      LD      B,2
0291' C5        0499 ASLPI:  PUSH   BC
0292' 218000    0500      LD      HL,DMA
0295' 3E20      0501      LD      A,' '
0297' 0650      0502      LD      B,80
0299' 77        0503 ASLPI:  LD      (HL),A
029A' 23        0504      INC     HL
029B' 10FC      0505      DJNZ   ASLPI
029D' 2B        0506      DEC     HL
029E' 2B        0507      DEC     HL
029F' 3E0D      0508      LD      A,0DH
02A1' 23        0509      INC     HL
02A2' 77        0510      LD      (HL),A
02A3' 3E0A      0511      LD      A,0AH
02A5' 23        0512      INC     HL
02A6' 77        0513      LD      (HL),A
02A7' 0630      0514      LD      B,48
02A9' 3EFF      0515      LD      A,OFFH
02AB' 23        0516 ASLPO:  INC     HL
02AC' 77        0517      LD      (HL),A
02AD' 10FC      0518      DJNZ   ASLPO
02AF' CDEE05'   0519      CALL   WRITE
02B2' C1        0520      POP    BC
02B3' 10DC      0521      DJNZ   ASLPI
02B5' E5        0522      PUSH   HL
02B6' D5        0523      PUSH   DE
02B7' C5        0524      PUSH   BC
02B8' 3E0C      0525      LD      A,12
02BA' 32800G    0526      LD      (DMA),A
02BD' E5        0527      PUSH   HL
02BE' D5        0528      PUSH   DE
02BF' C5        0529      PUSH   BC
02C0' 21FE06'   0530      LD      HL,HEAD
02C3' 0600      0531      LD      B,00H
02C5' 0E4E      0532      LD      C,78
02C7' 118000    0533      LD      DE,DMA
02CA' 13        0534      INC     DE
02CB' EDB0      0535      LDIR
02CD' 1B        0536 SSLOP:  DEC     DE
02CE' 1A        0537      LD      A,(DE)
02CF' FE20      0538      CP      A,' '
02D1' 28FA      0539      JR      Z,SSLOP
02D3' 13        0540      INC     DE
02D4' 3E0D      0541      LD      A,0DH
02D6' 12        0542      LD      (DE),A
02D7' 3E0A      0543      LD      A,0AH
02D9' 13        0544      INC     DE
02DA' 12        0545      LD      (DE),A
02DB' 13        0546      INC     DE
02DC' 062E      0547      LD      B,46
02DE' 3EFF      0548      LD      A,OFFH
02E0' 12        0549 SSLOP:  LD      (DE),A
02E1' 13        0550      INC     DE
02E2' 10FC      0551      DJNZ   SSLOP
02E4' CDEE05'   0552      CALL   WRITE
02E7' 064F      0553      LD      B,79
02E9' 3E20      0554      LD      A,' '

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; FORM FEED

02EB'	118000	0555	LD	DE,DMA
02EE'	12	0556	SSLOP1: LD	(DE),A
02EF'	13	0557	INC	DE
02F0'	10FC	0558	DJNZ	SSLOP1
02F2'	3E0D	0559	LD	A,0DH
02F4'	13	0560	INC	DE
02F5'	12	0561	LD	(DE),A
02F6'	13	0562	INC	DE
02F7'	3E0A	0563	LD	A,0AH
02F9'	12	0564	LD	(DE),A
02FA'	062E	0565	LD	B,46
02FC'	3EFF	0566	LD	A,OFFH
02FE'	13	0567	SSLOP2: INC	DE
02FF'	12	0568	LD	(DE),A
0300'	10FC	0569	DJNZ	SSLOP2
0302'	CDEE05'	0570	CALL	WRITE
0305'	C1	0571	POP	BC
0306'	D1	0572	POP	DE
0307'	E1	0573	POP	HL
0308'	0600	0574	LD	B,00H
030A'	0E64	0575	LD	C,100
030C'	21E107'	0576	LD	HL,BERR
030F'	118000	0577	LD	DE,DMA
0312'	EDB0	0578	LDIR	
0314'	061C	0579	LD	B,28
0316'	3EFF	0580	LD	A,OFFH
0318'	12	0581	SSLP00: LD	(DE),A
0319'	13	0582	INC	DE
031A'	10FC	0583	DJNZ	SSLP00
031C'	CDEE05'	0584	CALL	WRITE
031F'	0600	0585	LD	B,00H
0321'	0E64	0586	LD	C,100
0323'	118000	0587	LD	DE,DMA
0326'	EDB0	0588	LDIR	
0328'	0619	0589	LD	B,25
032A'	3EFF	0590	LD	A,OFFH
032C'	12	0591	SSLP01: LD	(DE),A
032D'	13	0592	INC	DE
032E'	10FC	0593	DJNZ	SSLP01
0330'	CDEE05'	0594	CALL	WRITE
0333'	0600	0595	LD	B,00H
0335'	0E70	0596	LD	C,112
0337'	118000	0597	LD	DE,DMA
033A'	EDB0	0598	LDIR	
033C'	060F	0599	LD	B,15
033E'	3EFF	0600	LD	A,OFFH
0340'	12	0601	SSLP02: LD	(DE),A
0341'	13	0602	INC	DE
0342'	10FC	0603	DJNZ	SSLP02
0344'	CDEE05'	0604	CALL	WRITE
0347'	C1	0605	POP	BC
0348'	D1	0606	POP	DE
0349'	E1	0607	POP	HL
034A'	DD21FD19'	0608	LD	IX,DATA
034E'	DDE5	0609	ASORT1: PUSH	IX
0350'	D1	0610	POP	DE
0351'	3AC40A'	0611	LD	A,(KLAST)

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0354' BA          0612      CP      A,D
0355' 200C       0613      JR      NZ,GENER
0357' 3AC50A'    0614      LD      A,(KLAST+1)
035A' BB         0615      CP      A,E
035B' CA3605'    0616      JP      Z,END
035E' 3E00       0617      LD      A,00H
0360' 32C60A'    0618      LD      (CLINE),A
0363' 21370C'    0619 GENER: LD      HL,MESSGE      ; SEARCH FOR MESSAGE
0366' DD7E02     0620 GENER1: LD     A,(IX+2)
0369' BE         0621      CP      A,(HL)
036A' C22505'    0622      JP      NZ,NEXT1
036D' DD7E03     0623      LD      A,(IX+3)
0370' 23         0624      INC     HL
0371' BE         0625      CP      A,(HL)
0372' C22605'    0626      JP      NZ,NEXT2
0375' 23         0627 NEXT3: INC     HL      ; HL POINT LENGTH
0376' 7E         0628      LD      A,(HL)
0377' 0600       0629      LD      B,00H
0379' 4F         0630      LD      C,A      ; BC CONTAIN LENGTH TO
                    MOVE
037A' 23         0631      INC     HL
037B' 11CE0A'    0632      LD      DE,MSG1
037E' C5         0633      PUSH   BC
037F' 0656       0634      LD      B,86
0381' 3E20       0635      LD      A,' '
0383' 12         0636 LOOPC1: LD     (DE),A
0384' 13         0637      INC     DE      ; MOVE SPACE TO AREA
0385' 10FC       0638      DJNZ   LOOPC1
0387' C1         0639      POP    BC
0388' 11D40A'    0640      LD      DE,MSG2      ; MOVE MESSAGE
038B' EDB0       0641      LDIR
038D' 3E0D       0642      LD      A,0DH
038F' 12         0643      LD      (DE),A
0390' 13         0644      INC     DE
0391' 3E0A       0645      LD      A,0AH
0393' 12         0646      LD      (DE),A
0394' 13         0647      INC     DE
0395' 3AC60A'    0648      LD      A,(CLINE)      ; FIRST LINE OF MESSAGE
0398' FE00       0649      CP      A,00H      ; OR NOT
039A' 2018       0650      JR      NZ,NEXT01
039C' DD7E04     0651      LD      A,(IX+4)
039F' 32CE0A'    0652      LD      (MSG1),A
03A2' DD7E05     0653      LD      A,(IX+5)
03A5' 32CF0A'    0654      LD      (MSG1+1),A
03A8' DD7E06     0655      LD      A,(IX+6)
03AB' 32D00A'    0656      LD      (MSG1+2),A
03AE' DD7E07     0657      LD      A,(IX+7)
03B1' 32D10A'    0658      LD      (MSG1+3),A
03B4' E5         0659 NEXT01: PUSH   HL
03B5' 3A4D07'    0660      LD      A,(LINE)
03B8' FE1E       0661      CP      A,30      ; 30 LINES PER PAGE
03BA' FA1204'    0662      JP      M,CALLWR
03BD' 3E00       0663      LD      A,00H
03BF' CD7106'    0664      CALL   SCHEAD
03C2' 3E0C       0665      LD      A,12      ; FORM FEED
03C4' 328000     0666      LD      (DMA),A
03C7' E5         0667      PUSH   HL

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03C8' D5          0668          PUSH    DE
03C9' C5          0669          PUSH    BC
03CA' 21FE06'    0670          LD      HL,HEAD
03CD' 0600       0671          LD      B,00H
03CF' 0E4F       0672          LD      C,79
03D1' 118000     0673          LD      DE,DMA
03D4' 13         0674          INC     DE
03D5' EDB0       0675          LDIR
03D7' 1B         0676 SSLOX: DEC     DE
03D8' 1A         0677          LD      A,(DE)
03D9' FE20       0678          CP      A,' '
03DB' 28FA       0679          JR      Z,SSLOX
03DD' 13         0680          INC     DE
03DE' 3E0D       0681          LD      A,ODH
03E0' 12         0682          LD      (DE),A
03E1' 3E0A       0683          LD      A,0AH
03E3' 13         0684          INC     DE
03E4' 12         0685          LD      (DE),A
03E5' 13         0686          INC     DE
03E6' 062E       0687          LD      B,46
03E8' 3EFF       0688          LD      A,OFFH
03EA' 12         0689 AALoop: LD      (DE),A
03EB' 13         0690          INC     DE
03EC' 10FC       0691          DJNZ   AALoop
03EE' CDEE05'    0692          CALL   WRITE
03F1' 0646       0693          LD      B,70
03F3' 3E20       0694          LD      A,' '
03F5' 118000     0695          LD      DE,DMA
03F8' 12         0696 AALop1: LD      (DE),A
03F9' 13         0697          INC     DE
03FA' 10FC       0698          DJNZ   AALop1
03FC' 3E0D       0699          LD      A,ODH
03FE' 13         0700          INC     DE
03FF' 12         0701          LD      (DE),A
0400' 13         0702          INC     DE
0401' 3E0A       0703          LD      A,0AH
0403' 12         0704          LD      (DE),A
0404' 062E       0705          LD      B,46
0406' 3EFF       0706          LD      A,OFFH
0408' 13         0707 AALop2: INC     DE
0409' 12         0708          LD      (DE),A
040A' 10FC       0709          DJNZ   AALop2
040C' CDEE05'    0710          CALL   WRITE
040F' C1         0711          POP     BC
0410' D1         0712          POP     DE
0411' E1         0713          POP     HL
0412' 21CE0A'    0714 CALLWR: LD      HL,MSG1
0415' 118000     0715          LD      DE,DMA          ; MOVE TO BUFFER
0418' 0600       0716          LD      B,00H
041A' 0E58       0717          LD      C,88          ; TO WRITE DISK
041C' EDB0       0718          LDIR
041E' 1B         0719 DDLOP: DEC     DE
041F' 1A         0720          LD      A,(DE)
0420' FE20       0721          CP      A,' '
0422' 20FA       0722          JR      NZ,DDLOP
0424' 13         0723          INC     DE
0724 ;          0724          LD      A,ODH

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                                0725 ;      LD      (DE),A
                                0726 ;      LD      A,0AH
                                0727 ;      INC     DE
                                0728 ;      LD      (DE),A
0425' 0626      0729      LD      B,38
0427' 3EFF      0730      LD      A,OFFH
0429' 13        0731 NLX:   INC     DE
042A' 12        0732      LD      (DE),A
042B' 10FC      0733      DJNZ   NLX
042D' CDEE05'   0734      CALL  WRITE
0430' DDE5      0735      PUSH   IX
0432' DD218000  0736      LD      IX,DMA
                                0737 ;
                                0738 ;      COMPRESS
                                0739 ;
0436' DDE5      0740      PUSH   IX
0438' DD7E00    0741 COMPRO: LD      A,(IX)
043B' FE0D      0742      CP      A,0DH
043D' 2804      0743      JR      Z,COMPRI
043F' DD23      0744      INC     IX
0441' 18F5      0745      JR      COMPRO
0443' 3EFF      0746 COMPRI: LD      A,OFFH
0445' DD7700    0747      LD      (IX),A
0448' DD7701    0748      LD      (IX+1),A
044B' DD2B      0749 COMPRI2: DEC     IX
044D' DD7E00    0750      LD      A,(IX)
0450' FE20      0751      CP      A,' '
0452' 2007      0752      JR      NZ,COMPR3
0454' 3EFF      0753      LD      A,OFFH
0456' DD7700    0754      LD      (IX),A
0459' 18F0      0755      JR      COMPR2
045B' DD23      0756 COMPR3: INC     IX
045D' 3E0D      0757      LD      A,0DH
045F' DD7700    0758      LD      (IX),A
0462' 3E0A      0759      LD      A,0AH
0464' DD7701    0760      LD      (IX+1),A
0467' DDE1      0761      POP     IX
                                0762 ;
                                0763 ;
0469' FD216007' 0764      LD      IY,CHAR
046D' 3E00      0765      LD      A,00H
046F' FD7700    0766      LD      (IY),A
0472' DD7E00    0767 NLXX:   LD      A,(IX)
                                0768 ;      CP      A,0DH
                                0769 ;      JR      Z,XXNL
                                0770 ;      CP      A,0AH
                                0771 ;      JR      Z,XXNL
0475' 5F        0772      LD      E,A
0476' 0E02      0773      LD      C,CONWRT
0478' DDE5      0774      PUSH   IX
047A' FDE5      0775      PUSH   IY
047C' CD0500    0776      CALL  BDOS
047F' FDE1      0777      POP     IY
0481' DDE1      0778      POP     IX
0483' FD3400    0779      INC     (IY)
0486' FD7E00    0780 XXNL:   LD      A,(IY)
0489' FE41      0781      CP      A,65

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048B' FABC04'      0782      JP      M,XXNL1
048E' DD7E00      0783      LD      A,(IX)
0491' FE20        0784      CP      A,' '
0493' 2027        0785      JR      NZ,XXNL1
0495' 1E0D        0786      LD      E,ODH
0497' 0E02        0787      LD      C,CONWRT
0499' E5          0788      PUSH   HL
049A' DDE5        0789      PUSH   IX
049C' FDE5        0790      PUSH   IY
049E' CD0500      0791      CALL   BDOS
04A1' FDE1        0792      POP    IY
04A3' DDE1        0793      POP    IX
04A5' E1          0794      POP    HL
04A6' 3E00        0795      LD      A,00H
04A8' FD7700      0796      LD      (IY),A
04AB' 1E0A        0797      LD      E,0AH
04AD' 0E02        0798      LD      C,CONWRT
04AF' E5          0799      PUSH   HL
04B0' DDE5        0800      PUSH   IX
04B2' FDE5        0801      PUSH   IY
04B4' CD0500      0802      CALL   BDOS
04B7' FDE1        0803      POP    IY
04B9' DDE1        0804      POP    IX
04BB' E1          0805      POP    HL
                0806 ;
04BC' DD23        0807 XXNL1:  INC    IX
04BE' DD7E00      0808      LD      A,(IX)
04C1' FEFF        0809      CP      A,0FFH
04C3' 20AD        0810      JR      NZ,NLXX
04C5' DDE5        0811      PUSH   IX
04C7' FDE5        0812      PUSH   IY
04C9' FD21C70A'   0813      LD      IY,ERR
04CD' FD7E00      0814      LD      A,(IY)
04D0' 3C          0815      INC    A
04D1' 27          0816      DAA
04D2' FD7700      0817      LD      (IY),A
04D5' 3E00        0818      LD      A,00H
04D7' FD8E01      0819      ADC    A,(IY+1)
04DA' 27          0820      DAA
04DB' FD7701      0821      LD      (IY+1),A
04DE' 0602        0822      LD      B,2
04E0' DD21CC0A'   0823      LD      IX,COUNTX
04E4' FD7E00      0824 LOP1:  LD      A,(IY)
04E7' E60F        0825      AND    0FH
04E9' F630        0826      OR     030H
04EB' DD7700      0827      LD      (IX),A
04EE' FD7E00      0828      LD      A,(IY)
04F1' EGFO        0829      AND    0FOH
04F3' CB3F        0830      SRL   A
04F5' CB3F        0831      SRL   A
04F7' CB3F        0832      SRL   A
04F9' CB3F        0833      SRL   A
04FB' F630        0834      OR     030H
04FD' DD77FF      0835      LD      (IX-1),A
0500' FD23        0836      INC    IY
0502' DD2B        0837      DEC    IX
0504' DD2B        0838      DEC    IX

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0506' 10DC      0839      DJNZ      LOP1
0508' FDE1      0840      POP       IY
050A' DDE1      0841      POP       IX
050C' DDE1      0842      POP       IX
050E' E1        0843      POP       HL
                0844 ;      JR        NZ,ENDPGM
050F' 7E        0845      LD        A,(HL)
0510' FE3F      0846      CP        A,'?'      ; END MESSAGE OR NOT
0512' C27503'   0847      JP        NZ,NEXT3
0515' 3A4D07'   0848      LD        A,(LINE)
0518' 3C        0849      INC       A
0519' 324D07'   0850      LD        (LINE),A
051C' 0608      0851      LD        B,08H      ; NEXT ERROR DATA
051E' DD23      0852 LOOPC2: INC      IX
0520' 10FC      0853      DJNZ     LOOPC2
0522' C34E03'   0854      JP        ASORT1
                0855 ;
                0856 ;
0525' 23        0857 NEXT1:  INC      HL
0526' 23        0858 NEXT2:  INC      HL      ; HL POINT LENGTH BYTE
0527' 7E        0859 NEXT4:  LD        A,(HL)
0528' 47        0860      LD        B,A
0529' 23        0861 LPNEXT: INC      HL
052A' 10FD      0862      DJNZ     LPNEXT
052C' 23        0863      INC      HL      ; ? END MESSAGE OR NOT
052D' 7E        0864      LD        A,(HL)
052E' FE3F      0865      CP        A,'?'
0530' 20F5      0866      JR        NZ,NEXT4
0532' 23        0867      INC      HL
0533' C36603'   0868      JP        GENER1
                0869 ;
                0870 ;
0536' 111COA'   0871 END:   LD        DE,COMPLT
0539' 0E09      0872 ENDPGM: LD      C,PRTSTR
053B' CD0500    0873      CALL    BDOS
                0874 ;
0875 ;$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$
0876 ;$
0877 ;$ WRITE ERROR COUNT TO FILE $
0878 ;$
0879 ;$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$
0880 ;
053E' 118000    0881      LD        DE,DMA
0541' 21C90A'   0882      LD        HL,COUNT1
0544' 3E0D      0883      LD        A,0DH
0546' 12        0884      LD        (DE),A
0547' 3E0A      0885      LD        A,0AH
0549' 13        0886      INC       DE
054A' 12        0887      LD        (DE),A
054B' 13        0888      INC       DE
054C' 3E20      0889      LD        A,' '
054E' 12        0890      LD        (DE),A
054F' 13        0891      INC       DE
0550' 12        0892      LD        (DE),A
0551' 13        0893      INC       DE
0552' 12        0894      LD        (DE),A
0553' 0600      0895      LD        B,00H
    
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0555' 0E04      0896      LD      C,04H
0557' 13        0897      INC     DE
0558' EDB0      0898      LDIR
055A' 215007'   0899      LD      HL,ERMSG
055D' 0600      0900      LD      B,00H
055F' 0E10      0901      LD      C,16
0561' EDB0      0902      LDIR
0563' 1B        0903  EELOP:  DEC     DE
0564' 1A        0904      LD      A,(DE)
0565' FE20      0905      CP      A,' '
0567' 28FA      0906      JR      Z,EELOP
0569' 13        0907      INC     DE
056A' 3E0D      0908      LD      A,ODH
056C' 12        0909      LD      (DE),A
056D' 3E0A      0910      LD      A,0AH
056F' 13        0911      INC     DE
0570' 12        0912      LD      (DE),A
0571' 13        0913      INC     DE
0572' 063A      0914      LD      B,58
0574' 3EFF      0915      LD      A,OFFH
0576' 12        0916  FFLOAD: LD      (DE),A
0577' 13        0917      INC     DE
0578' 10FC      0918      DJNZ   FFLOAD
057A' CDEE05'   0919      CALL   WRITE
057D' 11360C'   0920      LD      DE,ENDBUF
0580' 0680      0921      LD      B,128
0582' 1A        0922  END1:  LD      A,(DE)
0583' FEFF      0923      CP      A,OFFH
0585' 2006      0924      JR      NZ,ENDOK
0587' 3E20      0925      LD      A,' '
0589' 12        0926      LD      (DE),A
058A' 1B        0927      DEC     DE
058B' 10F5      0928      DJNZ   END1
058D' 11B60B'   0929  ENDOK: LD      DE,BUFFER
0590' 0E1A      0930      LD      C,STDMA
0592' CD0500    0931      CALL   BDOS
0595' 11920B'   0932      LD      DE,CBLSK9
0598' 0E15      0933      LD      C,WRTFLE
059A' CD0500    0934      CALL   BDOS
0935 ;
0936 ;xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx
0937 ;x
0938 ;x      WRITE ERROR COUNT      x
0939 ;x
0940 ;xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx
0941 ;
059D' 1E0D      0942      LD      E,ODH
059F' 0E02      0943      LD      C,CONWRT
05A1' CD0500    0944      CALL   BDOS
05A4' 1E0A      0945      LD      E,0AH
05A6' 0E02      0946      LD      C,CONWRT
05A8' CD0500    0947      CALL   BDOS
05AB' 21C90A'   0948      LD      HL,COUNT1
05AE' 0604      0949      LD      B,04H
05B0' 7E        0950  LOP:  LD      A,(HL)
05B1' 5F        0951      LD      E,A
05B2' 0E02      0952      LD      C,CONWRT

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060B' CD0500      1010      CALL      BDOS                ; END BUFFER CLEAR
060E' 11430A'    1011      LD        DE,DFULL
0611' FE00        1012      CP        A,00H
0613' C23905'    1013      JP        NZ,ENDPGM
0616' 118000     1014      LD        DE,DMA
0619' 0E1A       1015      LD        C,STDMA
061B' CD0500     1016      CALL      BDOS                ; SET DMA BACK TO NORMA
                                L
061E' 11B60B'    1017      LD        DE,BUFFER
0621' 3EFF        1018      LD        A,OFFH
0623' 0680        1019      LD        B,128
0625' 12          1020 WRTLP2: LD        (DE),A
0626' 13          1021      INC      DE
0627' 10FC        1022      DJNZ     WRTLP2
0629' 11B60B'    1023      LD        DE,BUFFER
062C' 0652        1024      LD        B,82
062E' 218000     1025 WRT02: LD        HL,DMA
0631' 7E          1026 WRT03: LD        A,(HL)
0632' 12          1027      LD        (DE),A
0633' FEFF        1028      CP        A,OFFH
0635' 2836        1029      JR        Z,ENDWRT
0637' 23          1030      INC      HL
0638' 13          1031      INC      DE
0639' 10F6        1032      DJNZ     WRT03
063B' E5          1033      PUSH     HL
063C' 11B60B'    1034      LD        DE,BUFFER
063F' 0E1A       1035      LD        C,STDMA
0641' CD0500     1036      CALL      BDOS
0644' 11920B'    1037      LD        DE,CBISK9
0647' 0E15        1038      LD        C,WRTFLE
0649' CD0500     1039      CALL      BDOS
064C' 118000     1040      LD        DE,DMA
064F' 0E1A       1041      LD        C,STDMA
0651' CD0500     1042      CALL      BDOS
0654' E1          1043      POP      HL
0655' 11B60B'    1044      LD        DE,BUFFER
0658' 3EFF        1045      LD        A,OFFH
065A' 0680        1046      LD        B,128
065C' 12          1047 WRTLP3: LD        (DE),A
065D' 13          1048      INC      DE
065E' 10FC        1049      DJNZ     WRTLP3
0660' 11B60B'    1050      LD        DE,BUFFER
0663' 7E          1051 WRTLP4: LD        A,(HL)
0664' FEFF        1052      CP        A,OFFH
0666' 2805        1053      JR        Z,ENDWRT
0668' 12          1054      LD        (DE),A
0669' 23          1055      INC      HL
066A' 13          1056      INC      DE
066B' 10F6        1057      DJNZ     WRTLP4
066D' C1          1058 ENDWRT: POP      BC
066E' D1          1059      POP      DE
066F' E1          1060      POP      HL
0670' C9          1061      RET
                                1062 ;
                                1063 ;
0671' DDE5       1064 SCHEAD: PUSH     IX
0673' FDE5       1065      PUSH     IY

```

0675'	FD214E07'	1066	LD	IY,PAGEX
0679'	FD7E00	1067	LD	A,(IY)
067C'	3C	1068	INC	A
067D'	27	1069	DAA	
067E'	FD7700	1070	LD	(IY),A
0681'	3E00	1071	LD	A,00H
0683'	FD8E01	1072	ADC	A,(IY+1)
0686'	27	1073	DAA	
0687'	FD7701	1074	LD	(IY+1),A
068A'	0602	1075	LD	B,2
068C'	DD214A07'	1076	LD	IX,PAGE4
0690'	FD7E00	1077	IOPS1: LD	A,(IY)
0693'	E60F	1078	AND	0FH
0695'	F630	1079	OR	030H
0697'	DD7700	1080	LD	(IX),A
069A'	FD7E00	1081	LD	A,(IY)
069D'	E6F0	1082	AND	0F0H
069F'	CB3F	1083	SRL	A
06A1'	CB3F	1084	SRL	A
06A3'	CB3F	1085	SRL	A
06A5'	CB3F	1086	SRL	A
06A7'	F630	1087	OR	030H
06A9'	DD77FF	1088	LD	(IX-1),A
06AC'	FD23	1089	INC	IY
06AE'	DD2B	1090	DEC	IX
06B0'	DD2B	1091	DEC	IX
06B2'	10DC	1092	DJNZ	IOPS1
06B4'	FDE1	1093	POP	IY
06B6'	DDE1	1094	POP	IX
06B8'	E5	1095	PUSH	HL
06B9'	D5	1096	PUSH	DE
06BA'	C5	1097	PUSH	BC
06BB'	1E0D	1098	LD	E,0DH
06BD'	0E02	1099	LD	C,CONWRT
06BF'	CD0500	1100	CALL	BDOS
06C2'	1E0A	1101	LD	E,0AH
06C4'	0E02	1102	LD	C,CONWRT
06C6'	CD0500	1103	CALL	BDOS
06C9'	21FC06'	1104	LD	HL,CHEAD
06CC'	0651	1105	LD	B,81
06CE'	7E	1106	SHOW: LD	A,(HL)
06CF'	5F	1107	LD	E,A
06D0'	0E02	1108	LD	C,CONWRT
06D2'	E5	1109	PUSH	HL
06D3'	C5	1110	PUSH	BC
06D4'	CD0500	1111	CALL	BDOS
06D7'	C1	1112	POP	BC
06D8'	E1	1113	POP	HL
06D9'	23	1114	INC	HL
06DA'	10F2	1115	DJNZ	SHOW
06DC'	1E0D	1116	LD	E,0DH
06DE'	0E02	1117	LD	C,CONWRT
06E0'	CD0500	1118	CALL	BDOS
06E3'	1E0A	1119	LD	E,0AH
06E5'	0E02	1120	LD	C,CONWRT
06E7'	CD0500	1121	CALL	BDOS
06EA'	1E0D	1122	LD	E,0DH

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06EC' 0E02      1123      LD      C,CONWRT
06EE' CD0500    1124      CALL   BDOS
06F1' 1E0A      1125      LD      E,0AH
06F3' 0E02      1126      LD      C,CONWRT
06F5' CD0500    1127      CALL   BDOS
06F8' C1        1128      POP    BC
06F9' D1        1129      POP    DE
06FA' E1        1130      POP    HL
06FB' C9        1131      RET
1132 ;
1133 ;*****
1134 ;*
1135 ;*      START OF DATA DECLARATION
1136 ;*
1137 ;*****
1138 ;
1139 ;
06FC' 0D0A      1140  CHEAD:  DB      0DH,0AH
06FE' 4348554C  1141  HEAD:   DB      'CHULALONGKORN UNIVERSITY. CU-Computer
                          Service Centre.
                          414C4F4E
                          474B4F52
                          4E20554E
                          49564552
                          53495459
                          2E204355
                          2D436F6D
                          70757465
                          72205365
                          72766963
                          65204365
                          6E747265
                          2E202020
                          202020
0739' 20202020  1142      DB      '      PAGE '
                          20202020
                          20504147
                          4520
0747' 303030    1143  PAGE:   DB      30H,30H,30H
074A' 30        1144  PAGE4:  DB      30H
074B' 0D0A      1145      DB      0DH,0AH
074D' 00        1146  LINE:   DB      00H
074E' 0000      1147  PAGEX:  DB      00H,00H
0750' 20204552  1148  ERMSG:  DB      '  ERROR DETECTED'
                          524F5220
                          44455445
                          43544544
0760' 00        1149  CHAR:   DB      00H
0761' (0080)    1150  DUM:    DS      128
07E1' 0D0A2323  1151  BERR:   DB      0DH,0AH,'*****
                          *****'
                          23232323
                          23232323
                          23232323
                          23232323
                          23232323
                          23232323

```



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20202020
20202020
20202020
20202020
20202020
20202020
20202023
08E9' 0D0A2323      1157          DB      0DH,0AH,'#####'
                #####'

23232323
23232323
23232323
23232323
23232323
23232323
23232323
23232323
23232323
0915' 0D0A0D0A      1158          DB      0DH,0AH,0DH,0AH
                1159 ;
0919' 0D0A0D0A      1160 LASTX:   DB      0DH,0AH,0DH,0AH
091D' 81818181      1161          DB      129,129,129,129,129,129,129,129,129,129
      81818181
      8181
0927' 81818181      1162          DB      129,129,129,129,129,129,129,129,129,129
      81818181
      8181
0931' 81818181      1163          DB      129,129,129,129,129,129,129,129,129,129
      81818181
      8181
093B' 0D0A8120      1164          DB      0DH,0AH,129,'
                ',129

20202020
20202020
20202020
20202020
20202020
20202020
20202081
095B' 0D0A8120      1165          DB      0DH,0AH,129,' CHULALONGKORN UNIVERSITY
                ',129

20434855
4C414C4F
4E474B4F
524E2055
4E495645
52534954
59202081
097B' 0D0A8120      1166          DB      0DH,0AH,129,' CU-Computer Service Centr
                e ',129

43552D43
6F6D7075
74657220
53657276
69636520
43656E74

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72652081
099B' CD0A8120      1167          DB      0DH,0AH,129,'
                    ',129
20202020
20202020
20202020
20202020
20202020
20202020
20202081
09BB' OD0A8120      1168          DB      0DH,0AH,129,' End of COBOL Pre-Compiler
                    ',129
456E6420
6F662043
4F424F4C
20507265
2D436F6D
70696C65
722E2081
09DB' OD0A8120      1169          DB      0DH,0AH,129,'
                    ',129,0DH,0AH
20202020
20202020
20202020
20202020
20202020
20202020
20202081
0D0A
09FD' 81818181      1170          DB      129,129,129,129,129,129,129,129,129,129
81818181
8181
0A07' 81818181      1171          DB      129,129,129,129,129,129,129,129,129,129
81818181
8181
0A11' 81818181      1172          DB      129,129,129,129,129,129,129,129,129,129
                    ', '$'
81818181
818124
1173 ;
1174 ;
1175 ;
0A1C' OD0A434F      1176 COMPLT: DB      0DH,0AH,'COMPLETELY TERMINATED FROM PHA
                    SE III$'
4D504C45
54454C59
20544552
4D494E41
54454420
46524F4D
20504841
53452049
494924
0A43' OD0A4449      1177 DFULL:  DB      0DH,0AH,'DISK FULL !$'
534B2046
554C4C20
2124

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0A51'	0D0A4F50 454E2050 52494E54 2046494C 4520554E 53554343 45535346 554C24	1178 OPNERR: DB	0DH,0AH,'OPEN PRINT FILE UNSUCCESSFUL\$'
0A70'	0D0A4341 4E4E4F54 204F5045 4E204342 4C534B35 2E455252 24	1179 ERRSK5: DB	0DH,0AH,'CANNOT OPEN CBLSK5.ERR\$'
0A89'	0D0A4341 4E4E4F54 204F5045 4E204342 4C534B33 2E455252 24	1180 ERRSK3: DB	0DH,0AH,'CANNOT OPEN CBLSK3.ERR\$'
0AA2'	0D0A4341 4E4E4F54 20435245 41544520 43424C53 4B392E50 524E2046 494C4524	1181 CRERR: DB	0DH,0AH,'CANNOT CREATE CBLSK9.PRN FILE\$'
0AC2'	0000	1182 LAST: DB	00H,00H
0AC4'	0000	1183 KLAST: DB	00H,00H
0AC6'	00	1184 CLINE: DB	00H
0AC7'	0000	1185 ERR: DB	00H,00H
0AC9'	000000	1186 COUNT1: DB	00H,00H,00H
0ACC'	00	1187 COUNTX: DB	00H
0ACD'	(0001)	1188 DUMMY: DS	1
0ACE'	(0006)	1189 MSG1: DS	6 ; LINE NUMBER + 2 BLANKS
0AD4'	(0050)	1190 MSG2: DS	80
0B24'	0D0A	1191	0DH,0AH
0B26'	0143424C 534B3120 2050524E 00000000	1192 CBLSK1: DB	01H,'CBLSK1 PRN',00H,00H,00H,00H
0B36'	(0010)	1193	DS 16
0B46'	00000000	1194	DB 00H,00H,00H,00H
0B4A'	0143424C 534B3320 20455252 00000000	1195 CBLSK3: DB	01H,'CBLSK3 ERR',00H,00H,00H,00H
0B5A'	(0010)	1196	DS 16
0B6A'	00000000	1197	DB 00H,00H,00H,00H
0B6E'	0143424C 534B3520 20455252 00000000	1198 CBLSK5: DB	01H,'CBLSK5 ERR',00H,00H,00H,00H

0B7E'	(0010)	1199	DS	16
0B8E'	00000000	1200	DB	00H,00H,00H,00H
0B92'	0143424C	1201	CBLSK9: DB	01H,'CBLSK9 PRN',00H,00H,00H,00H
	534B3920			
	2050524E			
	00000000			
0BA2'	(0010)	1202	DS	16
0BB2'	00000000	1203	DB	00H,00H,00H,00H
0BB6'	FFFFFFFF	1204	BUFFER: DB	OFFH,OFFH,OFFH,OFFH,OFFH,OFFH,OFFH,OFFH
			,OFFH,OFFH	
	FFFFFFFF			
	FFFF			
0BC0'	FFFFFFFF	1205	DB	OFFH,OFFH,OFFH,OFFH,OFFH,OFFH,OFFH,OFFH
			,OFFH,OFFH	
	FFFFFFFF			
	FFFF			
0BCA'	FFFFFFFF	1206	DB	OFFH,OFFH,OFFH,OFFH,OFFH,OFFH,OFFH,OFFH
			,OFFH,OFFH	
	FFFFFFFF			
	FFFF			
0BD4'	FFFFFFFF	1207	DB	OFFH,OFFH,OFFH,OFFH,OFFH,OFFH,OFFH,OFFH
			,OFFH,OFFH	
	FFFFFFFF			
	FFFF			
0BDE'	FFFFFFFF	1208	DB	OFFH,OFFH,OFFH,OFFH,OFFH,OFFH,OFFH,OFFH
			,OFFH,OFFH	
	FFFFFFFF			
	FFFF			
0BE8'	FFFFFFFF	1209	DB	OFFH,OFFH,OFFH,OFFH,OFFH,OFFH,OFFH,OFFH
			,OFFH,OFFH	
	FFFFFFFF			
	FFFF			
0BF2'	FFFFFFFF	1210	DB	OFFH,OFFH,OFFH,OFFH,OFFH,OFFH,OFFH,OFFH
			,OFFH,OFFH	
	FFFFFFFF			
	FFFF			
0BFC'	FFFFFFFF	1211	DB	OFFH,OFFH,OFFH,OFFH,OFFH,OFFH,OFFH,OFFH
			,OFFH,OFFH	
	FFFFFFFF			
	FFFF			
0C06'	FFFFFFFF	1212	DB	OFFH,OFFH,OFFH,OFFH,OFFH,OFFH,OFFH,OFFH
			,OFFH,OFFH	
	FFFFFFFF			
	FFFF			
0C10'	FFFFFFFF	1213	DB	OFFH,OFFH,OFFH,OFFH,OFFH,OFFH,OFFH,OFFH
			,OFFH,OFFH	
	FFFFFFFF			
	FFFF			
0C1A'	FFFFFFFF	1214	DB	OFFH,OFFH,OFFH,OFFH,OFFH,OFFH,OFFH,OFFH
			,OFFH,OFFH	
	FFFFFFFF			
	FFFF			
0C24'	FFFFFFFF	1215	DB	OFFH,OFFH,OFFH,OFFH,OFFH,OFFH,OFFH,OFFH
			,OFFH,OFFH	
	FFFFFFFF			
	FFFF			
0C2E'	FFFFFFFF	1216	DB	OFFH,OFFH,OFFH,OFFH,OFFH,OFFH,OFFH,OFFH


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73686F75
6C64206E
6F742062
6520626C
616E6B2E
3F
0CF6' 00071E49      1230      DB      00H,07H,30,'IDENTIFICATION header missi
ng.?'
44454E54
49464943
4154494F
4E206865
61646572
206D6973
73696E67
2E3F
0D18' 00082B50      1231      DB      00H,08H,43,'Programmer word should not
begin in area A.?'
726F6772
616D6D65
7220776F
72642073
686F756C
64206E6F
74206265
67696E20
696E2061
72656120
412E3F
0D47' 00091A48      1232      DB      00H,09H,26,'Header in area A expected.?
65616465
7220696E
20617265
61204120
65787065
63746564
2E3F
0D65' 000A2957      1233      DB      00H,0AH,41,'Word "DIVISION" missing. As
sumed present.?'
6F726420
22444956
4953494F
4E22206D
69737369
6E672E20
41737375
6D656420
70726573
656E742E
3F
0D92' 000B2350      1234      DB      00H,0BH,35,'Period (.) expected, but no
t found.?'
6572696F
6420282E
29206578
70656374

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65642C20
62757420
6E6F7420
666F756E
642E3F
0DB9' 00082B50      1235      DB      00H,08H,43,'Programmer word should not
                        begin in area A.?'

726F6772
616D6D65
7220776F
72642073
686F756C
64206E6F
74206265
67696E20
696E2061
72656120
412E3F
0DE8' 00092848      1236      DB      00H,09H,40,'Header in area A expected b
                        ut not found.?'

65616465
7220696E
20617265
61204120
65787065
63746564
20627574
206E6F74
20666F75
6E642E3F
0E14' 000A2957      1237      DB      00H,0AH,41,'Word "DIVISION" missing. As
                        sumed present.?'

6F726420
22444956
4953494F
4E22206D
69737369
6E672E20
41737375
6D656420
70726573
656E742E
3F
0E41' 000B1F50      1238      DB      00H,0BH,31,'Period (.) expected, not fo
                        und.?'

6572696F
6420282E
29206578
70656374
65642C20
6E6F7420
666F756E
642E3F
0E64' 000C1350      1239      DB      00H,0CH,19,'PROGRAM ID missing.?'

524F4752
414D2D49
44206D69

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7373696E
672E3F
0E7B' 000D2C49      1240          DB      00H,0DH,44,'Illegal used of reserved wo
                      rd as a dataname.?'
6C6C6567
616C2075
73656420
6F662072
65736572
76656420
776F7264
20617320
61206461
74616E61
6D652E3F
0EAB' 000E2750      1241          BB      00H,0EH,39,'Paragraph-name expected, bu
                      t not found.?'
61726167
72617068
2D6E616D
65206578
70656374
65642C20
62757420
6E6F7420
666F756E
642E3F
0ED6' 000F1949      1242          DB      00H,0FH,25,'Illegal used this header.?'
6C6C6567
616C2075
73656420
74686973
20686561
6465722E
3F
0EF3' 00103153      1243          DB      00H,10H,49,'SECURITIES header extraneou
                      s (found more than 1).?'
45435552
49544945
53206865
61646572
20657874
72616E65
6F757320
28666F75
6E64206D
6F726520
7468616E
2031292E
3F
0F28' 00112D41      1244          DB      00H,11H,45,'AUTHOR header extraneous (f
                      ound more than 1).?'
5554484F
52206865
61646572
20657874
72616E65

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6F757320
28666F75
6E64206D
6F726520
7468616E
2031292E
3F
0F59' 00122E52      1245          DB      00H,12H,46,'REMARKS header extraneous (
                          found more than 1).?'

454D4152
4B532068
65616465
72206578
7472616E
656F7573
2028666F
756E6420
6D6F7265
20746861
6E203129
2E3F
0F8B' 00131F49      1246          DB      00H,13H,31,'INSTALLATION header extrane
                          ous.?'

4E535441
4C4C4154
494F4E20
68656164
65722065
78747261
6E656F75
732E3F
0FAE' 00141F44      1247          DB      00H,14H,31,'DATE-WRITTEN header extrane
                          ous.?'

4154452D
57524954
54454E20
68656164
65722065
78747261
6E656F75
732E3F
0FD1' 00152044      1248          DB      00H,15H,32,'DATE COMPILED header extran
                          cous.?'

4154452D
434F4D50
494C4544
20686561
64657220
65787472
616E656F
75732E3F
0FF5' 00162E49      1249          DB      00H,16H,46,'Invalid word found in IDENT
                          IFICATION DIVISION.?'

6E76616C
69642077
6F726420
666F756E

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6420696E
20494445
4E544946
49434154
494F4E20
44495649
53494F4E
2E3F
1027' 00173155      1250      DB      00H,17H,49,'Unexpected word detected. S
can for next DIVISION.?'

6E657870
65637465
6420776F
72642064
65746563
7465642E
20536361
6E20666F
72206E65
78742044
49564953
494F4E2E
3F
105C' 00181644      1251      DB      00H,18H,22,'DATA DIVISION missing.?'
41544120
44495649
53494F4E
206D6973
73696E67
2E3F
1076' 001A2857      1252      DB      00H,1AH,40,'Word "SECTION" missing. Ass
umed present.?'

6F726420
22534543
54494F4E
22206D69
7373696E
672E2041
7373756D
65642070
72657365
6E742E3F
10A2' 001B2E49      1253      DB      00H,1BH,46,'It should be PARAGRAPH, abn
ormally terminated.?'

74207368
6F756C64
20626520
50415241
47524150
482C2061
626E6F72
6D616C6C
79207465
726D696E
61746564
2E3F
10D4' 001C3154      1254      DB      00H,1CH,49,'This PRE COMPILER does not

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                                support DEBUGGING AID.?'
68697320
5052452D
434F4D50
494C4552
20646F65
73206E6F
74207375
70706F72
74204445
42554747
494E4720
4149442E
3F
1109' 001D2253      1255          DB      00H,1DH,34,'SOURCE COMPUTER header extr
                                aneous.?'
4F555243
452D434F
4D505554
45522068
65616465
72206578
7472616E
656F7573
2E3F
112F' 001E224F      1256          DB      00H,1EH,34,'OBJECT COMPUTER header extr
                                aneous.?'
424A4543
542D434F
4D505554
45522068
65616465
72206578
7472616E
656F7573
2E3F
1155' 001F2844      1257          DB      00H,1FH,40,'Does not support MEMORY SIZ
                                E definition.?'
6F657320
6E6F7420
73757070
6F727420
4D454D4F
52592053
495A4520
64656669
6E697469
6F6E2E3F
1181' 00202A44      1258          DB      00H,20H,42,'Does not support COLLATING
                                SEQUENCE usage.?'
6F657320
6E6F7420
73757070
6F727420
434F4C4C
4154494E
47205345

```



```

5155454E
43452075
73616765
2E3F
11AF' 00213054      1259          DB      00H,21H,48,'This PRE-COMPILER does not
                        support SEGMENTATION.?'

68697320
5052452D
434F4D50
494C4552
20646F65
73206E6F
74207375
70706F72
74205345
474D454E
54415449
4F4E2E3F
11E3' 00222A50      1260          DB      00H,22H,42,'Programmer-defined word sho
                        uld not appear.?'

726F6772
616D6D65
722D6465
66696E65
6420776F
72642073
686F756C
64206E6F
74206170
70656172
2E3F
1211' 00232944      1261          DB      00H,23H,41,'Does not support ON STATUS
                        or OFF STATUS.?'

6F657320
6E6F7420
73757070
6F727420
4F4E2053
54415455
53206F72
204F4646
20535441
5455532E
3F
123E' 00242644      1262          DB      00H,24H,38,'Does not support STANDARD-1
                        or NATIVE.?'

6F657320
6E6F7420
73757070
6F727420
5354414E
44415244
2D31206F
72204E41
54495645
2E3F
1268' 00252E44      1263          DB      00H,25H,46,'Does not support CURRENCY S

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IGN, DECIMAL POINT.?'

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6F657320
6E6F7420
73757070
6F727420
43555252
454E4359
20534947
4E2C2044
4543494D
414C2050
4F494E54
2E3F
129A' 00262752      1264          DB      00H,26H,39,'Reserved word as literal or
                    identifier.?'
65736572
76656420
776F7264
20617320
6C697465
72616C20
6F722069
64656E74
69666965
722E3F
12C5' 00272149      1265          DB      00H,27H,33,'Invalid keyword in SPECIAL-
                    NAMES.?'
6E76616C
6964206B
6579776F
72642069
6E205350
45434941
4C2D4E41
4D45532E
3F
12EA' 00282448      1266          DB      00H,28H,36,'Header missing, statement d
                    iscarded.?'
65616465
72206D69
7373696E
672C2073
74617465
6D656E74
20646973
63617264
65642E3F
1312' 00292D49      1267          DB      00H,29H,45,'INPUT-OUTPUT SECTION or DAT
                    A DIVISION expect.?'
4E505554
2D4F5554
50555420
53454354
494F4E20
6F722044
41544120
44495649

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```

53494F4E
20657870
6563742E
3F
1343' 002A1546      1268      DB      00H,2AH,21,'FILE CONTROL missing.?'
494C452D
434F4E54
524F4C20
6D697373
696E672E
3F
135C' 002B1D49      1269      DB      00H,2BH,29,'I-O CONTROL is not supporte
d.?'
2D4F2D43
4F4E5452
4F4C2069
73206E6F
74207375
70706F72
7465642E
3F
137D' 002C1755      1270      DB      00H,2CH,23,'Unrecognizable word(s).?'
6E726563
6F676E69
7A61626C
6520776F
72642873
292E3F
1398' 002D2553      1271      DB      00H,2DH,37,'Statement should not begin
in area A.?'
74617465
6D656E74
2073686F
756C6420
6E6F7420
62656769
6E20696E
20617265
6120412E
3F
13C1' 002E2B49      1272      DB      00H,2EH,43,'Invalid used of reserved wo
rd as file-name.?'
6E76616C
69642075
73656420
6F662072
65736572
76656420
776F7264
20617320
66696C65
2D6E616D
652E3F
13F0' 002F2F49      1273      DB      00H,2FH,47,'Inconsistency file-name, ac
cept only the first.?'
6E636F6E
73697374

```

```

656E6379
2066696C
652D6E61
6D652C20
61636365
7074206F
6E6C7920
74686520
66697273
742E3F
1423' 00303041      1274          DB          00H,30H,48,'ASSIGN clause missing. File
                    -name not acceptable.?'

53534947
4E20636C
61757365
206D6973
73696E67
2E204669
6C652D6E
616D6520
6E6F7420
61636365
70746162
6C652E3F
1457' 00311C41      1275          DB          00H,31H,28,'ASSIGN clause should appear
                    .?'

53534947
4E20636C
61757365
2073686F
756C6420
61707065
61722E3F
1477' 00321F49      1276          DB          00H,32H,31,'Invalid usage in ASSIGN cla
                    use.?'

6E76616C
69642075
73616765
20696E20
41535349
474E2063
6C617573
652E3F
149A' 00332E57      1277          DB          00H,33H,46,'Word "DIVISION" expected to
                    be, but not found.?'

6F726420
22444956
4953494F
4E222065
78706563
74656420
746F2062
652C2062
7574206E
6F742066
6F756E64
2E3F

```

```
14CC' 00342646      1278      DB      00H,34H,38,'FILE SECTION missing, Assum
                        ed present.?'
      494C4520
      53454354
      494F4E20
      6D697373
      696E672C
      20417373
      756D6564
      20707265
      73656E74
      2E3F
14F6' 00353053      1279      DB      00H,35H,48,'SORT feature not supported
                        in this PRE-COMPILER.?'
      4F525420
      66656174
      75726520
      6E6F7420
      73757070
      6F727465
      6420696E
      20746869
      73205052
      452D434F
      4D50494C
      45522E3F
152A' 00361D4E      1280      DB      00H,36H,29,'Not support for some featur
                        e.?'
      6F742073
      7570706F
      72742066
      6F722073
      6F6D6520
      66656174
      7572652E
      3F
154B' 00371D52      1281      DB      00H,37H,29,'REPORT feature not supporte
                        d.?'
      45504F52
      64206665
      61747572
      65206E6F
      74207375
      70706F72
      7465642E
      3F
156C' 00382443      1282      DB      00H,38H,36,'COMMUNICATION SECTION not s
                        upported.?'
      1F4D4D55
      1E494341
      54494F4E
      20534543
      54494F4E
      206E6F74
      20737570
      706F7274
      65642E3F
```

```

1594' 00392F49      1283      DB      00H,39H,47,'Illegal file-name. Reserved
                    word is prohibited.?'
                    6C6C6567
                    616C2066
                    696C652D
                    6E616D65
                    2E205265
                    73657276
                    65642077
                    6F726420
                    69732070
                    726F6869
                    62697465
                    642E3F
15C7' 003A2D49      1284      DB      00H,3AH,45,'Illegal file-name used. Fil
                    e-name is ignored.?'
                    6C6C6567
                    616C2066
                    696C652D
                    6E616D65
                    20757365
                    642E2046
                    696C652D
                    6E616D65
                    20697320
                    69676E6F
                    7265642E
                    3F
15F8' 003B2B46      1285      DB      00H,3BH,43,'File has not been SELECTEd
                    in FILE-CONTROL.?'
                    696C6520
                    68617320
                    6E6F7420
                    6265656E
                    2053454C
                    15435445
                    6420696E
                    2046494C
                    152D434F
                    1E54524F
                    4C2E3F
1627' 003C2D45      1286      DB      00H,3CH,45,'Element cannot be recognize
                    d as level number.?'
                    6C656D65
                    6E742063
                    616E6E6F
                    74206265
                    20726563
                    6F676E69
                    7A656420
                    6173206C
                    6576656C
                    206E756D
                    6265722E
                    3F
1658' 003D1046      1287      DB      00H,3DH,16,'File extraneous.?'
                    696C6520

```

```
65787472
616E656F
75732E3F
166C' 003E2C49      1288      DB      00H,3EH,44,'Invalid clause detected in
                    file description.?'
6E76616C
69642063
6C617573
65206465
74656374
65642069
6E206669
6C652064
65736372
69707469
6F6E2E3F
169C' 003F2C49      1289      DB      00H,3FH,44,'Invalid clause detected in
                    file dexcription.?'
6E76616C
69642063
6C617573
65206465
74656374
65642069
6E206669
6C652064
65786372
69707469
6F6E2E3F
16CC' 00402649      1290      DB      00H,40H,38,'Illegal used in BLOCK CONTA
                    INS clause.?'
6C6C6567
616C2075
73656420
696E2042
4C4F434B
20434F4E
5441494E
5320636C
61757365
2E3F
16F6' 00412949      1291      DB      00H,41H,41,'Invalid defined in BLOCK CO
                    NTAINS clause.?'
6E76616C
69642064
6566696E
65642069
6E20424C
4F434B20
434F4E54
41494E53
20636C61
7573652E
3F
1723' 00422955      1292      DB      00H,42H,41,'Unexpected word in BLOCK CO
                    NTAINS clause.?'
6E657870
```

```

65637465
6420776F
72642069
6E20421C
4F434B20
434F4E54
41494E53
20636C61
7573652E
3F
1750' 00432749      1293      DB      00H,43H,39,'Illegal used in RECORD CONT
                AINS clause.?'
6C6C6567
616C2075
73656420
696E2052
45434F52
1420434F
4E544149
4E532063
6C617573
652E3F
177B' 00442A49      1294      DB      00H,44H,42,'Invalid integer in RECORD C
                ONTAINS clause.?'
6E76616C
69642069
6E746567
65722069
6E205245
434F5244
20434F4E
5441494E
5320636C
61757365
2E3F
17A9' 00451C49      1295      DB      00H,45H,28,'Invalid LABEL RECORD clause
                .?'
6E76616C
6964204C
4142454C
20524543
1F524420
636C6175
73652E3F
17C9' 00461D49      1296      DB      00H,46H,29,'Invalid type of LABEL RECOR
                D.?'
6E76616C
69642074
79706520
6F66204C
4142454C
20524543
4F52442E
3F
17EA' 00472849      1297      DB      00H,47H,40,'Invalid DATA clause in file
                description.?'
6E76616C

```



```

69642044
41544120
636C6175
73652069
6E206669
6C652064
65736372
69707469
6F6E2E3F
1816' 00482952      1298      DB      00H,48H,41,'Reserved word used in DATA
                    RECORD clause.?'

65736572
76656420
776F7264
20757365
6420696E
20444154
41205245
434F5244
2C636C61
7573652E
3F
1843' 00491E52      1299      DB      00H,49H,30,'Record description is inval
                    id.?'

65636F72
64206465
73637269
7074696F
6E206973
20696E76
616C6964
2E3F
1865' 004A2D49      1300      DB      00H,4AH,45,'Invalid PICTURE type found
                    in PICTURE string.?'

6E76616C
69642050
49435455
52452074
79706520
686F756E
6420696E
20504943
54555245
20737472
696E672E
3F
1896' 004B2049      1301      DB      00H,4BH,32,'Invalid PICTURE character f
                    ound.?'

6E76616C
69642050
49435455
52452063
68617261
63746572
20666F75
6E642E3F
18BA' 004C2552      1302      DB      00H,4CH,37,'Record level (01) missing o

```

r invalid.?'

```

65636F72
64206C65
76656C20
28303129
206D6973
73696E67
206F7220
696E7661
6C69642E
3F
18E3' 004D2049      1303      DB      00H,4DH,32,'Invalid dataname or record-
name.?'
6E76616C
69642064
6174616E
616D6520
6F722072
65636F72
642D6E61
6D652E3F
1907' 004E1E49      1304      DB      00H,4EH,30,'Inconsistent DATA RECORD na
me.?'
6E636F6E
73697374
656E7420
44415441
20524543
4F524420
6E616D65
2E3F
1929' 004F2549      1305      DB      00H,4FH,37,'Invalid dataname in data d
efinition.?'
6E76616C
69642020
64617461
6E616D65
20696E20
64617461
20646566
696E6974
696F6E2E
3F
1952' 0050244E      1306      DB      00H,50H,36,'No elementary item under gr
oup item.?'
6F20656C
656D656E
74617279
20697465
6D20756E
64657220
67726F75
70206974
656D2E3F
197A' (0002)      1307 OLDSP: DS      2
197C' (0080)      1308      DS      128
(19FC')      1309 STKTOP: EQU    $
    
```

19FC' (0001)	1310	DS	I
(19FD')	1311 DATA:	EQU	\$
19FD' (0000)	1312	END	

Errors 0

Program Length 19FD (6653)

```

(0000)      0001 WBOOT: EQU    00H    ; WARM BOOT OR RESET SYSTEM
(0001)      0002 CONRDR: EQU   01H    ; READ CONSOLE CHARACTER
(0002)      0003 CONWRT: EQU   02H    ; WRITE CONSOLE CHARACTER
(0005)      0004 LSTWRT: EQU   05H    ; WRITE LIST CHARACTER
(0009)      0005 BUFWRT: EQU   09H    ; WRITE CONSOLE BUFFER
(000A)      0006 BUFRDR: EQU   0AH    ; READ CONSOLE BUFFER
(000B)      0007 CONST: EQU   0BH    ; READ CONSOLE STATUS
(000F)      0008 CPMOPN: EQU   0FH    ; OPEN FILE
(0010)      0009 CPMCLS: EQU   10H    ; CLOSE FILE
(0011)      0010 SRCFST: EQU   11H    ; SEARCH FOR FIRST OCCURRENCE
(0012)      0011 SRCNXT: EQU   12H    ; SEARCH NEXT OCCURRENCE
(0013)      0012 DLTFLE: EQU   13H    ; DELETE FILE FROM DIRECTORY
(0014)      0013 RDRFLE: EQU   14H    ; READ SEQUENTIAL FILE
(0015)      0014 WRTFLE: EQU   15H    ; WRITE SEQUENTIAL FILE
(0016)      0015 CRTFLE: EQU   16H    ; CREATE FILE
(0017)      0016 RENFLE: EQU   17H    ; RENAME FILE
(001A)      0017 STDMA: EQU   1AH    ; SET DMA ADDRESS
(001B)      0018 GTALOC: EQU   1BH    ; GET ADDRESS OF ALLOCATION
(001F)      0019 GTBLK: EQU   1FH    ; GET ADDRESS OF DISK PARAMETER

(0020)      0020 GTUSER: EQU   20H    ; GET OR SET USER CODE
(0021)      0021 RDRRND: EQU   21H    ; READ RANDOM FILE
(0022)      0022 WRTRND: EQU   22H    ; WRITE RANDOM FILE
(0023)      0023 CPFLSZ: EQU   23H    ; COMPUTE FILE SIZE
(0024)      0024 STRND: EQU   24H    ; SET RANDOM RECORD POINTER
(0025)      0025 RSTDRV: EQU   25H    ; RESET DRIVE
(0028)      0026 WRTRDZ: EQU   28H    ; WRITE RANDOM WITH ZERO FILL
(0005)      0027 BDOS: EQU    05H    ; BDOS FUNCTION
(0080)      0028 DMA: EQU    80H    ; DMA ADDRESS
0029 ;
0030      REL
0000' ED736B01' 0031 SCREEN: LD    (OLDSP), SP
0004' 316D02'   0032      LD    SP, STKTOP
0007' 114701'   0033      LD    DE, CBLSK9
000A' 0E0F     0034      LD    C, CPMOPN
000C' CD0500   0035      CALL  BDOS
000F' 112901'  0036      LD    DE, OPNERR
0012' FE03     0037      CP    A, 03H
0014' F23C00'  0038      JP    P, ENDPGM
0017' 114701'  0039 READ: LD    DE, CBLSK9
001A' 0E14     0040      LD    C, RDRFLE
001C' CD0500   0041      CALL  RDOS
001F' FE00     0042      CP    A, 00H
0021' 823900'  0043      JP    NZ, END
0024' 0680     0044      LD    B, 128
0026' 218000   0045      LD    HL, DMA
0029' 7E       0046 CONNXT: LD   A, (HL)
0047 ;         CP    A, 0DH
0048 ;         JR    Z, NEXT
0049 ;         CP    A, 0AH
0050 ;         JR    Z, NEXT
002A' 5F       0051      LD    E, A
002B' 0E02     0052      LD    C, CONWRT
002D' E5       0053      PUSH  HL
002E' C5       0054      PUSH  BC
002F' CD0500   0055      CALL  BDOS
0032' C1       0056      POP   BC

```

```

0033' E1          0057          POP          HL
0034' 23          0058 NEXT:   INC          HL
0035' 10F2        0059          DJNZ         CONNXT
0037' 18DE        0060          JR          READ
0039' 114C00'     0061 END:      LD          DE,SUCSS
003C' 0E09        0062 ENDPGM:  LD          C,BUFWRT
003E' CD0500      0063          CALL         BDOS
0041' 114701'     0064          LD          DE,CBLSK9
0044' 0E10        0065          LD          C,CPMCLS
0046' CD0500      0066          CALL         BDOS
0049' C30000      0067          JP          0
0068 ;
004C' 0D0A2020   0069 SUCSS:   DB          0DH,0AH,' END OF CBLSK9.PRN ',0DH,0A
                    H,0DH,0AH
                    454E4420
                    4F462043
                    424C534B
                    392E5052
                    4E202020
                    0D0A0D0A
0068' 81818181   0070          DB          129,129,129,129,129,129,129,129,129,129
                    81818181
                    8181
0072' 81818181   0071          DB          129,129,129,129,129,129,129,129,129,129
                    81818181
                    8181
007C' 81818181   0072          DB          129,129,129,129,129,129,129,129,129,129
                    81818181
                    8181
0086' 0D0A8120   0073          DB          0DH,0AH,129,'
                    ',129
                    20202020
                    20202020
                    20202020
                    20202020
                    20202020
                    20202020
                    20202081
00A6' 0D0A8120   0074          DB          0DH,0AH,129,' CHULALONGKORN UNIVERSITY
                    ',129
                    20434855
                    4C414C4F
                    4E474B4F
                    524E2055
                    4E495645
                    52534954
                    59202081
00C6' 0D0A8120   0075          DB          0DH,0AH,129,' CU-Computer Service Centr
                    e ',129
                    43552D43
                    6F6D7075
                    74657220
                    53657276
                    69636520
                    43656E74
                    72652081
00E6' 0D0A8120   0076          DB          0DH,0AH,129,'

```

```

                                ', 129,0DH,0AH
20202020
20202020
20202020
20202020
20202020
20202020
20202020
20202081
0D0A
0108' 81818181      0077      DB      129,129,129,129,129,129,129,129,129,129
      81818181
      8181
0112' 81818181      0078      DB      129,129,129,129,129,129,129,129,129,129
      81818181
      8181
011C' 81818181      0079      DB      129,129,129,129,129,129,129,129,129,129
      81818181
      8181
0126' 0D0A24        0080      DB      0DH,0AH,'$'
0129' 0D9A4341      0081 OPNERR: DB      0DH,0AH,'CANNOT OPEN CBLSK9.PRN FILES'
      4E4E4F54
      204F5045
      4E204342
      4C534B39
      2E50524E
      2046494C
      4524
0147' 0143424C      0082 CBLSK9: DB      01H,'CBLSK9 PRN',00H,00H,00H,00H
      534B3920
      2050524E
      00000000
0157' (0010)        0083      DS      16
0167' 00000000      0084      DB      00H,00H,00H,00H
016B' (0002)        0085 OLDSP: DS      2
016D' (0100)        0086      DS      256
      (026D')
026D' (0000)        0087 STKTOP EQU      $
      0088      END

```

Errors 0

Program Length 026D (621)

```

      (001B)      0001 ESC      EQU      01BH
      (0002)      0002 CONOUT  EQU      02H
      (0005)      0003 BDOS    EQU      05H
                   0004      REL
0000' ED731A00'   0005 CLS:    LD      (OLDSP), SP
0004' 312200'    0006      LD      SP, STKTOP
0007' 1E1B      0007      LD      E, ESC
0009' 0E02      0008      LD      C, CONOUT
000B' CD0500    0009      CALL   BDOS
000E' 1E4A      0010      LD      E, 'J'
0010' 0E02      0011      LD      C, CONOUT
0012' CD0500    0012      CALL   BDOS
0015' ED7B1A00' 0013      LD      SP, (OLDSP)
0019' C9        0014      RET
                   0015 ;
001A' (0002)    0016 OLDSP:  DS      2
001C' (0006)    0017      DS      6
                   (0022') 0018 STKTOP: EQU    $
0022' (0000)    0019      END

```

Errors 0

Program Length 0022 (34)

```

0001          ENTRY  INIVAR
0002          EXTRN  INIDSK
0003          EXTRN  DSKTYP,SCNSZE,CHRPLN,LNPSCN,BEGSCN,HLPAD
DR
0004          EXTRN  SDRIVE,BRWFLG,SYSFLG,SECLN,BRKADR,ROWC
OL
0005 ;
0006 ;-----
0007 ;           Variables Initialization Routine
0008 ;-----
0009 ;
0010          REL
0011 ;
(F800) 0012 FW      EQU    0F800H
(F83E) 0013 KTDFLG EQU    FW+003EH           ; IBM format pa
      tch address
0014 ;
0000' AF 0015 INIVAR: XOR    A           ; set BIOS to I
      BM format
0001' 2A3EF8 0016          LD    HL,(KTDFLG)
0004' 77      0017          LD    (HL),A
0005' 320000# 0018          LD    (DSKTYP),A
0008' 210100 0019          LD    HL,1
000B' 220000# 0020          LD    (BEGSCN),HL
000E' 220000# 0021          LD    (SECLN),HL
0011' 210000 0022          LD    HL,0
0014' 220000# 0023          LD    (BRKADR),HL           ; initial break
      address
0017' 220000# 0024          LD    (HLPADR),HL           ; file file FCB
      . address
001A' 211600 0025          LD    HL,0022
001D' 220000# 0026          LD    (ROWCOL),HL           ; initial row,c
      olume
0020' CD0000# 0027          CALL  INIDSK           ; initialize di
      sk I/O routine
0023' 218007 0028          LD    HL,24*80
0026' 220000# 0029          LD    (SCNSZE),HL           ; screen size =
      24*80
0029' 3E50    0030          LD    A,80
002B' 320000# 0031          LD    (CHRPLN),A           ; 80 chars. per
      line
002E' 3E18    0032          LD    A,24
0030' 320000# 0033          LD    (LNPSCN),A           ; 24 lines per
      screen
0033' 3E00    0034          LD    A,0
0035' 320000# 0035          LD    (SDRIVE),A           ; system drive
      = A
0038' 320000# 0036          LD    (BRWFLG),A           ; set browse fl
      ag off
003B' 320000# 0037          LD    (SYSFLG),A           ; convert ASCII
      /EBCDIC
003E' C9     0038          RET
0039 ;
0040 ;-----
0041 ;
003F' (0000) 0042          END

```


CROMEMCO CDOS Z80 ASSEMBLER version 02.15

PAGE 0002

Errors 0

Program Length 003F (63)

```

0001      ENTRY  SEARCH,SRHNXT,OPEN,CLOSE,DKANAO,DKANA1
0002      ENTRY  DSMRN,DSMWN,DSMRD,DSMWR,DSMCRE
0003      ENTRY  DSMREN,DSMERA,CHKDS
0004 ;
0005      EXTRN  DSKRD,DSKWR,FLUSH,READ,WRITE,INIWDK
0006      EXTRN  DRVSEL,DRVSL,ERR80,BINASC,ASCBIN
0007      EXTRN  PS2LS,LS2PS,CMPX,CMPST,PUTDIG
0008 ;
0009      EXTRN  TRACK,SECTOR,SIDE,DSKTYP,SIDTYP
0010      EXTRN  SYSFLG,DRIVE,DDRIVE,TMPBUF,SECNO
0011      EXTRN  DMASET,LRCLEN,SECLN,DMAWR
0012 ;
0013 ;-----
0014 ;          search data set label routine
0015 ;-----
0016 ;
0017 ;      input  -  HL. starting address of 8 bytes label
0018 ;
0019 ;      output -  IY. starting address of dataset label
0020 ;              -  carry set - if not found
0021 ;
0022      REL
0023 ;
0000' CD2300' 0024 SEARCH: CALL  GDSINI
0003' E5      0025 SRHNXT: PUSH  HL
0004' D5      0026          PUSH  DE
0005' C5      0027          PUSH  BC
0028 ;
0006' CDFE03' 0029          CALL  SYSOFF
0030 ;
0009' 7E      0031          LD    A,(HL)          ; select drive
000A' CD0000# 0032          CALL  DRVSEL
000D' 23      0033          INC  HL
000E' 220B00" 0034          LD    (LBLPNT),HL          ; save starting
                                address
0011' CD4100' 0035 SRCH01: CALL  GDSNXT          ; get next data
                                set label
0014' 380A    0036          JR    C,SRCH09          ; end of datase
                                t label ?
0016' FE48    0037          CP    'H'          ; deleted datas
                                et label ?
0018' 20F7    0038          JR    NZ,SRCH01          ; Y: get next
001A' CD9000' 0039          CALL  CMLPLB          ; match ?
001D' 20F2    0040          JR    NZ,SRCH01          ; N: get next
001F' B7      0041          OR    A          ; found - clear
                                carry
0020' C30B04' 0042 SRCH09: JP    DSMRET
0043 ;
0044 ;-----
0045 ;          get next dataset label
0046 ;      ( both deleted and non-deleted )
0047 ;-----
0048 ;
0049 ;      carry set if end of label
0050 ;      Acc. contain header 'H' or 'D'
0051 ;
0023' AF      0052 GDSINI: XOR    A          ; begin at trac

```

```

                                k 0,side 1,sector 8
0024' 320000# 0053 LD (TRACK),A
0027' 320000# 0054 LD (SIDE),A
002A' 320D00" 0055 LD (GDSFLG),A
002D' 3E07 0056 LD A,7
002F' 320000# 0057 LD (SECTOR),A
0032' E5 0058 PUSH HL
0033' 210000# 0059 LD HL,TMPBUF
0036' 220000# 0060 LD (DMASET),HL
0039' 2A0000# 0061 LD HL,(SECLen) ; set record le
                                ngth
003C' 220000# 0062 LD (LRCLen),HL
003F' E1 0063 POP HL
0040' C9 0064 RET
0065 ;-----
0041' E5 0066 GDSNXT: PUSH HL
0042' 210D00" 0067 LD HL,GDSFLG ; is in side 1
                                on 256-2D ?
0045' 7E 0068 LD A,(HL)
0046' FE02 0069 CP 2
0048' 2835 0070 JR Z,GDS06 ; Y: return nex
                                t 128 bytes
004A' 213000# 0071 LD HL,SECTOR
004D' 34 0072 INC (HL) ; increment to
                                next sector
004E' 7E 0073 LD A,(HL)
004F' FE1B 0074 CP 27 ; sector no. >
                                26 ?
0051' 3814 0075 JR C,GDS02 ; N: get data
0053' 3A0000# 0076 LD A,(SIDTYP)
0056' B7 0077 OR A ; 2 side disket
                                te ?
0057' 2834 0078 JR Z,GDS07 ; N: - not foun
                                d
0059' 3A2800# 0079 LD A,(SIDE)
005C' B7 0080 OR A ; is in side 0
                                ?
005D' 202E 0081 JR NZ,GDS07 ; N: - not foun
                                d
005F' 3C 0082 INC A ; Y: - set to s
                                ide 1, sector 1
0060' 325A00# 0083 LD (SIDE),A
0063' 77 0084 LD (HL),A
0064' 320D00" 0085 LD (GDSFLG),A
0086 ;
0067' CD0000# 0087 GDS02: CALL DSKRD
006A' 3821 0088 JR C,GDS07 ; error - end o
                                f dataset label
006C' FD213400# 0089 LD IY,TMPBUF
0070' 210D00" 0090 LD HL,GDSFLG
0073' 7E 0091 LD A,(HL)
0074' FE01 0092 CP 1
0076' 2001 0093 JR NZ,GDS08
0078' 34 0094 INC (HL)
0079' B7 0095 GDS08: OR A
007A' E1 0096 GDS09: POP HL
007B' FD7E00 0097 LD A,(IY) ; header in Acc

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007E' C9          0098          RET
                  0099 ;
007F' 35          0100 GDS06: DEC   (HL)
0080' D5          0101          PUSH  DE           ; point to next
                  label
0081' FD216E00#  0102          LD    IY,TMPBUF
0085' 118000      0103          LD    DE,128
0088' FD19        0104          ADD  IY,DE
008A' D1          0105          POP  DE
008B' 18EC        0106          JR   GDS08
                  0107 ;
008D' 37          0108 GDS07: SCF
008E' 18EA        0109          JR   GDS09
                  0110 ;
                  0111 ;-----
                  0112 ;
0090' FDE5        0113 CMPLBL: PUSH  IY
0092' E1          0114          POP  HL
0093' 110500      0115          LD    DE,5
0096' 19          0116          ADD  HL,DE
0097' ED5B0B00"  0117          LD    DE,(LBLPNT) ; get label poi
                  nter
009B' 0608        0118          LD    B,8
009D' 1A          0119 CMPSTR: LD    A,(DE)
009E' FE3F        0120          CP   '?'           ; ignore '?'
00A0' 2802        0121          JR   Z,CMPST3
00A2' BE          0122          CP   (HL)
00A3' C0          0123          RET  NZ
00A4' 23          0124 CMPST3: INC  HL
00A5' 13          0125          INC  DE
00A6' 10F5        0126          DJNZ CMPSTR
00A8' C9          0127          RET
                  0128 ;
                  0129 ;=====
0130 ;          open dataset label routine
0131 ;=====
0132 ;
0133 ;          input  HL. - starting address FCB.
0134 ;          output FCB.
0135 ;
00A9' E5          0136 OPEN:  PUSH  HL
00AA' D5          0137          PUSH  DE
00AB' C5          0138          PUSH  BC
00AC' CD0000'    0139          CALL SEARCH           ; search that d
                  ataset label
00AF' 386E        0140          JR   C,OPEN09           ; not found - e
                  rror
                  0141 ;
00B1' FD7E0D      0142          LD    A,(IY+13)
00B4' 320000"    0143          LD    (SYSTEM),A       ; save system f
                  ile flag
                  0144 ;
00B7' 010900      0145          LD    BC,9
00BA' 09          0146          ADD  HL,BC
00BB' E5          0147          PUSH  HL
00BC' FD6E19      0148          LD    L,(IY+25)       ; get block len

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                                gth
00BF' FD661A          0149      LD      H,(IY+26)
00C2' CD0000#        0150      CALL   ASCBIN
00C5' 6F             0151      LD      L,A
00C6' 2600           0152      LD      H,0
00C8' 0E64           0153      LD      C,100
00CA' FD7E18         0154      LD      A,(IY+24)
00CD' D630           0155      SUB    '0'
00CF' 3D             0156 OPEN01: DEC   A
00D0' FAD600'        0157      JP     M,OPEN02
00D3' 09             0158      ADD   HL,BC
00D4' 18F9           0159      JR     OPEN01
00D6' EB             0160 OPEN02: EX   DE,HL      ; fill in FCB.
00D7' E1             0161      POP   HL
00D8' 73             0162      LD    (HL),E
00D9' 23             0163      INC   HL
00DA' 72             0164      LD    (HL),D
00DB' 23             0165      INC   HL
                                0166 ;
00DC' 0E1C           0167      LD    C,28      ; get BOE.
00DE' CD2301'        0168      CALL  LTHS
                                0169 ;
00E1' 0E06           0170      LD    C,6      ; get EOE.
00E3' CD2301'        0171      CALL  LTHS
                                0172 ;
00E6' FD7E0A         0173      LD    A,(IY+10) ; get multi vol
                                ume indicator
00E9' 77             0174      LD    (HL),A
00EA' 23             0175      INC   HL
                                0176 ;
00EB' E5             0177      PUSH  HL      ; get volume se
                                quence number
00EC' FD6E0B         0178      LD    L,(IY+11)
00EF' 7D             0179      LD    A,L
00F0' FE20           0180      CP    ' '      ; is blank ?
00F2' 3EFF           0181      LD    A,0FFH
00F4' 2806           0182      JR    Z,OPEN03
00F6' FD660C         0183      LD    H,(IY+12)
00F9' CDC300#        0184      CALL  ASCBIN
00FC' E1             0185 OPEN03: POP   HL
00FD' 77             0186      LD    (HL),A
00FE' 23             0187      INC   HL
                                0188 ;
00FF' 3A0000"        0189      LD    A,(SYSTEM) ; set to 'S' if
                                system file
0102' FE53           0190      CP    'S'
0104' 2803           0191      JR    Z,OPEN04
0106' FD7E26         0192      LD    A,(IY+38) ; get verify/co
                                py flag
0109' 77             0193 OPEN04: LD    (HL),A
010A' 23             0194      INC   HL
                                0195 ;
010B' FDE5           0196      PUSH  IY
010D' 0E28           0197      LD    C,40      ; get EOD.
010F' CD2301'        0198      CALL  LTHS
0112' 23             0199      INC   HL
0113' 23             0200      INC   HL

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0114' EB          0201      EX      DE,HL
0115' E1          0202      POP     HL
0116' 010D00     0203      LD      BC,13          ; get create da
                                te
0119' 09          0204      ADD     HL,BC
011A' 0E06       0205      LD      C,6
011C' EDB0       0206      LDIR
011E' B7         0207      OR      A          ; open success
011F' C1         0208 OPEN09: POP     BC
0120' D1         0209      POP     DE
0121' E1         0210      POP     HL
0122' C9         0211      RET
0212 ;
0213 ;-----
0214 ;      convert TTHSS (ascii) to logical
0215 ;      sector no. & fill in buffer
0216 ;-----
0217 ;
0218 ;      input  - IY. beginning label entry
0219 ;              - BC. label relative position
0220 ;              - HL. beginning of sector no. buffer
0221 ;
0123' E5         0222 LTHS:  PUSH   HL
0124' FD09       0223      ADD     IY,BC          ; convert TT,H,
                                SS to logical sector
0126' DD210800" 0224      LD      IX,THS          ; buffer for PS
                                2LS
012A' FD6E00     0225      LD      L,(IY)          ; convert track
012D' FD6601     0226      LD      H,(IY+1)
0130' CDFA00#    0227      CALL   ASCBIN
0133' DD7700     0228      LD      (IX),A
0136' FD7E02     0229      LD      A,(IY+2)          ; convert head
0139' D630       0230      SUB     '0'
013B' DD7701     0231      LD      (IX+1),A
013E' FD6E03     0232      LD      L,(IY+3)          ; convert secto
                                r
0141' FD6604     0233      LD      H,(IY+4)
0144' CD3101#    0234      CALL   ASCBIN
0147' DD7702     0235      LD      (IX+2),A
014A' CD0000#    0236      CALL   PS2LS          ; convert to lo
                                gical sector no.
014D' EB         0237      EX      DE,HL          ; fill in FCB.
014E' E1         0238      POP     HL
014F' 73         0239      LD      (HL),E
0150' 23         0240      INC     HL
0151' 72         0241      LD      (HL),D
0152' 23         0242      INC     HL
0153' C9         0243      RET
0244 ;
0245 ;=====
0246 ;      close dataset routine
0247 ;=====
0248 ;
0249 ;      input  - HL. starting address of FCB.
0250 ;
0154' E5         0251 CLOSE:  PUSH   HL
0155' D5         0252      PUSH   DE

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0156' C5          0253          PUSH   BC
0157' CD0000'    0254          CALL   SEARCH          ; search that d
                        ataset label
015A' CDFE03'    0255          CALL   SYSOFF
015D' 386C       0256          JR     C,CLOSE9      ; not found - e
                        rror
0257 ;
015F' 010900    0258          LD     BC,9          ; block length
0162' 09        0259          ADD   HL,BC
0163' 5E        0260          LD     E,(HL)
0164' 23        0261          INC   HL
0165' 56        0262          LD     D,(HL)
0166' 23        0263          INC   HL
0167' E5        0264          PUSH  HL
0168' 0E17      0265          LD     C,23
016A' FD09      0266          ADD   IY,BC
016C' FDE5      0267          PUSH  IY
016E' 21E803    0268          LD     HL,1000
0171' 19        0269          ADD   HL,DE
0172' FDE5      0270          PUSH  IY
0174' D1        0271          POP   DE
0175' 13        0272          INC   DE
0176' 13        0273          INC   DE
0177' 13        0274          INC   DE
0178' 13        0275          INC   DE
0179' CD0000#   0276          CALL  PUTDIG
017C' FDE1      0277          POP   IY
017E' FD360020 0278          LD     (IY),' '
0182' E1        0279          POP   HL
0280 ;
0183' 0E05      0281          LD     C,5          ; BOE.
0185' CDCE01'   0282          CALL  PTHS
0283 ;
0188' 0E06      0284          LD     C,6          ; EOE.
018A' CDCE01'   0285          CALL  PTHS
0286 ;
018D' 7E        0287          LD     A,(HL)      ; multi volume
                        flag
018E' FD770A    0288          LD     (IY+10),A
0191' 23        0289          INC   HL
0290 ;
0192' 7E        0291          LD     A,(HL)      ; volume sequen
                        ce flag
0193' E5        0292          PUSH  HL
0194' FEFF      0293          CP    OFFH
0196' 212020    0294          LD     HL,' '
0199' 2803      0295          JR     Z,CLOSE3
019B' CD0000#   0296          CALL  BINASC
019E' FD750B    0297 CLOSE3: LD     (IY+11),L
01A1' FD740C    0298          LD     (IY+12),H
01A4' E1        0299          POP   HL
01A5' 23        0300          INC   HL
0301 ;
01A6' 7E        0302          LD     A,(HL)      ; verify/copy f
                        lag
01A7' FE53      0303          CP    'S'
01A9' 2803      0304          JR     Z,CLOSE4

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01AB' FD7726      0305          LD      (IY+38),A
01AE' 23          0306 CLOSE4: INC    HL
                   0307 ;
01AF' FDE5       0308          PUSH   IY
01B1' 0E28       0309          LD      C,40          ; EOD.
01B3' CDCE01'    0310          CALL   PTHS
01B6' 23         0311          INC    HL          ; create date
01B7' 23         0312          INC    HL
01B8' EB         0313          EX     DE,HL
01B9' E1         0314          POP    HL
01BA' 010D00     0315          LD      BC,13
01BD' 09         0316          ADD    HL,BC
01BE' EB         0317          EX     DE,HL
01BF' 010600     0318          LD      BC,6
01C2' EDB0       0319          LDIR
01C4' AF         0320          XOR    A
01C5' CD0000#    0321          CALL   DSKWR
01C8' CD0000#    0322          CALL   FLUSH
01CB' C30B04'    0323 CLOSE9: JP     DSMRET
                   0324 ;
                   0325 ;-----
                   0326 ;
01CE' FD09       0327 PTHS:  ADD    IY,BC          ; convert secto
                   r no. to ascii THS
01D0' 5E         0328          LD      E,(HL)          ; and fill in b
                   uffer
01D1' 23         0329          INC    HL
01D2' 56         0330          LD      D,(HL)
01D3' 23         0331          INC    HL
01D4' ED530000#  0332          LD      (SECNO),DE
01D8' E5         0333          PUSH   HL
01D9' DD210800"  0334          LD      IX,THS
01DD' CD0000#    0335          CALL   LS2PS
01E0' 3A0800"    0336          LD      A,(THS)          ; convert track
01E3' CD9C01#    0337          CALL   BINASC
01E6' FD7500     0338          LD      (IY),L
01E9' FD7401     0339          LD      (IY+1),H
01EC' 3A0900"    0340          LD      A,(THS+1)          ; convert side
01EF' C630       0341          ADD    '0'
01F1' FD7702     0342          LD      (IY+2),A
01F4' 3A0A00"    0343          LD      A,(THS+2)          ; convert secto
                   r
01F7' CDE401#    0344          CALL   BINASC
01FA' FD7503     0345          LD      (IY+3),L
01FD' FD7404     0346          LD      (IY+4),H
0200' E1         0347          POP    HL
0201' C9         0348          RET
                   0349 ;
                   0350 ;-----
                   0351 ;      Dataset read next routine
                   0352 ;-----
                   0353 ;
0202' CD2202'    0354 DSMRN: CALL   DSMRD
0205' D8         0355          RET    C          ; return if err
                   or
0206' FEFF       0356          CP     OFFH
0208' C8         0357          RET    Z          ; return if EOF

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0209' B7          0358          OR      A
020A' 2805       0359          JR      Z, INCNR
020C' CD1102'    0360          CALL   INCNR          ; read next if
                    deleted record
020F' 18F1       0361          JR      DSMRN
                    0362 ;
0211' E5         0363 INCNR:  PUSH   HL          ; read success
                    - increment NR
0212' FD6E14     0364          LD      L,(IY+20)
0215' FD6615     0365          LD      H,(IY+21)
0218' 23         0366          INC     HL
0219' FD7514     0367          LD      (IY+20),L
021C' FD7415     0368          LD      (IY+21),H
021F' E1         0369          POP    HL
0220' AF         0370          XOR    A
0221' C9         0371          RET
                    0372 ;
                    0373 ;-----
0222' FDE5       0374 ;          Dataset Read Routine
                    0375 ;-----
                    0376 ;
0223'           0377 ;          input  - IY. FCB. starting address
0224' E5         0378 ;          output - carry set - disk read error
0225' D5         0379 ;          - carry clear & Acc.= 00  OK.
0226' CD7702'    0380 ;          - carry clear & Acc.= 01  deleted record
0229' 300B       0381 ;          - carry clear & Acc.= FF  end of file
022B' 22D601#    0382 ;
0222' FDE5       0383 DSMRD:  PUSH   IY
0224' E5         0384          PUSH   HL
0225' D5         0385          PUSH   DE
0226' CD7702'    0386          CALL   DSM01
0229' 300B       0387          JR      NC,DSKRD7          ; end of file ?
022B' 22D601#    0388          LD      (SECNO),HL          ; set sector no

022E' CD0000#    0389          CALL   READ
0231' D1         0390 DSMRD9:  POP    DE
0232' E1         0391          POP    HL
0233' FDE1       0392          POP    IY
0235' C9         0393          RET
0236' 3EFF       0394 DSKRD7:  LD      A,OFFH          ; end of file
0238' B7         0395          OR      A
0239' 18F6       0396          JR      DSMRD9
                    0397 ;
                    0398 ;-----
0239'           0399 ;          Dataset write next routine
                    0400 ;-----
                    0401 ;
023B' CD4402'    0402 DSMWN:  CALL   DSMWR
023E' D8         0403          RET    C          ; return if err
                    or
023F' FEFF       0404          CP      OFFH
0241' C8         0405          RET    Z          ; return if EOE
0242' 18CD       0406          JR      INCNR          ; success - inc
                    rement NR
                    0407 ;
                    0408 ;-----
0242'           0409 ;          Dataset Write Routine

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0410 ;-----
0411 ;
0412 ;     input  - IY. FCB. starting address
0413 ;           - Acc. = 00  write non-deleted data
0414 ;           = 01  write deleted data
0415 ;     output - carry set  - disk write error
0416 ;           - carry clear & Acc.= 00  OK.
0417 ;           - carry clear & Acc.= FF  end of extent
0418 ;
0244' FDE5      0419 DSMWR:  PUSH   IY
0246' E5        0420          PUSH   HL
0247' D5        0421          PUSH   DE
0248' F5        0422          PUSH   AF
0249' CD7702'   0423          CALL   DSM01          ; end of file ?
024C' 3815      0424          JR     C,DSMWR5          ; N: continue
024E' FD5E0D    0425          LD     E,(IY+13)        ; Y: check EOE

0251' FD560E    0426          LD     D,(IY+14)
0254' EB        0427          EX     DE,HL
0255' CD0000#   0428          CALL  CMPX          ; EOE. >= cu
                    rrent record ?
0258' EB        0429          EX     DE,HL
0259' 3816      0430          JR     C,DSMWR7          ; N: end of
                    extent ?
025B' 23        0431          INC   HL
025C' FD7512    0432          LD     (IY+18),L        ; Y: change
                    EOD.
025F' FD7413    0433          LD     (IY+19),H
0262' 2B        0434          DEC   HL
0263' 222C02#   0435 DSMWR5: LD     (SECNO),HL        ; set sector no

0266' F1        0436          POP   AF
0267' CD0000#   0437          CALL  WRITE
026A' 3E00      0438          LD     A,0
026C' D1        0439 DSMWR9: POP   DE
026D' E1        0440          POP   HL
026E' FDE1      0441          POP   IY
0270' C9        0442          RET
0271' F1        0443 DSMWR7: POP   AF
0272' 3EFF      0444          LD     A,OFFH          ; end of extent
0274' B7        0445          OR    A
0275' 18F5      0446          JR     DSMWR9

0447 ;
0448 ;-----
0449 ;
0277' FD7E00    0450 DSM01:  LD     A,(IY)          ; get drive
027A' CD0B00#   0451          CALL  DRVSEL
027D' FD6E09    0452          LD     L,(IY+9)        ; record length
0280' FD660A    0453          LD     H,(IY+10)
0283' 223D00#   0454          LD     (LRCLN),HL
0286' FD6E14    0455          LD     L,(IY+20)        ; record no.
0289' FD6615    0456          LD     H,(IY+21)
028C' FD5E0B    0457          LD     E,(IY+11)        ; BOE.
028F' FD560C    0458          LD     D,(IY+12)
0292' 19        0459          ADD   HL,DE
0293' 2B        0460          DEC   HL          ; current recor
                    d no.

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0294' FD5E12      0461          LD      E,(IY+18)
0297' FD5613      0462          LD      D,(IY+19)          ; EOD.
029A' C35602#     0463          JP      CMPX          ; current recor
                        d >= EOD. ?
0464 ;
0465 ;-----
0466 ;          Dataset Creation routine
0467 ;-----
0468 ;
0469 ;          input  - HL. FCB
0470 ;          output - carry set - Disk error
0471 ;                  - carry clear & Acc. = 0  - success
0472 ;                                  = 1  - file name error
0473 ;                                  = 2  - file exist
0474 ;                                  = 3  - reserved name
0475 ;                                  = 4  - not found
0476 ;                                  = 5  - illegal record l
                                length
0477 ;                                  = 6  - no space
0478 ;                                  = 7  - disk full
0479 ;
029D' E5          0480 DSMCRE: PUSH   HL
029E' D5          0481          PUSH   DE
029F' C5          0482          PUSH   BC
0483 ;
02A0' CD FE03'    0484          CALL   SYSOFF
0485 ;
02A3' E5          0486          PUSH   HL
02A4' 7E          0487          LD      A,(HL)          ; get active dr
                                ive
02A5' CD0000#     0488          CALL   DRVSL          ; check diskett
                                e
02A8' E1          0489          POP    HL
02A9' DA6303'    0490          JP      C,DSMCR9
0491 ;
02AC' 23          0492          INC   HL          ; check dataset
                                name
02AD' 220E00"    0493          LD      (FNPNT),HL      ; save file nam
                                e
02B0' E5          0494          PUSH   HL
02B1' CD1704'    0495          CALL   CHKDS
02B4' E1          0496          POP    HL
02B5' DA6203'    0497          JP      C,DSMCR8
0498 ;
02B8' 010800     0499          LD      BC,8
02BB' 09          0500          ADD   HL,BC
02BC' 5E          0501          LD      E,(HL)          ; check length
02BD' 23          0502          INC   HL
02BE' 56          0503          LD      D,(HL)
02BF' 23          0504          INC   HL
02C0' E5          0505          PUSH   HL
02C1' 010600     0506          LD      BC,6
02C4' 09          0507          ADD   HL,BC
02C5' 7E          0508          LD      A,(HL)
02C6' 320000"    0509          LD      (SYSTEM),A      ; save system f
                                lag
02C9' 3A0000#     0510          LD      A,(DSKTYP)      ; (DSKTYP) = 0

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-> length < 129
02CC' B7          0511          OR      A          ;          = 1
-> length < 257
02CD' 218000     0512          LD      HL,128
02D0' 2803       0513          JR      Z,DSMCR5
02D2' 210001     0514          LD      HL,256
02D5' CD9B02#   0515 DSMCR5: CALL  CMPX
02D8' E1         0516          POP     HL
02D9' DA6F03'   0517          JP      C,ERLEN
0518 ;
02DC' CD4D05'   0519          CALL   DKANAL          ; get unused di
sk area
02DF' B7        0520          OR      A
02E0' CA7703'   0521          JP      Z,DSKFULL     ; no available
space ?
0522 ;
02E3' E5        0523          PUSH   HL
02E4' FDE1      0524          POP     IY
02E6' 5E        0525          LD      E,(HL)        ; get file size
02E7' 23        0526          INC     HL
02E8' 56        0527          LD      D,(HL)
02E9' EB        0528          EX      DE,HL
02EA' 47        0529          LD      B,A
02EB' 05        0530 DSMCR6: DEC     B
02EC' FA7303'   0531          JP      M,DSFULL     ; end of unused
space table ?
02EF' DD23      0532          INC     IX
02F1' DD23      0533          INC     IX
02F3' DD5E00    0534          LD      E,(IX)        ; get space in
table
02F6' DD23      0535          INC     IX
02F8' DD5600    0536          LD      D,(IX)
02FB' DD23      0537          INC     IX
02FD' EB        0538          EX      DE,HL
02FE' CDD602#   0539          CALL   CMPX          ; compare to de
sired space
0301' EB        0540          EX      DE,HL
0302' 38E7      0541          JR      C,DSMCR6     ; little space
: get next
0304' DD2B      0542          DEC     IX
0306' DD2B      0543          DEC     IX
0308' DD2B      0544          DEC     IX
030A' DD5600    0545          LD      D,(IX)
030D' DD2B      0546          DEC     IX
030F' DD5E00    0547          LD      E,(IX)
0312' FD7300    0548          LD      (IY+0),E      ; set BOE.
0315' FD7201    0549          LD      (IY+1),D
0318' FD7307    0550          LD      (IY+7),E      ; set EOD.
031B' FD7208    0551          LD      (IY+8),D
031E' 19        0552          ADD     HL,DE
031F' 2B        0553          DEC     HL
0320' FD7502    0554          LD      (IY+2),L      ; set EOE.
0323' FD7403    0555          LD      (IY+3),H
0556 ;
0326' CD2300'   0557          CALL   GDSINI        ; get first del
eted-dataset label
0329' CD4100'   0558 DSCRE7: CALL   GDSNXT

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032C' DA7703'      0559      JP      C,DSKFULL      ; no available
                    label ?
032F' FE44        0560      CP      'D'
0331' 20F6        0561      JR      NZ,DSCRE7
0333' FD360048    0562      LD      (IY),'H'
0337' 110500      0563      LD      DE,5
033A' FD19        0564      ADD     IY,DE
033C' FDE5        0565      PUSH   IY
033E' D1          0566      POP    DE
033F' 2A0E00"     0567      LD      HL,(FNPNT)      ; patch new dat
                    aset name to label
0342' 010800      0568      LD      BC,8
0345' EDB0        0569      LDIR
0347' 3A0000"     0570      LD      A,(SYSTEM)
034A' FE53        0571      CP      'S'
034C' 2802        0572      JR      Z,DSCR71
034E' 3E20        0573      LD      A,' '
0350' 12          0574 DSCR71: LD      (DE),A      ; patch system
                    flag to label
0351' AF          0575      XOR    A
0352' CDC601#     0576      CALL   DSKWR      ; write that la
                    bel
0355' 380C        0577      JR      C,DSMCR9
0357' 2A0E00"     0578 ;
                    0579      LD      HL,(FNPNT)      ; write BOE,EOE
                    ,EOD,MUL by
035A' 2B          0580      DEC    HL
035B' CD5401'     0581      CALL   CLOSE      ; close that da
                    taset label
035E' DA6603'     0582      JP      C,ERCLSE      ; error ?
                    0583 ;
0361' AF          0584      XOR    A
0362' B7          0585 DSMCR8: OR    A
0363' C30B04'     0586 DSMCR9: JP    DSMRET
                    0587 ;
0366' 211200"     0588 ERCLSE: LD    HL,CLSER      ; unpredictable
                    error
0369' CD0000#     0589      CALL   ERR80
036C' 37          0590      SCF
036D' 18F4        0591      JR      DSMCR9
                    0592 ;
036F' 3E05        0593 ERLen: LD    A,05
0371' 18EF        0594      JR      DSMCR8
0373' 3E06        0595 DSFULL: LD   A,06
0375' 18EB        0596      JR      DSMCR8
0377' 3E07        0597 DSKFULL: LD  A,07
0379' 18E7        0598      JR      DSMCR8
                    0599 ;
0600 ;-----
0601 ;      Dataset Rename routine
0602 ;-----
0603 ;
0604 ;      input  - HL. FCB
0605 ;      output - carry set - Disk error
0606 ;              - carry clear & Acc. = 0 - success
0607 ;              = 1 - file name error
0608 ;              = 2 - file exist

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```

0609 ; = 3 - reserved name
0610 ; = 4 - not found
0611 ;
037B' E5 0612 DSMREN: PUSH HL
037C' D5 0613 PUSH DE
037D' C5 0614 PUSH BC
0615 ;
037E' CDFE03' 0616 CALL SYSOFF
0617 ;
0381' 220E00" 0618 LD (FNPNT),HL
0384' 7E 0619 LD A,(HL)
0385' CDA602# 0620 CALL DRVSL
0388' 3839 0621 JR C,DSMRN9
0622 ;
038A' E5 0623 PUSH HL ; check old fil
e name
038B' CD1704' 0624 CALL CHKDS
038E' E1 0625 POP HL
0626 ; JR C,DSMRN8
038F' 1800 0627 JR $+2
0628 ;
0391' 111D00 0629 LD DE,29 ; check new fil
e name
0394' 19 0630 ADD HL,DE
0395' 221000" 0631 LD (NFPNT),HL
0398' CD1704' 0632 CALL CHKDS
039B' 3829 0633 JR C,DSMRN8
0634 ;
039D' 2A0E00" 0635 LD HL,(FNPNT)
03A0' CD0000" 0636 CALL SEARCH
03A3' 3E04 0637 LD A,04
03A5' 381F 0638 JR C,DSMRN8
0639 ;
03A7' 110500 0640 LD DE,5 ; transfer to d
ataset label
03AA' FD19 0641 ADD IY,DE
03AC' FDE5 0642 PUSH IY
03AE' D1 0643 POP DE
03AF' 2A1000" 0644 LD HL,(NFPNT)
03B2' 010800 0645 LD BC,8
03B5' EDB0 0646 LDIR
0647 ;
03B7' 218300# 0648 LD HL,TMPBUF
03BA' 223700# 0649 LD (DMASET),HL
03BD' AF 0650 XOR A
03BE' CD5303# 0651 CALL DSKWR
03C1' 3E00 0652 LD A,0
03C3' C30B04' 0653 DSMRN9: JP DSMRET
0654 ;
03C6' B7 0655 DSMRN8: OR A
03C7' 18FA 0656 JR DSMRN9
0657 ;
0658 ;-----
0659 ; Dataset delete routine
0660 ;-----
0661 ;
0662 ; input - HL. FCB

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0663 ;   output - carry set - Disk error
0664 ;           - carry clear & Acc. = 0 - success
0665 ;                               = 4 - not found
0666 ;
03C9' E5      0667 DSMERA: PUSH   HL
03CA' D5      0668           PUSH   DE
03CB' C5      0669           PUSH   BC
0670 ;
03CC' CDFE03' 0671           CALL   SYSOFF
0672 ;
03CF' 220E00" 0673           LD     (FNPNT),HL
03D2' 7E      0674           LD     A,(HL)
03D3' CD8603# 0675           CALL   DRVSL           ; check diskett
0676 ;
03D6' 3823    0676           JR     C,DSMER9
0677 ;
03D8' CD0000' 0678           CALL   SEARCH           ; search that f
0679 ;
03DB' 3E04    0679           LD     A,4
03DD' 3F      0680           CCF
03DE' 301B    0681           JR     NC,DSMER9
0682 ;
03E0' 3E44    0683 DSMER5: LD     A,'D'           ; set to delete
0684 ;           header
03E2' FD7700  0684           LD     (IY),A
03E5' 21B803# 0685           LD     HL,TMPBUF
03E8' 22BB03# 0686           LD     (DMASET),HL
03EB' 3E01    0687           LD     A,01
03ED' CDBF03# 0688           CALL   DSKWR
03F0' 3809    0689           JR     C,DSMER9
03F2' 2A0E00" 0690           LD     HL,(FNPNT)
03F5' CD0300' 0691           CALL   SRHNXT           ; search next f
0692 ;           ile
03F8' 30E6    0692           JR     NC,DSMER5
03FA' AF      0693 DSMER7: XOR   A
03FB' C30B04' 0694 DSMER9: JP    DSMRET
0695 ;
0696 ;-----
0697 ;
03FE' F5      0698 SYSOFF: PUSH  AF           ; save system f
0699 ;           lg & clear it
03FF' 3A0000# 0699           LD     A,(SYSFLG)
0402' 322700" 0700           LD     (SVSYS),A
0405' AF      0701           XOR   A
0406' 320004# 0702           LD     (SYSFLG),A
0409' F1      0703           POP   AF
040A' C9      0704           RET
0705 ;-----
040B' F5      0706 DSMRET: PUSH  AF
040C' 3A2700" 0707           LD     A,(SVSYS)
040F' 320704# 0708           LD     (SYSFLG),A           ; restore syste
0709 ;           m flag
0412' F1      0709           POP   AF
0413' C1      0710           POP   BC
0414' D1      0711           POP   DE
0415' E1      0712           POP   HL
0416' C9      0713           RET

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0714 ;
0715 ;-----
0716 ;      check dataset name routine
0717 ;-----
0718 ;
0719 ;      input  - HL. point to dataset name
0720 ;      output -   Acc = 00 - no error , carry reset
0721 ;                  = 01 - file name error
0722 ;                  = 02 - file exist
0723 ;                  = 03 - reserved name
0724 ;
0417' E5      0725 CHKDS:  PUSH   HL
0418' D5      0726          PUSH   DE
0419' C5      0727          PUSH   BC
0728 ;
041A' E5      0729          PUSH   HL
041B' 7E      0730          LD     A,(HL)          ; first charact
er
041C' CD6304' 0731          CALL   CHKALP
041F' 3861    0732          JR     C,CHKDS7
0421' 77      0733          LD     (HL),A
0422' 23      0734          INC   HL
0423' 0607    0735          LD     B,7
0425' 7E      0736 CHKDS1: LD     A,(HL)          ; find first bl
ank character
0426' FE20    0737          CP     ' '
0428' 2813    0738          JR     Z,CHKDS4
042A' FE30    0739          CP     '0'          ; must be alphan
umeric
042C' 3854    0740          JR     C,CHKDS7
042E' FE3A    0741          CP     '9'+1
0430' 3805    0742          JR     C,CHKDS2
0432' CD6304' 0743          CALL   CHKALP
0435' 384B    0744          JR     C,CHKDS7
0437' 77      0745 CHKDS2: LD     (HL),A
0438' 23      0746          INC   HL
0439' 10EA    0747          DJNZ  CHKDS1
043B' 1808    0748          JR     CHKDS5
0749 ;
043D' 7E      0750 CHKDS4: LD     A,(HL)
043E' FE20    0751          CP     ' '          ; check no blan
k between char.
0440' 2040    0752          JR     NZ,CHKDS7
0442' 23      0753          INC   HL
0443' 10F8    0754          DJNZ  CHKDS4
0755 ;
0445' E1      0756 CHKDS5: POP    HL          ; check with re
served dataset name
0446' 112800" 0757          LD     DE,ERR1
0449' CD7104' 0758          CALL   CMPDS
044C' 113000" 0759          LD     DE,ERR2
044F' CD7104' 0760          CALL   CMPDS
0452' 113800" 0761          LD     DE,ERR3
0455' CD7104' 0762          CALL   CMPDS
0458' 2B      0763 CHKDS8: DEC    HL
0459' CD0000" 0764          CALL   SEARCH
045C' 3020    0765          JR     NC,CHKDS6

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045E' AF          0766          XOR      A
045F' C1          0767 CHKDS9: POP      BC
0460' D1          0768          POP      DE
0461' E1          0769          POP      HL
0462' C9          0770          RET
                   0771 ;
0463' FE41        0772 CHKALP: CP      'A'          ; check alphabe
                   tic
0465' D8          0773          RET      C
0466' FE5B        0774          CP      'Z'+1
0468' 3F          0775          CCF
0469' D0          0776          RET      NC
046A' FE61        0777          CP      'a'
046C' D8          0778          RET      C
046D' FE7B        0779          CP      'z'+1
046F' 3F          0780          CCF
0470' C9          0781          RET
                   0782 ;
0471' E5          0783 CMPDS:  PUSH    HL
0472' 0608        0784          LD      B,8
0474' CD0000#     0785          CALL   CMPST
0477' E1          0786          POP      HL
0478' C0          0787          RET      NZ
0479' E1          0788          POP      HL
047A' 3E03        0789          LD      A,03          ; reserved name
047C' 1807        0790          JR      ERROR
                   0791 ;
047E' 3E02        0792 CHKDS6: LD      A,02          ; file exist
0480' 1803        0793          JR      ERROR
                   0794 ;
0482' E1          0795 CHKDS7: POP      HL
0483' 3E01        0796          LD      A,01          ; file name error
0485' 37          0797 ERROR:  SCF
0486' 18D7        0798          JR      CHKDS9
                   0799 ;
0800 ;-----
0801 ;          Disk analyze 0
0802 ;          find used area in sorted order
0803 ;-----
0804 ;
0805 ;          output - IX. table address
0806 ;          - Acc. table length
0807 ;
0488' E5          0808 DKANA0: PUSH    HL
0489' D5          0809          PUSH    DE
048A' C5          0810          PUSH    BC
                   0811 ;
048B' CDC901#     0812          CALL   FLUSH          ; flush write b
                   uffer
048E' CD0000#     0813          CALL   INIWDK          ; for used writ
                   e buffer as result
                   0814 ;
0491' 2A0000#     0815          LD      HL,(DMAWR)
0494' 220500"     0816          LD      (TBLEND),HL          ; table end add
                   ress
0497' AF          0817          XOR      A
0498' 320700"     0818          LD      (TBLENO),A          ; initial table

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                                length = 0
049B' CD2300'      0819      CALL   GDSINI
049E' CD4100'      0820 DKAN01: CALL   GDSNXT
04A1' DA4205'      0821      JP     C,DKAN09      ; end of datase
                                t label
04A4' FE48         0822      CP     'H'          ; active datase
                                t ?
04A6' 20F6         0823      JR     NZ,DKAN01     ; N: get next l
                                abel
04A8' 210100"     0824      LD     HL,LSECNO
04AB' 011C00      0825      LD     BC,28
04AE' CD2301'     0826      CALL   LTHS          ; convert BOE.
                                to logical sector no
04B1' 0E06         0827      LD     C,6
04B3' CD2301'     0828      CALL   LTHS          ; convert EOE.
                                to logical sector no.
04B6' 2A0100"     0829      LD     HL,(XBOE)
04B9' EB          0830      EX     DE,HL
04BA' CDF02#      0831      CALL   CMPX          ; EOE must >= B
                                OE
04BD' 38DF         0832      JR     C,DKAN01
04BF' EB          0833      EX     DE,HL
04C0' DD2A9204#  0834      LD     IX,(DMAWR)
04C4' 3A0700"     0835      LD     A,(TBLENO)
04C7' 47          0836      LD     B,A
04C8' 05          0837 DKAN02: DEC   B          ; compare with
                                previous dataset
04C9' FA0005'     0838      JP     M,DKAN06
04CC' DD5E00      0839      LD     E,(IX)
04CF' DD23        0840      INC   IX
04D1' DD5600      0841      LD     D,(IX)
04D4' DD23        0842      INC   IX
04D6' CDBB04#    0843      CALL   CMPX
04D9' 284B        0844      JR     Z,DKAN05     ; BOE = , check
                                EOE
04DB' DD23        0845      INC   IX
04DD' DD23        0846      INC   IX
04DF' 30E7        0847      JR     NC,DKAN02   ; BOE > , compa
                                re next
04E1' 2A0500"     0848      LD     HL,(TBLEND)  ; BOE < , inser
                                t in table
04E4' 2B          0849      DEC   HL
04E5' E5          0850      PUSH  HL
04E6' 110400      0851      LD     DE,4
04E9' 19          0852      ADD   HL,DE
04EA' EB          0853      EX     DE,HL
04EB' E1          0854      POP   HL
04EC' 78          0855      LD     A,B
04ED' 3C          0856      INC   A
04EE' 87          0857      ADD   A,A
04EF' 87          0858      ADD   A,A
04F0' 4F          0859      LD     C,A
04F1' 0600        0860      LD     B,0
04F3' EDB8        0861      LDDR
04F5' 2A0100"     0862      LD     HL,(XBOE)
04F8' DD2B        0863      DEC   IX
04FA' DD2B        0864      DEC   IX

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04FC' DD2B          0865          DEC      IX
04FE' DD2B          0866          DEC      IX
0500' DD7500        0867  DKAN06: LD      (IX),L          ; fill in table
0503' DD23          0868          INC      IX
0505' DD7400        0869          LD      (IX),H
0508' DD23          0870          INC      IX
050A' 2A0300"       0871          LD      HL,(XEOE)
050D' DD7500        0872          LD      (IX),L
0510' DD23          0873          INC      IX
0512' DD7400        0874          LD      (IX),H
0515' 210700"       0875          LD      HL,TBLENO
0518' 34            0876          INC      (HL)          ; increment tab
                        le length
0519' 2A0500"       0877          LD      HL,(TBLEND)
051C' 110400        0878          LD      DE,4
051F' 19            0879          ADD     HL,DE
0520' 220500"       0880          LD      (TBLEND),HL          ; advance table
                        end address
0523' C39E04'       0881          JP      DKAN01
0882 ;-----
0526' 2A0300"       0883  DKAN05: LD      HL,(XEOE)
0529' DD5E00        0884          LD      E,(IX)
052C' DD23          0885          INC      IX
052E' DD5600        0886          LD      D,(IX)
0531' CDD704#       0887          CALL   CMPX
0534' DA9E04'       0888          JP      C,DKAN01
0537' DD7400        0889          LD      (IX),H
053A' DD2B          0890          DEC      IX
053C' DD7500        0891          LD      (IX),L
053F' C39E04'       0892          JP      DKAN01
0893 ;-----
0542' 3A0700"       0894  DKAN09: LD      A,(TBLENO)          ; table length
0545' DD2AC204#     0895          LD      IX,(DMAWR)          ; table address
0549' C1            0896          POP     BC
054A' D1            0897          POP     DE
054B' E1            0898          POP     HL
054C' C9            0899          RET
0900 ;
0901 ;-----
0902 ;           Disk analyze l
0903 ;           find unused area in sorted order
0904 ;-----
0905 ;
0906 ;           output - IX. table address
0907 ;           - Acc. table length
0908 ;
054D' E5            0909  DKAN11: PUSH   HL
054E' D5            0910          PUSH   DE
054F' C5            0911          PUSH   BC
0550' CD8804'       0912          CALL   DKAN00
0553' 47            0913          LD      B,A
0554' 3A5400#       0914          LD      A,(SIDTYP)          ; test for begi
                        n & end
0557' B7            0915          OR      A          ; sector no.
0558' 211B00        0916          LD      HL,27
055B' 118507        0917          LD      DE,26*74+1
055E' 2806          0918          JR      Z,DKAN11

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0560' 213500      0919      LD      HL,53
0563' 113D0F      0920      LD      DE,52*75+1
                   0921 DKAN11:
0566' DDE5        0922      PUSH   IX
0568' FDE1        0923      POP    IY
056A' D9          0924      EXX
056B' 014001      0925      LD      BC,80*4
056E' FD09        0926      ADD    IY,BC
0570' D9          0927      EXX
0571' FDE5        0928      PUSH   IY
0573' D5          0929      PUSH   DE
                   0930 ;
0574' 0E00        0931      LD      C,0
0576' 05          0932 DKAN12: DEC  B
0577' FA9F05'     0933      JP     M,DKAN16
057A' DD5E00      0934      LD      E,(IX)
057D' DD23        0935      INC    IX
057F' DD5600      0936      LD      D,(IX)
0582' DD23        0937      INC    IX
0584' CD3205#     0938      CALL   CMPX
0587' DCAD05'     0939      CALL   C,DKAN14      ; X < XBOE  get
                   unused ares
058A' DD5E00      0940      LD      E,(IX)
058D' DD23        0941      INC    IX
058F' DD5600      0942      LD      D,(IX)
0592' DD23        0943      INC    IX
0594' EB          0944      EX     DE,HL
0595' CD8505#     0945      CALL   CMPX
0598' EB          0946      EX     DE,HL
0599' 38DB        0947      JR     C,DKAN12
059B' EB          0948      EX     DE,HL      ; X =< XEOE  th
                   en X = XEOE + 1
059C' 23          0949      INC    HL
059D' 18D7        0950      JR     DKAN12
                   0951 ;
059F' D1          0952 DKAN16: POP  DE
05A0' CD9605#     0953      CALL   CMPX      ; check with la
                   st sector no.
05A3' DCAD05'     0954      CALL   C,DKAN14
05A6' 79          0955      LD      A,C
05A7' DDE1        0956      POP    IX      ; table address
                   .
05A9' C1          0957      POP    BC
05AA' D1          0958      POP    DE
05AB' E1          0959      POP    HL
05AC' C9          0960      RET
                   0961 ;
05AD' FD7500      0962 DKAN14: LD   (IY),L      ; put unused ar
                   ea in table
05B0' FD23        0963      INC    IY
05B2' FD7400      0964      LD      (IY),H
05B5' FD23        0965      INC    IY
05B7' EB          0966      EX     DE,HL
05B8' B7          0967      OR     A
05B9' ED52        0968      SBC   HL,DE
05BB' FD7500      0969      LD      (IY),L
05BE' FD23        0970      INC    IY

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05C0' FD7400      0971      LD      (IY),H
05C3' FD23        0972      INC      IY
05C5' 0C          0973      INC      C
05C6' C9          0974      RET
0975 ;
0976 ;-----
0977 ;
0978      DATA
0979 ;
0000" (0001)      0980 SYSTEM DS      1      ; system file f
                    lag save area
                    (0001")
0001" 0000        0981 LSECNO EQU      $
0003" 0000        0982 XBOE  DW      0
0005" 0000        0983 XEOE  DW      0
0007" 00          0984 TBLEND DW      0
0008" (0003)      0985 TBLENO DB      0
0008" (0003)      0986 ;
000B" (0002)      0987 THS   DS      3
000D" 00          0988 LBLPNT DS      2
000E" 0000        0989 GDSFLG DB      0
0010" 0000        0990 ;
0012" 0D0A496E    0991 FNPNT  DW      0
                    7465726E
                    616C2043
                    4C4F5345
                    20657272
                    2E
0027" 00          0992 NFPNT  DW      0
0028" 4552524F    0993 ;CLSER DB      's',23,0,19,24,'Internal CLOSE err.'
                    52534554
0030" 53595341    0994 CLSER  DB      0DH,0AH,'Internal CLOSE err.'
                    52454120
0038" 45524D41    0995 SVSYS  DB      0
                    50202020
                    0996 ;
                    0997 ERR1  DB      'ERRORSET'
                    0998 ERR2  DB      'SYSAREA '
                    0999 ERR3  DB      'ERMAP '
1000 ;
1001 ;-----
1002 ;
0040" (0000)      1003      END

Errors          0

Program Length  05C7 (1479)
Data length     0040 (64)

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```

0001          ENTRY  ASCEBC,EBCASC,SRCHTB,PUTDIG,ASC2BI
0002          ENTRY  BINBCD,BCDBIN,BCDASC,ASCBCD,BINASC,ASCB
                IN
0003          ENTRY  CMPST,CMPX,HEAD,DIV16
0004          EXTRN  MSGOUT
0005          EXTRN  SYSFLG,THAFLG,HLPFLG
0006 ;
0007 ;-----
0008 ;
0009 ;      input  - HL start address of ASCII source string
0010 ;      - IX start address of EBCDIC destination
                string
0011 ;      - B  number of bytes be converted
0012 ;
0013 ;
0014          REL
0015 ;
0000' 1600    0016 ASCEBC: LD      D,0
0002' 5E      0017 ASCEB1: LD     E,(HL)
0003' 3A0000# 0018          LD      A,(SYSFLG)          ; not convert i
                f system on.
0006' B7      0019          OR      A
0007' 7B      0020          LD      A,E
0008' 2011    0021          JR      NZ,ASCEB2
000A' 3A0000# 0022          LD      A,(THAFLG)          ; thai mode on
                ?
000D' B7      0023          OR      A
000E' 2002    0024          JR      NZ,ASCEB3
0010' CBBB    0025          RES     7,E
0012' FD213A02" 0026 ASCEB3: LD     IY,EBCDIC
0016' FD19    0027          ADD     IY,DE
0018' FD7E00  0028          LD      A,(IY)
001B' DD7700  0029 ASCEB2: LD     (IX),A
001E' DD23    0030          INC     IX
0020' 23      0031          INC     HL
0021' 10DF    0032          DJNZ   ASCEB1
0023' C9      0033          RET
0034 ;
0035 ;-----
0036 ;
0037 ;      input  - HL start address of EBCDIC source string
0038 ;      - IX start address of ASCII destination string
0039 ;      - B  number of bytes be converted
0040 ;
0024' 1600    0041 EBCASC: LD     D,0
0026' 3A0000# 0042 EBCAS1: LD     A,(HLPFLG)
0029' B7      0043          OR      A          ; Is in help mo
                de ?
002A' 200A    0044          JR      NZ,EBCA15          ; Y: ignore tha
                i mode
002C' 3A0B00# 0045          LD     A,(THAFLG)
002F' B7      0046          OR      A          ; thai mode on
                ?
0030' FD213A01" 0047          LD     IY,TASCII          ; Y: use thai t
                able

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```

0034' 2004          0048          JR      NZ,EBCAS3
0036' FD213A00"    0049 EBCA15: LD      IY,ASCII
003A' 5E           0050 EBCAS3: LD      E,(HL)
003B' FD19         0051          ADD     IY,DE
003D' 3A0400#     0052          LD      A,(SYSFLG)
0040' B7           0053          OR      A
0041' 7B           0054          LD      A,E
0042' 2003         0055          JR      NZ,EBCAS2
0044' FD7E00       0056          LD      A,(IY)
0047' DD7700       0057 EBCAS2: LD      (IX),A
004A' DD23         0058          INC     IX
004C' 23           0059          INC     HL
004D' 10D7         0060          DJNZ   EBCAS1
004F' C9           0061          RET
0062 ;
0063 ;-----
0064 ;          utilities routine
0065 ;-----
0066 ;
0067 ;
0068          REL
0069 ;
0050' 46           0070 SRCHTB: LD      B,(HL)          ; find control
                                key handling routine
0051' 23           0071 SRCH00: INC     HL
0052' BE           0072          CP      (HL)
0053' 23           0073          INC     HL
0054' 2804         0074          JR      Z,SRCH01
0056' 23           0075          INC     HL
0057' 10F8         0076          DJNZ   SRCH00
0059' C9           0077          RET          ; return - if n
                                ot found
0078 ;
005A' D1           0079 SRCH01: POP     DE          ; adjust stack
005B' 5E           0080          LD      E,(HL)
005C' 23           0081          INC     HL
005D' 56           0082          LD      D,(HL)
005E' EB           0083          EX     DE,HL
005F' E9           0084          JP      (HL)
0085 ;
0086 ;-----
0087 ;
0060' D5           0088 PUTDIG: PUSH   DE          ; convert binar
                                y value in HL.
0061' EB           0089          EX     DE,HL          ; to ASCII in m
                                emory pointed by DE.
0062' FD214103"    0090          LD      IY,BI2BCD
0066' 210000       0091          LD      HL,0
0069' 0610         0092          LD      B,16
006B' CB23         0093 BCD51: SLA     E
006D' CB12         0094          RL      D
006F' 3C0C         0095          JR      NC,BCD52
0071' 7D           0096          LD      A,L
0072' FD8600       0097          ADD     (IY+0)
0075' 27           0098          DAA
0076' 6F           0099          LD      L,A
0077' 7C           0100          LD      A,H

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0078' FD8E01      0101      ADC      (IY+1)
007B' 27          0102      DAA
007C' 67          0103      LD      H,A
007D' FD23       0104 BCD52: INC      IY
007F' FD23       0105      INC      IY
0081' 10E8       0106      DJNZ   BCD51
0083' D1         0107      POP     DE
0084' 0604       0108      LD      B,4
0086' 3E20       0109      LD      A,' '
0088' 1B         0110 PUTDG1: DEC     DE
0089' 12         0111      LD      (DE),A
008A' 10FC       0112      DJNZ   PUTDG1
008C' 0604       0113      LD      B,4
008E' CDA200'    0114 PUTDG2: CALL   GETDIG
0091' B7         0115      OR      A
0092' 2004       0116      JR      NZ,PUTDG3
0094' 10F8       0117      DJNZ   PUTDG2
0096' 1809       0118      JR      PUTDG9
0098' F630       0119 PUTDG3: OR      '0'
009A' 12         0120      LD      (DE),A
009B' 13         0121      INC     DE
009C' CDA200'    0122      CALL   GETDIG
009F' 10F7       0123      DJNZ   PUTDG3
00A1' C9         0124 PUTDG9: RET
0125 ;
00A2' 0E04       0126 GETDIG: LD      C,4
00A4' AF         0127      XOR     A
00A5' CB25       0128 GETDG1: SLA     L
00A7' CB14       0129      RL      H
00A9' 17         0130      RLA
00AA' 0D         0131      DEC     C
00AB' 20F8       0132      JR      NZ,GETDG1
00AD' C9         0133      RET
0134 ;
0135 ;-----
0136 ;
00AE' D5         0137 ASC2BI: PUSH    DE          ; convert ASCII
                        digit pointed by HL
00AF' C5         0138      PUSH    BC          ; to reg. HL
00B0' FD216103" 0139      LD      IY,AS2BIN    ; B. contain n
                        umber of digits
00B4' EB         0140      EX      DE,HL      ; zero set if
                        result = 0
00B5' 210000     0141      LD      HL,0
00B8' 1A         0142 AS2BI0: LD      A,(DE)
00B9' D630       0143      SUB     '0'
00BB' D5         0144      PUSH    DE
00BC' 4F         0145      LD      C,A
00BD' FD5E00     0146      LD      E,(IY)
00C0' FD23       0147      INC     IY
00C2' FD5600     0148      LD      D,(IY)
00C5' FD23       0149      INC     IY
00C7' 0D         0150 AS2BI1: DEC     C
00C8' FACE00'    0151      JP      M,AS2BI2
00CB' 19         0152      ADD     HL,DE
00CC' 18F9       0153      JR      AS2BI1
00CE' D1         0154 AS2BI2: POP     DE

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00CF' 1B          0155          DEC      DE
00D0' 10E6       0156          DJNZ    AS2B10
00D2' 7C         0157          LD      A,H
00D3' B5         0158          OR      L
00D4' C1         0159          POP     BC
00D5' D1         0160          POP     DE
00D6' C9         0161          RET
0162 ;
0163 ;-----
0164 ;
00D7' E5         0165 BINBCD: PUSH    HL          ; Binary -> BCD
00D8' D5         0166          PUSH    DE
00D9' F5         0167          PUSH    AF
00DA' E6F0       0168          AND     OF0H
00DC' 0F         0169          RRCA
00DD' 0F         0170          RRCA
00DE' 0F         0171          RRCA
00DF' 0F         0172          RRCA
00E0' 213A03"   0173          LD      HL,BCDTBL
00E3' 1600       0174          LD      D,0
00E5' 5F         0175          LD      E,A
00E6' 19         0176          ADD     HL,DE
00E7' F1         0177          POP     AF
00E8' E60F       0178          AND     OFH
00EA' C600       0179          ADD     A,0
00EC' 27         0180          DAA
00ED' 86         0181          ADD     A,(HL)
00EE' 27         0182          DAA
00EF' D1         0183          POP     DE
00F0' E1         0184          POP     HL
00F1' C9         0185          RET
0186 ;
0187 ;-----
0188 ;
00F2' D5         0189 BCDBIN: PUSH    DE          ; BCD -> Binary
00F3' F5         0190          PUSH    AF
00F4' E6F0       0191          AND     OF0H
00F6' 0F         0192          RRCA
00F7' 0F         0193          RRCA
00F8' 0F         0194          RRCA
00F9' 0F         0195          RRCA
00FA' 87         0196          ADD     A,A
00FB' 5F         0197          LD      E,A
00FC' 87         0198          ADD     A,A
00FD' 87         0199          ADD     A,A
00FE' 83         0200          ADD     A,E
00FF' 5F         0201          LD      E,A
0100' F1         0202          POP     AF
0101' E60F       0203          AND     OFH
0103' 83         0204          ADD     A,E
0104' D1         0205          POP     DE
0105' C9         0206          RET
0207 ;
0208 ;-----
0209 ;
0106' F5         0210 BCDASC: PUSH    AF          ; BCD -> ASCII

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0107' E6F0      0211      AND      0FOH
0109' 0F        0212      RRCA
010A' 0F        0213      RRCA
010B' 0F        0214      RRCA
010C' 0F        0215      RRCA
010D' C630      0216      ADD      A,30H
010F' 6F        0217      LD      L,A
0110' F1        0218      POP     AF
0111' E60F      0219      AND      0FH
0113' C630      0220      ADD      A,30H
0115' 67        0221      LD      H,A
0116' C9        0222      RET
0223 ;
0224 ;-----
0225 ;
0117' D5        0226 ASCBCD: PUSH   DE                ; ASCII -> BCD
0118' 7D        0227      LD      A,L
0119' D630      0228      SUB     A,30H
011B' 07        0229      RLCA
011C' 07        0230      RLCA
011D' 07        0231      RLCA
011E' 07        0232      RLCA
011F' 5F        0233      LD      E,A
0120' 7C        0234      LD      A,H
0121' D630      0235      SUB     A,30H
0123' 83        0236      ADD     A,E
0124' D1        0237      POP     DE
0125' C9        0238      RET
0239 ;
0240 ;-----
0241 ;
0126' CDD700'   0242 BINASC: CALL   BINBCD          ; Binary -> ASC
                   II
0129' 18DB      0243      JR      BCDASC
0244 ;
0245 ;-----
0246 ;
012B' CD1701'   0247 ASCBIN: CALL   ASCBCD          ; ASCII -> Bina
                   ry
012E' 18C2      0248      JR      BCDBIN
0249 ;
0250 ;-----
0251 ;          strings compare routine
0252 ;-----
0253 ;
0254 ;          input - HL. beginning at 1st string
0255 ;                - DE. beginning at 2nd string
0256 ;                - B. length of strings
0257 ;
0258      REL
0259 ;
0130' 1A        0260 CMPST: LD      A,(DE)
0131' BE        0261      CP      (HL)
0132' 23        0262      INC     HL
0133' 13        0263      INC     DE
0134' C0        0264      RET     NZ
0135' 10F9      0265      DJNZ   CMPST

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0137' C9          0266          RET
                  0267 ;
                  0268 ;-----
                  0269 ;
0138' 7C          0270 CMPX:   LD      A,H
0139' BA          0271          CP      D
013A' C0          0272          RET     NZ
013B' 7D          0273          LD      A,L
013C' BB          0274          CP      E
013D' C9          0275          RET
                  0276 ;
                  0277 ;-----
0278 ;           divide HL by DE  result in Acc.
0279 ;-----
0280 ;
013E' C5          0281 DIV16:  PUSH   BC
013F' 01FFFF      0282          LD      BC,-1
0142' B7          0283 DIV1:   OR      A
0143' ED52        0284          SBC   HL,DE
0145' 03          0285          INC   BC
0146' CB7C        0286          BIT   7,H
0148' 28F8        0287          JR    Z,DIV1
014A' 60          0288          LD      H,B
014B' 69          0289          LD      L,C
014C' 79          0290          LD      A,C
014D' C1          0291          POP   BC
014E' C9          0292          RET
                  0293 ;
                  0294 ;-----
0295 ;           data entry system screen heading
0296 ;-----
0297 ;
0298          REL
0299 ;
014F' E5          0300 HEAD:   PUSH   HL
0150' 210000"     0301          LD      HL,SFHEAD
0153' CD0000#     0302          CALL  MSGOUT
0156' E1          0303          POP   HL
0157' C9          0304          RET
                  0305 ;
                  0306 ;-----
0307 ;
0308          DATA
0309 ;
0000" 73020D35   0310 SFHEAD: DB    's',2,13,53,58,'*** C. U.  D A T A
                  E N T R Y'
                  3A2A2A2A
                  20202043
                  2E20552E
                  20202044
                  20412054
                  20412020
                  2045204E
                  20542052
                  2059
0026" 20202053   0311          DB    '  S Y S T E M  ***'
                  20592053

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```

20542045
204D2020
202A2A2A

0312 ;
0313 ;----- T A B L E -----
0314 ;
0315 ;           E N G L I S H
0316 ;
0317 ; - - - E B C D I C   t o   A S C I I   - - -
0318 ;
0319 ;
003A" 00010203 0320 ASCII: DB      000H,001H,002H,003H,000H,009H,000H,07FH
; 00H-07H
      0009007F
0042" 0000000B 0321      DB      000H,000H,000H,00BH,00CH,00DH,00EH,00FH
; 08H-0FH
      0C0D0E0F
004A" 10111213 0322      DB      010H,011H,012H,013H,000H,00AH,008H,000H
; 10H-17H
      000A0800
0052" 18190000 0323      DB      018H,019H,000H,000H,01CH,01DH,01EH,01FH
; 18H-1FH
      1C1D1E1F
005A" 00001C00 0324      DB      000H,000H,01CH,000H,000H,00AH,017H,01BH
; 20H,27H
      000A171B
0062" 00000000 0325      DB      000H,000H,000H,000H,000H,005H,006H,007H
; 28H-2FH
      00050607
006A" 00001600 0326      DB      000H,000H,016H,000H,000H,01EH,000H,004H
; 30H-37H
      001E0004
0072" 00000000 0327      DB      000H,000H,000H,000H,014H,015H,000H,01AH
; 38H-3FH
      1415001A
007A" 20000000 0328      DB      020H,000H,000H,000H,000H,000H,000H,000H
; 40H-47H
      00000000
0082" 0000002E 0329      DB      000H,000H,000H,02EH,03CH,028H,02BH,021H
; 48H-4FH
      3C282B21
008A" 26000000 0330      DB      026H,000H,000H,000H,000H,000H,000H,000H
; 50H,57H
      00000000
0092" 00002124 0331      DB      000H,000H,021H,024H,02AH,029H,03BH,05EH
; 58H-5FH
      2A293B5E
009A" 2D2F0000 0332      DB      02DH,02FH,000H,000H,000H,000H,000H,000H
; 60H,67H
      00000000
00A2" 00007C2C 0333      DB      000H,000H,07CH,02CH,025H,05FH,03EH,03FH
; 68H-6FH
      255F3E3F
00AA" 00000000 0334      DB      000H,000H,000H,000H,000H,000H,000H,000H
; 70H-77H
      00000000
00B2" 00603A23 0335      DB      000H,060H,03AH,023H,040H,027H,03DH,022H

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; 78H-7FH
40273D22
00BA" 00616263 0336 DB 000H,061H,062H,063H,064H,065H,066H,067H
; 80H-87H
64656667
00C2" 6869007B 0337 DB 068H,069H,000H,07BH,000H,000H,000H,000H
; 88H-8FH
00000000
00CA" 006A6B6C 0338 DB 000H,06AH,06BH,06CH,06DH,06EH,06FH,070H
; 90H-97H
6D6E6F70
00D2" 7172007D 0339 DB 071H,072H,000H,07DH,000H,000H,000H,000H
; 98H-9FH
00000000
00DA" 007E7374 0340 DB 000H,07EH,073H,074H,075H,076H,077H,078H
; A0H-A7H
75767778
00E2" 797A0000 0341 DB 079H,07AH,000H,000H,000H,05BH,000H,000H
; A8H-AFH
005B0000
00EA" 30313233 0342 DB 030H,031H,032H,033H,034H,035H,036H,037H
; B0H-B7H
34353637
00F2" 38390000 0343 DB 038H,039H,000H,000H,000H,05DH,000H,05FH
; B8H-BFH
005D005F
00FA" 00414243 0344 DB 000H,041H,042H,043H,044H,045H,046H,047H
; C0H-C7H
44454647
0102" 48490000 0345 DB 048H,049H,000H,000H,000H,028H,02BH,02BH
; C8H-CFH
00282B2B
010A" 004A4B4C 0346 DB 000H,04AH,04BH,04CH,04DH,04EH,04FH,050H
; D0H-D7H
4D4E4F50
0112" 5152007D 0347 DB 051H,052H,000H,07DH,000H,029H,000H,000H
; D8H-DFH
00290000
011A" 5C005354 0348 DB 05CH,000H,053H,054H,055H,056H,057H,058H
; E0H-E7H
55565758
0122" 595A0000 0349 DB 059H,05AH,000H,000H,000H,000H,000H,000H
; E8H-EFH
00000000
012A" 30313233 0350 DB 030H,031H,032H,033H,034H,035H,036H,037H
; F0H-F7H
34353637
0132" 38390000 0351 DB 038H,039H,000H,000H,000H,000H,000H,000H
; F8H-FFH
00000000
0352 ;
0353 ;-----
0354 ;
0355 ; T H A I
0356 ;
0357 ; - - - E B C D I C to A S C I I - - -
0358 ;

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013A" 00010203      0359 ;
                   0360 TASCII: DB      000H,001H,002H,003H,000H,009H,000H,07FH
                   ; 00H-07H
                   0009007F
0142" 0000000B      0361          DB      000H,000H,000H,00BH,00CH,00DH,00EH,00FH
                   ; 08H-0FH
                   0C0D0E0F
014A" 10111213      0362          DB      010H,011H,012H,013H,000H,00AH,008H,000H
                   ; 10H-17H
                   000A0800
0152" 18190000      0363          DB      018H,019H,000H,000H,01CH,01DH,01EH,01FH
                   ; 18H-1FH
                   1C1D1E1F
015A" 00001C00      0364          DB      000H,000H,01CH,000H,000H,00AH,017H,01BH
                   ; 20H,27H
                   000A171B
0162" 00000000      0365          DB      000H,000H,000H,000H,000H,005H,006H,007H
                   ; 28H-2FH
                   00050607
016A" 00001600      0366          DB      000H,000H,016H,000H,000H,01EH,000H,004H
                   ; 30H-37H
                   001E0004
0172" 00000000      0367          DB      000H,000H,000H,000H,014H,015H,000H,01AH
                   ; 38H-3FH
                   1415001A
017A" 20000000      0368          DB      020H,000H,000H,000H,000H,000H,000H,000H
                   ; 40H-47H
                   00000000
0182" 0000002E      0369          DB      000H,000H,000H,02EH,03CH,028H,02BH,021H
                   ; 48H-4FH
                   3C282B21
018A" 26000000      0370          DB      026H,000H,000H,000H,000H,000H,000H,000H
                   ; 50H,57H
                   00000000
0192" 00002124      0371          DB      000H,000H,021H,024H,02AH,029H,03BH,05EH
                   ; 58H-5FH
                   2A293B5E
019A" 2D2F0000      0372          DB      02DH,02FH,000H,000H,000H,000H,000H,000H
                   ; 60H,67H
                   00000000
01A2" 00007C2C      0373          DB      000H,000H,07CH,02CH,025H,05FH,03EH,03FH
                   ; 68H-6FH
                   255F3E3F
01AA" 00000000      0374          DB      000H,000H,000H,000H,000H,000H,000H,000H
                   ; 70H-77H
                   00000000
01B2" 00603A23      0375          DB      000H,060H,03AH,023H,040H,027H,03DH,022H
                   ; 78H-7FH
                   40273D22
01BA" A1A262A3      0376          DB      0A1H,0A2H,062H,0A3H,064H,0A4H,0A5H,0A6H
                   ; 80H-87H
                   64A4A5A6
01C2" A7A8A9AA      0377          DB      0A7H,0A8H,0A9H,0AAH,0ABH,0ACH,0ADH,0AEH
                   ; 88H-8FH
                   ABACADAE
01CA" AFB0B1B2      0378          DB      0AFH,0B0H,0B1H,0B2H,0B3H,0B4H,0B5H,0B6H
                   ; 90H-97H

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    B3B4B5B6
01D2" B7B8B9BA    0379      DB      0B7H,0B8H,0B9H,0BAH,0BBH,0BCH,0BDH,0BEH
           ; 98H-9FH

    BBBCBDBE
01DA" BFC0C1C2    0380      DB      0BFH,0C0H,0C1H,0C2H,0C3H,0C4H,0C5H,0C6H
           ; A0H-A7H

    C3C4C5C6
01E2" C7C8C9CA    0381      DB      0C7H,0C8H,0C9H,0CAH,0CBH,0CCH,0D1H,0D2H
           ; A8H-AFH

    C3CCD1D2
01EA" D3D4D5D6    0382      DB      0D3H,0D4H,0D5H,0D6H,0D7H,0D8H,0D9H,0DAH
           ; B0H-B7H

    D7D8D9DA
01F2" DBDCDDDE    0383      DB      0DBH,0DCH,0DDH,0DEH,0DFH,05DH,0CDH,0CEH
           ; B8H-BFH

    DF5DCDCE
01FA" 00414243    0384      DB      000H,041H,042H,043H,044H,045H,046H,047H
           ; C0H-C7H

    44454647
0202" 4849CFD0    0385      DB      048H,049H,0CFH,0D0H,0E3H,0E2H,0E0H,0E1H
           ; C8H-CFH

    E3E2E0E1
020A" 004A4B4C    0386      DB      000H,04AH,04BH,04CH,04DH,04EH,04FH,050H
           ; D0H-D7H

    4D4E4F50
0212" 5152E42E    0387      DB      051H,052H,0E4H,02EH,000H,029H,000H,000H
           ; D8H-DFH

    00290000
021A" 5C005354    0388      DB      05CH,000H,053H,054H,055H,056H,057H,058H
           ; E0H-E7H

    55565758
0222" 595A0000    0389      DB      059H,05AH,000H,000H,000H,000H,000H,000H
           ; E8H-EFH

    00000000
022A" 30313233    0390      DB      030H,031H,032H,033H,034H,035H,036H,037H
           ; F0H-F7H

    34353637
0232" 38390000    0391      DB      038H,039H,000H,000H,000H,000H,000H,000H
           ; F8H-FFH

    00000000
           0392 ;
           0393 ;-----
           0394 ;
           0395 ; - - - A S C I I   t o   E B C D I C   - - -
           0396 ;
023A" 00010203    0397 EBCDIC: DB      000H,001H,002H,003H,037H,02DH,02EH,02FH
           ; 00H-07H

    372D2E2F
0242" 1605250B    0398      DB      016H,005H,025H,00BH,00CH,00DH,00EH,00FH
           ; 08H-0FH

    0C0D0E0F
024A" 10111213    0399      DB      010H,011H,012H,013H,03CH,03DH,032H,026H
           ; 10H-17H

    3C3D3226
0252" 18193F27    0400      DB      018H,019H,03FH,027H,01CH,01DH,01EH,01FH
           ; 18H-1FH

    1C1D1E1F

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025A" 405A7F7B	0401	DB	040H,05AH,07FH,07BH,05BH,06CH,050H,07DH
		; 20H-27H	
5B6C507D			
0262" 4D5D5C4E	0402	DB	04DH,05DH,05CH,04EH,06BH,060H,04BH,061H
		; 28H-2FH	
6B604B61			
026A" F0F1F2F3	0403	DB	0F0H,0F1H,0F2H,0F3H,0F4H,0F5H,0F6H,0F7H
		; 30H-37H	
F4F5F6F7			
0272" F8F97A5E	0404	DB	0F8H,0F9H,07AH,05EH,04CH,07EH,06EH,06FH
		; 38H-3FH	
4C7E6E6F			
027A" 7CC1C2C3	0405	DB	07CH,0C1H,0C2H,0C3H,0C4H,0C5H,0C6H,0C7H
		; 40H-47H	
C4C5C6C7			
0282" C8C9D1D2	0406	DB	0C8H,0C9H,0D1H,0D2H,0D3H,0D4H,0D5H,0D6H
		; 48H-4FH	
D3D4D5D6			
028A" D7D8D9E2	0407	DB	0D7H,0D8H,0D9H,0E2H,0E3H,0E4H,0E5H,0E6H
		; 50H-57H	
E3E4E5E6			
0292" E7E8E9AD	0408	DB	0E7H,0E8H,0E9H,0ADH,0E0H,0BDH,05FH,06DH
		; 58H-5FH	
E0BD5F6D			
029A" 79818283	0409	DB	079H,081H,082H,083H,084H,085H,086H,087H
		; 60H-67H	
84858687			
02A2" 88899192	0410	DB	088H,089H,091H,092H,093H,094H,095H,096H
		; 68H-6FH	
93949596			
02AA" 979899A2	0411	DB	097H,098H,099H,0A2H,0A3H,0A4H,0A5H,0A6H
		; 70H-77H	
A3A4A5A6			
02B2" A7A8A98B	0412	DB	0A7H,0A8H,0A9H,08BH,06AH,09BH,0A1H,007H
		; 78H-7FH	
6A9BA107			
02BA" 00010203	0413	DB	000H,001H,002H,003H,037H,02DH,02EH,02FH
		; 80H-87H	
372D2E2F			
02C2" 1605250B	0414	DB	016H,005H,025H,00BH,00CH,00DH,00EH,00FH
		; 88H-8FH	
0C0D0E0F			
02CA" 10111213	0415	DB	010H,011H,012H,013H,03CH,03DH,032H,026H
		; 90H-97H	
3C3D3226			
02D2" 18193F27	0416	DB	018H,019H,03FH,027H,01CH,01DH,01EH,01FH
		; 98H-9FH	
1C1D1E1F			
02DA" 40808183	0417	DB	040H,080H,081H,083H,085H,086H,087H,088H
		; A0H-A7H	
85868788			
02E2" 898A8B8C	0418	DB	089H,08AH,08BH,08CH,08DH,08EH,08FH,090H
		; A8H-AFH	
8D8E8F90			
02EA" 91929394	0419	DB	091H,092H,093H,094H,095H,096H,097H,098H
		; B0H-B7H	
95969798			


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02F2" 999A9B9C      0420      DB      099H,09AH,09BH,09CH,09DH,09EH,09FH,0A0H
                   ; B8H-BFH
                   9D9E9FA0
02FA" A1A2A3A4      0421      DB      0A1H,0A2H,0A3H,0A4H,0A5H,0A6H,0A7H,0A8H
                   ; C0H-C7H
                   A5A6A7A8
0302" A9AAABAC      0422      DB      0A9H,0AAH,0ABH,0ACH,0ADH,0BEH,0BFH,0CAH
                   ; C8H-CFH
                   ADBEBFCA
030A" CBAEAFB0      0423      DB      0CBH,0AEH,0AFH,0B0H,0B1H,0B2H,0B3H,0B4H
                   ; D0H-D7H
                   B1B2B3B4
0312" B5B6B7B8      0424      DB      0B5H,0B6H,0B7H,0B8H,0B9H,0BAH,0BBH,0BCH
                   ; D8H-DFH
                   B9BABBBBC
031A" CECFCDCC      0425      DB      0CEH,0CFH,0CDH,0CCH,0DAH,0E5H,0E6H,0E7H
                   ; E0H-E7H
                   DA858687
0322" 88899192      0426      DB      088H,089H,091H,092H,093H,094H,095H,096H
                   ; E8H-EFH
                   93949596
032A" 979899A2      0427      DB      097H,098H,099H,0A2H,0A3H,0A4H,0A5H,0A6H
                   ; F0H-F7H
                   A3A4A5A6
0332" A7A8A98B      0428      DB      0A7H,0A8H,0A9H,0BBH,06AH,09BH,0A1H,007H
                   ; F8H-FFH
                   6A9BA107
                   0429 ; -----
033A" 00163248      0430 BCDTBL DB      0,16H,32H,48H,64H,80H,96H
                   648096
                   0431 ; -----
0341" 0000          0432 BI2BCD DW      0000H
0343" 0000          0433      DW      0000H
0345" 9281          0434      DW      8192H
0347" 9640          0435      DW      4096H
0349" 4820          0436      DW      2048H
034B" 2410          0437      DW      1024H
034D" 1205          0438      DW      0512H
034F" 5602          0439      DW      0256H
0351" 2801          0440      DW      0128H
0353" 6400          0441      DW      0064H
0355" 3200          0442      DW      0032H
0357" 1600          0443      DW      0016H
0359" 0800          0444      DW      0008H
035B" 0400          0445      DW      0004H
035D" 0200          0446      DW      0002H
035F" 0100          0447      DW      0001H
                   0448 ; -----
0361" 0100          0449 AS2BIN DW      1
0363" 0A00          0450      DW      10
0365" 6400          0451      DW      100
0367" E803          0452      DW      1000
                   0453 ;
                   0454 ; ++++++
                   0455 ;
0369" (0000)       0456      END

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Errors 0
Program Length 0158 (344)
Data length 0369 (873)

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0001      ENTRY  PS2LS,LS2PS,READ,WRITE,INIRDK,INIWDK
0002      ENTRY  DSKWR,DSKRD,INIDSK,FLUSH,DRVSEL,DRVSL
0003      ENTRY  DMAWR
0004 ;
0005      EXTRN  BINASC,ERR80,DISKWR,DISKRD,MGWAIT
0006      EXTRN  SELDRV,EBCASC,ASCEBC,DIV16,CMPX
0007      EXTRN  TRKSET,SECSET,SETSID,SETDMA,CHKDSK,SETD
      EN
0008 ;
0009      EXTRN  DSKTYP,DSKADR,DSKAD1,DRIVE
0010      EXTRN  TRACK,SIDE,SECTOR,DMASET,SNGDRV,DKRDST,
      WRCMD
0011      EXTRN  LRCLEN,SECLEN,DMABUF,SIDTYP,ADKPAR,BDKP
      AR
0012      EXTRN  MAXMEM,ENDMEM,SD1SEC,CYLSEC,SECNO,CURPA
      R
0013 ;
0014 ;-----
0015 ;
0016      REL
0017 ;
      (00A0) 0018 WRCMD EQU 0A0H
      (000D) 0019 ENTER EQU 0DH
0020 ;
0021 ;-----
0022 ;   drive select   drive no in Acc.
0023 ;-----
0024 ;
0000' CD0600' 0025 DRVSL: CALL  DRVSEL
0003' C30000# 0026      JP    CHKDSK
0027 ;-----
0006' E5      0028 DRVSEL: PUSH  HL
0007' D5      0029      PUSH  DE
0008' C5      0030      PUSH  BC
0009' FDE5    0031      PUSH  IY
000B' 4F      0032      LD    C,A
000C' 210000# 0033      LD    HL,DRIVE      ; set to curren
      t drive - ignore
000F' BE      0034      CP    (HL)
0010' 2817    0035      JR    Z,DRVSL5
0012' 77      0036      LD    (HL),A
0013' 3A0000# 0037      LD    A,(SNGDRV)      ; is in single
      drive mode ?
0016' B7      0038      OR    A
0017' 2810    0039      JR    Z,DRVSL5      ; N:
0040 ;
0019' 79      0041      LD    A,C      ; Y: show messa
      ge
001A' C641    0042      ADD   'A'
001C' 320A00" 0043      LD    (DRVMSG),A
001F' 210100" 0044 DRVSL1: LD    HL,INSDSK
0022' CD0000# 0045      CALL  MGWAIT
0025' FE0D    0046      CP    ENTER
0027' 20F6    0047      JR    NZ,DRVSL1
0048 ;
0029' 3A0D00# 0049 DRVSL5: LD    A,(DRIVE)      ; select that d
      rive

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002C' B7          0050          OR      A
002D' 210000#    0051          LD      HL,ADKPAR
0030' 2803       0052          JR      Z,DRVSL6
0032' 210000#    0053          LD      HL,BDKPAR
0035' 110000#    0054 DRVSL6: LD      DE,CURPAR
0038' 010700     0055          LD      BC,7
003B' EDB0       0056          LDIR
003D' FDE1       0057          POP     IY
003F' C1         0058          POP     BC
0040' D1         0059          POP     DE
0041' E1         0060          POP     HL
0042' C9         0061          RET
0062 ;
0063 ;-----
0064 ;          physical disk address to logical sector no.
0065 ;-----
0066 ;
0067 ;          input  - IX. starting address of disk address
0068 ;          output - HL. logical sector no.
0069 ;
0043' D5         0070 PS2LS:  PUSH    DE
0044' C5         0071          PUSH    BC
0045' 210000     0072          LD      HL,0
0048' ED5B0000# 0073          LD      DE,(CYLSEC)
004C' DD4600     0074          LD      B,(IX)          ; get track
004F' 19         0075 PSL2:   ADD     HL,DE
0050' 10FD       0076          DJNZ   PSL2
0052' DD7E01     0077          LD      A,(IX+1)       ; get side
0055' B7         0078          OR      A
0056' 2803       0079          JR      Z,PSLS3
0058' 3A0000#    0080          LD      A,(SD1SEC)
005B' 5F         0081 PSL3:   LD      E,A
005C' 19         0082          ADD     HL,DE
005D' DD5E02     0083          LD      E,(IX+2)       ; get sector
0060' 19         0084          ADD     HL,DE
0061' C1         0085          POP     BC
0062' D1         0086          POP     DE
0063' C9         0087          RET
0088 ;
0089 ;-----
0090 ;          logical sector no. to physical disk address
0091 ;-----
0092 ;
0093 ;          input  - (SECNO) logical sector no.
0094 ;          - IX.
0095 ;          output - IX. - starting address of disk address
0096 ;
0064' E5         0097 LS2PS:  PUSH    HL
0065' D5         0098          PUSH    DE
0066' C5         0099          PUSH    BC
0067' ED5B4A00# 0100          LD      DE,(CYLSEC)
006B' CD9700'    0101          CALL   DIV
006E' DD7700     0102          LD      (IX),A
0071' 3A0000#    0103          LD      A,(SIDTYP)
0074' B7         0104          OR      A
0075' 2807       0105          JR      Z,LSPS1
0077' 1E1A       0106          LD      E,26

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0079' CD9700'      0107      CALL    DIV
007C' E601         0108      AND     00000001B
007E' DD7701      0109 LSPS1: LD     (IX+1),A
0081' DD360200    0110      LD     (IX+2),0
0085' CD4300'     0111      CALL    PS2LS
0088' ED5B0000#   0112      LD     DE,(SECNO)
008C' EB          0113      EX     DE,HL
008D' B7          0114      OR     A
008E' ED52        0115      SBC   HL,DE
0090' DD7502      0116      LD     (IX+2),L
0093' C1          0117      POP   BC
0094' D1          0118      POP   DE
0095' E1          0119      POP   HL
0096' C9          0120      RET
0121 ;-----
0097' 2A8A00#     0122 DIV:  LD     HL,(SECNO)
009A' 2B          0123      DEC   HL
009B' C30000#    0124      JP    DIV16
0125 ;
0126 ;-----
0127 ;           diskette read/write
0128 ;           with logical disk address
0129 ;-----
0130 ;
009E' DD210000#  0131 READ: LD     IX,DSKAD1
00A2' CD6400'    0132      CALL   LS2PS           ; convert disk
                        address
00A5' C3AE01'    0133      JP    DSKRD           ; and read it
0134 ;
00A8' F5         0135 WRITE: PUSH  AF           ; save deleted
                        data mark flag
00A9' DD21A000#  0136      LD     IX,DSKAD1
00AD' CD6400'    0137      CALL   LS2PS           ; convert disk
                        address
00B0' F1         0138      POP   AF           ; restore delet
                        ed data mark
00B1' C3B400'    0139      JP    DSKWR           ; and write it
0140 ;
0141 ;-----
0142 ;           disk write handler routine
0143 ;-----
0144 ;
0145 ;
00B4' E5         0146 DSKWR: PUSH  HL
00B5' D5         0147      PUSH  DE
00B6' C5         0148      PUSH  BC
00B7' F5         0149      PUSH  AF           ; save deleted
                        data mark status
00B8' 217800"    0150      LD     HL,LWDSK           ; write to prev
                        ious write track ?
00BB' CD8D02'    0151      CALL   CMPDSK
00BE' 2807       0152      JR    Z,DKWRO0           ; Y:
00C0' CD1D01'    0153      CALL   WRTDSK           ; flush last wr
                        ite buffer
00C3' 3EFF       0154      LD     A,OFFH
00C5' 3802       0155      JR    C,DKWRO1
00C7' 3E00       0156 DKWRO0: LD     A,0

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0157 ;
00C9' 320000" 0158 DKWR01: LD      (WRTErr),A
0159 ;
00CC' DD2A7200" 0160 DKWR03: LD      IX,(DMAWR)      ; transfer writ
           e data to write buffer
00D0' FD2A7400" 0161      LD      IY,(DMARD)
00D4' 3A0000# 0162      LD      A,(SECTOR)
00D7' ED5B0000# 0163      LD      DE,(SECLen)
00DB' 217E00" 0164      LD      HL,RDSFLG
00DE' 019800" 0165      LD      BC,WRSFLG
00E1' 3D      0166 DKWR04: DEC      A
00E2' 2808    0167      JR      Z,DKWR05
00E4' 23      0168      INC     HL
00E5' 03      0169      INC     BC
00E6' DD19    0170      ADD     IX,DE
00E8' FD19    0171      ADD     IY,DE
00EA' 18F5    0172      JR      DKWR04
00EC' F1      0173 DKWR05: POP      AF      ; restore delet
           ed data mark flag
00ED' 02      0174      LD      (BC),A      ; and save it
00EE' DDE5    0175      PUSH     IX
00F0' FDE5    0176      PUSH     IY
00F2' E5      0177      PUSH     HL
00F3' C5      0178      PUSH     BC
00F4' 2A0000# 0179      LD      HL,(DMASET)      ; transfer
00F7' 3A0000# 0180      LD      A,(LRCLen)
00FA' 47      0181      LD      B,A
00FB' CD0000# 0182      CALL    ASCEBC      ; and convert A
           SCII to EBCDIC
00FE' 217B00" 0183      LD      HL,LRDSK      ; write to curr
           ent read track
0101' CD8D02' 0184      CALL    CMPDSK
0104' C1      0185      POP     BC
0105' DDE1    0186      POP     IX
0107' D1      0187      POP     DE
0108' E1      0188      POP     HL
0109' 200A    0189      JR      NZ,DKWR08      ; N: return
010B' 0A      0190      LD      A,(BC)      ; Y: transfer t
           o read buffer too
010C' DD7700 0191      LD      (IX),A
010F' ED4BD900# 0192      LD      BC,(SECLen)
0113' EDB0    0193      LDIR
0115' 3A0000" 0194 DKWR08: LD      A,(WRTErr)      ; restore error
           flag
0118' 17      0195      RLA
0119' C1      0196 DKWRET: POP      BC
011A' D1      0197      POP     DE
011B' E1      0198      POP     HL
011C' C9      0199      RET
0200 ;
0201 ;-----
0202 ;
(011D')
011D' 3A7800" 0203 FLUSH  EQU      $
0204 WRTDSK: LD      A,(LWDRV)      ; test first wr
           ite ?
0120' FEFF    0205      CP      OFFH
0122' 2871    0206      JR      Z,WRDSK5      ; Y: - exit

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0207 ;
0124' 4F      0208      LD      C,A
0125' CD0000# 0209      CALL   SELDRV          ; select drive
0128' 3A7900" 0210      LD      A,(LWTRK)
012B' 4F      0211      LD      C,A
012C' CD0000# 0212      CALL   TRKSET          ; select track
012F' 3A7A00" 0213      LD      A,(LWSIDE)
0132' 4F      0214      LD      C,A
0133' CD0000# 0215      CALL   SETSID          ; select side
0136' 2A7200" 0216      LD      HL,(DMAWR)   ; buffer address
                                s
0139' 119800" 0217      LD      DE,WRSFLG   ; delete flag a
                                ddress
013C' 01011A  0218      LD      BC,26*100H+1 ; write 26 sect
                                or begin at sector 1
013F' C5      0219 WRDSK1: PUSH   BC
0140' 1A      0220      LD      A,(DE)
0141' 3C      0221      INC     A          ; this sector c
                                hanged ?
0142' 2847    0222      JR      Z,WRDSK6   ; N: goto next
                                sector
0144' CD0000# 0223      CALL   SECSET          ; select sector
0147' 44      0224      LD      B,H
0148' 4D      0225      LD      C,L
0149' CD0000# 0226      CALL   SETDMA          ; set dma addre
                                ss
014C' 1A      0227      LD      A,(DE)          ; get deleted s
                                ector flag
014D' B7      0228      OR      A
014E' 3EA0    0229      LD      A,WRCMD        ; write sector
                                command
0150' 2801    0230      JR      Z,WRDSK2
0152' 3C      0231      INC     A          ; write deleted
                                sector command
0153' E5      0232 WRDSK2: PUSH   HL
0154' 2A0000# 0233      LD      HL,(WRTCMD)   ; patch write c
                                ommand
0157' 77      0234      LD      (HL),A
0158' E1      0235      POP     HL
                                0236 ;
0159' E5      0237      PUSH   HL
015A' D5      0238      PUSH   DE
015B' 0E0A    0239      LD      C,10          ; error retry c
                                ounter
015D' C5      0240 WRDSK3: PUSH   BC
015E' CD0000# 0241      CALL   DISKWR
0161' C1      0242      POP     BC
0162' 3025    0243      JR      NC,WRDSK4
0164' 0D      0244      DEC     C
0165' 20F6    0245      JR      NZ,WRDSK3
0167' 3A7900" 0246      LD      A,(LWTRK)        ; disk write er
                                ror display
016A' CD0000# 0247      CALL   BINASC
016D' 223E00" 0248      LD      (WTRKER),HL
0170' 3A7800" 0249      LD      A,(LWDRV)
0173' C641    0250      ADD     'A'
0175' 324900" 0251      LD      (WDRVER),A

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0178' 212300"      0252          LD      HL,SFDWER
017B' CD0000#      0253          CALL   ERR80
017E' D1           0254          POP    DE
017F' E1           0255          POP    HL
0180' C1           0256          POP    BC
0181' 3EFF         0257          LD      A,OFFH
0183' 327B00"     0258          LD      (LRDRV),A          ; write error -
                        set read flag
0186' 37           0259          SCF                    ; set carry fla
                        g
0187' 180D         0260          JR      WRDSK9
                        0261 ;
0189' D1           0262 WRDSK4: POP    DE
018A' E1           0263          POP    HL
                        0264 ;
018B' ED4B1101#   0265 WRDSK6: LD      BC,(SECLN)
018F' 09           0266          ADD    HL,BC          ; advance buffe
                        r address
0190' 13           0267          INC    DE          ;          delet
                        ed flag address
0191' C1           0268          POP    BC
0192' 0C           0269          INC    C          ; increment sec
                        tor no.
0193' 10AA        0270          DJNZ   WRDSK1      ; decrement sec
                        tor count
0195' B7           0271 WRDSK5: OR      A
                        0272 ;
0196' F5           0273 WRDSK9: PUSH   AF
0197' 210000#     0274          LD      HL,DSKADR      ; set last writ
                        e disk address
019A' 117800"     0275          LD      DE,LWDSK
019D' 010300      0276          LD      BC,3
01A0' EDB0        0277          LDIR
01A2' 219800"     0278          LD      HL,WRSFLG      ; clear write s
                        tatus flag
01A5' 061A        0279          LD      B,26
01A7' 36FF        0280 WRCLR: LD      (HL),OFFH
01A9' 23          0281          INC    HL
01AA' 10FB        0282          DJNZ   WRCLR
01AC' F1          0283          POP    AF
01AD' C9          0284          RET
                        0285 ;
                        0286 ;-----
                        0287 ;
01AE' E5          0288 DSKRD: PUSH   HL
01AF' D5          0289          PUSH  DE
01B0' C5          0290          PUSH  BC
01B1' 217B00"     0291          LD      HL,LRDSK      ; read from las
                        t read track ?
01B4' CD8D02'     0292          CALL   CMPDSK
01B7' 232A        0293          JR      Z,DKRD03      ; Y: get from r
                        ead buffer
01B9' 217800"     0294          LD      HL,LWDSK      ; read from las
                        t write track ?
01BC' CD8D02'     0295          CALL   CMPDSK
01BF' 2805        0296          JR      Z,DKRD01
01C1' CD0A02'     0297          CALL   RDDSK          ; read all sect

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                                ors
01C4' 181B          0298          JR          DKRD02
                                0299 ;
01C6' 2A7200"     0300 DKRD01: LD          HL,(DMAWR)      ; transfer from
                                write buffer
01C9' ED5B7400"   0301          LD          DE,(DMARD)      ;          to r
                                read buffer
01CD' ED4B7600"   0302          LD          BC,(BUFLEN)
01D1' EDB0        0303          LDIR
01D3' 219800"     0304          LD          HL,WRSFLG
01D6' 117E00"     0305          LD          DE,RDSFLG
01D9' 011A00      0306          LD          BC,26
01DC' EDB0        0307          LDIR
01DE' CD1402'     0308          CALL         RDDSK1      ; read sectors
                                that not be written
01E1' 3823        0309 DKRD02: JR          C,DKRRET      ; error - retur
                                n
                                0310 ;
01E3' 2A7400"     0311 DKRD03: LD          HL,(DMARD)      ; get from read
                                buffer
01E6' 3AD500#     0312          LD          A,(SECTOR)
01E9' ED5B8D01#   0313          LD          DE,(SECLN)
01ED' 017E00"     0314          LD          BC,RDSFLG
01F0' 3D          0315 DKRD04: DEC         A
01F1' 2804        0316          JR          Z,DKRD05
01F3' 03          0317          INC         BC
01F4' 19          0318          ADD         HL,DE
01F5' 18F9        0319          JR          DKRD04
01F7' 0A          0320 DKRD05: LD          A,(BC)      ; get deleted d
                                ata mark status
01F8' F5          0321          PUSH         AF
01F9' DD2AF500#   0322          LD          IX,(DMASET)
01FD' 3AF800#     0323          LD          A,(LRCLN)
0200' 47          0324          LD          B,A
0201' CD0000#     0325          CALL         EBCASC
0204' F1          0326          POP         AF
0205' B7          0327          OR          A
0206' C1          0328 DKRRET: POP         BC
0207' D1          0329          POP         DE
0208' E1          0330          POP         HL
0209' C9          0331          RET
                                0332 ;
                                0333 ;-----
                                0334 ;
020A' 217E00"     0335 RDDSK:  LD          HL,RDSFLG      ; read all sect
                                or
020D' 061A        0336          LD          B,26
020F' 36FF        0337 RDSCLR: LD          (HL),OFFH
0211' 23          0338          INC         HL
0212' 10FB        0339          DJNZ        RDSCLR
                                0340 ;
0214' 3A2A00#     0341 RDDSK1: LD          A,(DRIVE)
0217' 4F          0342          LD          C,A
0218' CD2601#     0343          CALL         SELDRV      ; select drive
021B' 3A0000#     0344          LD          A,(TRACK)
021E' 4F          0345          LD          C,A
021F' CD2D01#     0346          CALL         TRKSET      ; select track

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0222' 3A0000#    0347      LD      A,(SIDE)
0225' 4F         0348      LD      C,A
0226' CD3401#   0349      CALL   SETSID                ; select side
0229' 2A7400"   0350      LD      HL,(DMARD)          ; buffer address
                                s
022C' 117E00"   0351      LD      DE,RDSFLG          ; delete flag a
                                address
022F' 01011A    0352      LD      BC,26*100H+1      ; read 26 secto
                                r begin at sector l
0232' C5        0353 RDSK1:  PUSH   BC
0233' 1A        0354      LD      A,(DE)
0234' 3C        0355      INC     A                    ; have read ?
0235' 203F      0356      JR      NZ,RDSK6          ; Y: skip to ne
                                xt sector
0237' CD4501#   0357      CALL   SECSET              ; select sector
023A' 44        0358      LD      B,H
023B' 4D        0359      LD      C,L
023C' CD4A01#   0360      CALL   SETDMA              ; set dma addre
                                ss
                                0361 ;
023F' E5        0362      PUSH   HL
0240' D5        0363      PUSH   DE
0241' 0E0A      0364      LD      C,10                ; error retry c
                                ounter
0243' C5        0365 RDSK0:  PUSH   BC
0244' CD0000#   0366      CALL   DISKRD
0247' C1        0367      POP    BC
0248' 301F      0368      JR      NC,RDSK2
024A' 0D        0369      DEC    C
024B' 20F6      0370      JR      NZ,RDSK0
024D' 3A1C02#   0371      LD      A,(TRACK)          ; disk read err
                                or display
0250' CD6B01#   0372      CALL   BINASC
0253' 226500"   0373      LD      (RTRKER),HL
0256' 3A1502#   0374      LD      A,(DRIVE)
0259' C641      0375      ADD    'A'
025B' 327000"   0376      LD      (RDRVER),A
025E' 214B00"   0377      LD      HL,SFDRER
0261' CD7C01#   0378      CALL   ERR80
0264' D1        0379      POP    DE
0265' E1        0380      POP    HL
0266' C1        0381      POP    BC
0267' 37        0382      SCF
0268' C9        0383      RET
                                0384 ;
0269' D1        0385 RDSK2:  POP    DE
026A' E1        0386      POP    HL
                                0387 ;
026B' 3A0000#   0388      LD      A,(DKRDST)
026E' E620      0389      AND    00100000B          ; mask for reco
                                rd type
0270' 3E00      0390      LD      A,0
0272' 2801      0391      JR      Z,RDSK3
0274' 3C        0392      INC    A
0275' 12        0393 RDSK3:  LD      (DE),A
0276' ED4BEB01# 0394 RDSK6:  LD      BC,(SECLN)
027A' 09        0395      ADD    HL,BC                ; advance buffe

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                                r address
027B' 13          0396          INC      DE          ;          delet
                                ed flag address
027C' C1          0397          POP      BC
027D' 0C          0398          INC      C          ; increment sec
                                tor no.
027E' 10B2       0399          DJNZ    RDSK1       ; decrement sec
                                tor count
0280' B7          0400          OR      A
0281' 219801#    0401 RDSK9: LD      HL,DSKADR       ; set last read
                                disk address
0284' 117B00"    0402          LD      DE,LRDSK
0287' 010300     0403          LD      BC,3
028A' EDB0       0404          LDIR
028C' C9         0405          RET
                                0406 ;
                                0407 ;-----
                                0408 ;
028D' 3A5702#    0409 CMPDSK: LD      A,(DRIVE)
0290' BE         0410          CP      (HL)
0291' C0         0411          RET     NZ
0292' 23         0412          INC    HL
0293' 3A4E02#    0413          LD      A,(TRACK)
0296' BE         0414          CP      (HL)
0297' C0         0415          RET     NZ
0298' 23         0416          INC    HL
0299' 3A2302#    0417          LD      A,(SIDE)
029C' BE         0418          CP      (HL)
029D' C9         0419          RET
                                0420 ;
                                0421 ;-----
                                0422 ;
029E' 3A0000#    0423 INIDSK: LD      A,(DSKTYP)
02A1' 4F         0424          LD      C,A
02A2' CD0000#    0425          CALL   SETDEN       ; set correct d
                                ensity
02A5' 3A7200#    0426          LD      A,(SIDTYP)
02A8' B7         0427          OR      A
02A9' 2802       0428          JR      Z,INIVR0
02AB' 3E1A       0429          LD      A,26
02AD' 325900#    0430 INIVR0: LD      (SD1SEC),A       ; # sector in s
                                ide 1
02B0' C61A       0431          ADD    26
02B2' 326900#    0432          LD      (CYLSEC),A       ; # sector per
                                cylinder
                                0433 ;
02B5' 3A9F02#    0434          LD      A,(DSKTYP)
02B8' B7         0435          OR      A
02B9' 118000     0436          LD      DE,128
02BC' 01000D     0437          LD      BC,128*26
02BF' 2806       0438          JR      Z,INIVR1
02C1' 110001     0439          LD      DE,256
02C4' 01001A     0440          LD      BC,256*26
02C7' 2A7802#    0441 INIVR1: LD      HL,(SECLN)
02CA' ED53FE01# 0442          LD      (LRCLN),DE
02CE' CD0000#    0443          CALL   CMPX         ; sector length
                                change ?

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02D1' 283E          0444          JR      Z,INIVR6          ; N: continue
02D3' D5           0445          PUSH   DE
02D4' 110001       0446          LD     DE,256           ; Y:
02D7' CDCF02#      0447          CALL  CMPX             ; change fro
                        m 128 to 256 ?
02DA' D1           0448          POP    DE
02DB' 3034         0449          JR     NC,INIVR6       ; N: continu
                        e
02DD' D5           0450          PUSH   DE
02DE' C5           0451          PUSH   BC
02DF' CD1D01'      0452          CALL  FLUSH
02E2' C1           0453          POP    BC
02E3' D1           0454          POP    DE
02E4' ED53C802#    0455          LD     (SECLen),DE
02E8' ED437600"    0456          LD     (BUFLen),BC     ; Y: initial
                        disk buffer
02EC' B7           0457          OR     A
02ED' 2A0000#      0458          LD     HL,(MAXMEM)
02F0' ED42         0459          SBC   HL,BC
02F2' 227400"      0460          LD     (DMARD),HL     ; initial b
                        uffer pointer
02F5' ED42         0461          SBC   HL,BC
02F7' 227200"      0462          LD     (DMAWR),HL
02FA' 25           0463          DEC   H
02FB' 220000#      0464          LD     (ENDMEM),HL
02FE' 2A7600"      0465          LD     HL,(BUFLen)    ; initial c
                        ontent to zero
0301' 29           0466          ADD   HL,HL
0302' 44           0467          LD     B,H
0303' 4D           0468          LD     C,L
0304' 2A7200"      0469          LD     HL,(DMAWR)
0307' 3600         0470          LD     (HL),0
0309' 54           0471          LD     D,H
030A' 5D           0472          LD     E,L
030B' 13           0473          INC   DE
030C' EDB0         0474          LDIR
                        0475 ;
030E' CD2603'      0476          CALL  INIRW
                        0477 ;
0311' 3A8E02#      0478 INIVR6: LD     A,(DRIVE) ; set disk para
                        meter for that drive
0314' B7           0479          OR     A
0315' 112E00#      0480          LD     DE,ADKPAR
0318' 2803         0481          JR     Z,INIVR7
031A' 113300#      0482          LD     DE,BDKPAR
031D' 213600#      0483 INIVR7: LD     HL,CURPAR
0320' 010700       0484          LD     BC,7
0323' EDB0         0485          LDIR
0325' C9           0486          RET
                        0487 ;
0326' CD2F03'      0488 INIRW: CALL  INIWDK
0329' 3EFF         0489 INIRDK: LD     A,OFFH
032B' 327B00"      0490          LD     (LRDRV),A
032E' C9           0491          RET
032F' 3EFF         0492 INIWDK: LD     A,OFFH
0331' 327800"      0493          LD     (LWDRV),A
0334' C9           0494          RET

```



```

0495 ;
0496 ; -----
0497 ;
0498             DATA
0499 ;
0000" 00      0500 WTRERR DB      0
              0501 ; INSDSK DB      's',23,0,31,36,'Insert '
              0502 ; DRVMSG DB      'A: ( and press RETURN ) '
              0503 ; SFDWER DB      's',23,0,37,42,'Disk write error : Trac
              k '
              0504 ; WTRKER DB      '00 ; Drive '
              0505 ; WDRVER DB      'A'
              0506 ; SFDRER DB      's',23,0,36,41,'Disk read error : Track
              '
              0507 ; RTRKER DB      '00 ; Drive '
              0508 ; RDRVER DB      'A'
0001" 0D0A496E 0509 INSDSK DB      0DH,0AH,'Insert '
      73657274
      20
000A" 413A2028 0510 DRVMSG DB      'A: ( and press RETURN ) ','$'
      20616E64
      20707265
      73732052
      45545552
      4E202920
      24
0023" 0D0A4469 0511 SFDWER DB      0DH,0AH,'Disk write error : Track '
      736B2077
      72697465
      20657272
      6F72203A
      20547261
      636B20
003E" 3030203B 0512 WTRKER DB      '00 ; Drive '
      20447269
      766520
0049" 4124      0513 WDRVER DB      'A','$'
004B" 0D0A4469 0514 SFDRER DB      0DH,0AH,'Disk read error : Track '
      736B2072
      65616420
      6572726F
      72203A20
      54726163
      6B20
0065" 3030203B 0515 RTRKER DB      '00 ; Drive '
      20447269
      766520
0070" 4124      0516 RDRVER DB      'A','$'
0072" (0002)    0517 DMAWR  DS      2             ; write dma buf
              fer address
0074" (0002)    0518 DMARD  DS      2             ; read  dma buf
              fer address
0076" (0002)    0519 BUFLN  DS      2
              (0078") 0520 LWDSK  EQU      $             ; last write di
              sk address
0078" FF        0521 LWDRV  DB      OFFH             ; previous driv

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```
0079" (0001)      0522 LWTRK  DS      1          ; previous trac
                   k
007A" (0001)      0523 LWSIDE DS      1          ; previous side
(007B")          0524 LRDSK  EQU     $          ; last read dis
                   k address
007B" FF         0525 LRDRV  DB      OFFH       ; previous driv
                   e
007C" (0001)      0526 LRTRK  DS      1          ; previous trac
                   k
007D" (0001)      0527 LRSIDE DS      1          ; previous side
007E" (001A)      0528 RDSFLG DS      26
0098" (001A)      0529 WRSFLG DS      26
                   0530 ;
                   0531 ;-----
                   0532 ;
00B2" (0000)      0533          END
```

Errors 0

Program Length 0335 (821)

Data length 00B2 (178)

```

0001          ENTRY   STACK,MAXMEM
0002 ;
0003          ENTRY   SCNMAP,SCNATR,SCNSZE,KEYTB1,KEYTB2
0004          ENTRY   FLDATR,CHRPLN,RECNO,SFADR,BUFADR,INSFLG
0005          ENTRY   SCNADR,CURATR,SCNROW,SCNCOL,ROW,COL,ROW
COL
0006          ENTRY   RCPSCN,LNPSCN,LNPREC,FLPREC,SINGLE,BEGS
CN
0007          ENTRY   HITCHR,CHRIN,ENTRY,CONTENT,UNDLINE,COLO
N,ATRFLG
0008          ENTRY   RECADR,ATRADR,BUFPNT,RECLN,OLDOFF,BRWF
LG,SYSFLG,THAFLG
0009          ENTRY   SFADRO,SFADR1,SFADR8,SFADR9,BRKADR,HLP
ADR,HLPFLG
0010          ENTRY   ENDBUF,ENDMEM,BLANK,BLNK80
0011 ;
0012          ENTRY   DSKADR,DSKAD1,DRIVE,TRACK,SIDE,SECTOR,S
ECNO
0013          ENTRY   SECLN,LRCLN,DMASET,DSKTYP,SD1SEC,CYLS
EC,SNGDRV
0014          ENTRY   DMABUF,TRKER1,TRKER2,SIDTYP,CURPAR,ADKP
AR,BDKPAR
0015          ENTRY   VOLID,SECSEQ,TMPBUF,DDRIVE,SDRIVE
0016 ;
0017 ;-----
0018 ;
0019          DATA
0020 ;
(001F) 0021 CTRL   EQU    00011111B
(0000) 0022 BRK    EQU    CTRL AND '@'
0023 ;
(0100) 0024 STACK  EQU    0100H
0000" 00B8 0025 MAXMEM DW    0B800H          ; maximum syste
m memory
0026 ;
0027 ;-----
0028 ;          SYSTEM PARAMETERS
0029 ;-----
0030 ;
0002" 00 0031 DDRIVE  DB     0          ; data drive
0003" FF 0032 SNGDRV  DB     OFFH        ; single drive
flag (ON -> OFFH)
0004" 00 0033 THAFLG  DB     0          ; thai flag -
off ( english mode )
0034 ;
0035 ;-----
0036 ;
0005" 0C 0037 KEYTB2  DB     12          ; sample contro
l table
0006" 4105 0038          DB     'A',CTRL AND 'E'      ; cursor up
0008" 4218 0039          DB     'B',CTRL AND 'X'      ; cursor down
000A" 4304 0040          DB     'C',CTRL AND 'D'      ; cursor right
000C" 4413 0041          DB     'D',CTRL AND 'S'      ; cursor left
000E" 4D16 0042          DB     'M',CTRL AND 'V'      ; character ins
ert
0010" 4C07 0043          DB     'L',CTRL AND 'G'      ; character del
ete

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0012" 4F0E      0044      DB      'O',CTRL AND 'N'      ; line insert
0014" 4E19      0045      DB      'N',CTRL AND 'Y'      ; line delete
0016" 5011      0046      DB      'P',CTRL AND 'Q'      ; PF1
0018" 510B      0047      DB      'Q',CTRL AND 'K'      ; PF2
001A" 5212      0048      DB      'R',CTRL AND 'R'      ; PF3
001C" 5303      0049      DB      'S',CTRL AND 'C'      ; PF4
                0050      ;      DB      'K',CTRL AND 'T'      ; CLR -> ^T (t
                op)
                0051      ;      DB      'H',CTRL AND 'B'      ; HOME -> ^B (b
                ottom)
                0052      ;      DB      'J',CTRL AND 'Q'      ; ^CLR -> ^Q (s
                ave)
001E" (0010)    0053      DS      41-($-KEYTB2)
                0054      ;
002E" 01        0055 KEYTB1  DB      1
002F" 7F07      0056      DB      07FH,CTRL AND 'G'      ; DEL is CD
0031" 26        0057      DB      41-($-KEYTB1)
                0058      ;
0032" B6        0059 INSFLG  DB      'I' XOR OFFH
0033" 8007      0060 SCNSZE  DW      24*80      ; screen size
0035" 00        0061 FLDATR  DB      0      ; field attribu
                te 00,20,E0
0036" 50        0062 CHRPLN  DB      80      ; character per
                line
0037" 01        0063 RECNO   DB      1      ; screen record
                no.
0038" 0100      0064 RECLN   DW      1      ; screen form r
                ecord length
003A" (0002)    0065 SFADR   DS      2      ; current scree
                n form address
003C" (0002)    0066 BUFADR  DS      2      ; current buffe
                r address
003E" (0002)    0067 SCNADR  DS      2      ; data screen m
                ap address
0040" (0002)    0068 CURATR  DS      2      ; attribute scr
                een map address
0042" (0001)    0069 SCNROW  DS      1      ; screen row no
                .
0043" (0001)    0070 SCNCOL  DS      1      ; screen column
                no.
0044" 0100      0071 BEGSCN  DW      1      ; record no. at
                current screen
                (0046")
0046" (0001)    0072 ROWCOL  EQU     $      ; row
0047" (0001)    0073 ROW     DS      1      ; column
0048" 01        0074 COL     DS      1      ; record per sc
                reen
0049" 18        0075 RCPSCN  DB      1      ; line per scre
                en
004A" 01        0076 LNPSCN  DB      24     ; line per reco
                rd
004B" 01        0077 LNPREC  DB      1      ; field per rec
                ord
004C" 4D        0078 FLPREC  DB      1      ; single line m
                ode flag
004D" 00        0079 SINGLE  DB      'M'      ; character ent
                ered flag
                0080 HITCHR  DB      0      ; character ent
                ered flag

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004E" (0001)      0081 CHRIN  DS      1          ; last recently
                   code entered
004F" (0001)      0082 OLDOFF DS      1          ; current field
                   offset
0050" 00         0083 BRWFLG DB      0          ; browse mode -
                   can't key char.
0051" 00         0084 SYSFLG DB      0          ; system flag -
                   not convert ASC/EBCDIC
0052" (0002)      0085 ENTRY  DS      2
0054" (0002)      0086 CONTENT DS      2
0056" 59         0087 UNDLIN DB      'Y'        ; underline mod
                   e flag
0057" 4E         0088 COLON  DB      'N'        ; colon mode fl
                   ag
0058" 00         0089 ATRFLG DB      0          ; input attribu
                   te flag (00h,20h)
0059" 0000       0090 BRKADR DW      0          ; Break-key exi
                   t address
005B" 0000       0091 HLPADR DW      0          ; Help file FCB
                   . address
005D" 00         0092 HLPFLG DB      0          ; help flag mod
                   e
005E" (0002)      0093 RECADR DS      2
0060" (0002)      0094 ATRADR DS      2
0062" (0002)      0095 SFADRO DS      2
0064" (0002)      0096 SFADR1 DS      2
0066" (0002)      0097 SFADR8 DS      2
0068" (0002)      0098 SFADR9 DS      2
006A" (0002)      0099 BUFPNT DS      2
006C" (0002)      0100 ENDBUF DS      2
006E" (0002)      0101 ENDMEM DS      2
0070" 5300004F  0102 BLNK80 DB      'S',0,0,79,84
                   54
0075" 20202020  0103 BLANK  DB      '
                   20202020
                   20202020
                   20202020
                   20202020
0089" 20202020  0104          DB      '
                   20202020
                   20202020
                   20202020
                   20202020
009D" 20202020  0105          DB      '
                   20202020
                   20202020
                   20202020
                   20202020
00B1" 20202020  0106          DB      '
                   20202020
                   20202020
                   20202020
                   20202020
                   0107 ;
                   0108 ;+++++
                   0109 ;
(00C5")          0110 DSKADR EQU      $          ; current disk

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```

                                address 3 bytes
(00C6")      0111 DSKAD1 EQU      $+1
00C5" 00     0112 DRIVE  DB      000H          ; drive no.
00C6" FF     0113 TRACK  DB      0FFH          ; track no.
00C7" FF     0114 SIDE   DB      0FFH          ; side no.
00C8" FF     0115 SECTOR DB      0FFH          ; sector no.
                                0116 ;
00C9" 0100   0117 SECNO  DW      1            ; logical secto
                                r no.
00CB" 8000   0118 LRCLEN DW     128          ; logical recor
                                d length
00CD" (0002) 0119 DMASET DS      2            ; DMA address
00CF" (0001) 0120 TRKER1 DS      1            ; first defecti
                                ve track
00D0" (0001) 0121 TRKER2 DS      1            ; second defect
                                ive track
00D1" (0006) 0122 VOLID  DS      6            ; Diskette volu
                                me ID.
00D7" (0002) 0123 SECSEQ DS      2            ; sector sequen
                                ce ASCII digits
00D9" 00     0124 SDRIVE DB      0            ; system drive
                                0125 ;
(00DA")      0126 CURPAR EQU      $            ; current disk
                                parameters
00DA" 0100   0127 SECLN  DW      1            ; physical sect
                                or length
00DC" 00     0128 SD1SEC DB      0            ; number of sec
                                tors in side 1
00DD" 1A00   0129 CYLSEC DW     26          ; number of sec
                                tors per cylinder
00DF" 00     0130 DSKTYP DB      0            ; 0 - 128 bytes
                                , 1 - 256 bytes
00E0" 00     0131 SIDTYP DB      0            ; 0 - single si
                                de 1 - double side
(00E1")      0132 ADKPAR EQU      $            ; disk paramete
                                rs for drive A
00E1" 8000   0133         DW     128
00E3" 00     0134         DB      0
00E4" 1A00   0135         DW     26
00E6" 00     0136         DB      0
00E7" 00     0137         DB      0
(00E8")      0138 BDKPAR EQU      $            ; disk paramete
                                rs for drive B
00E8" 8000   0139         DW     128
00EA" 00     0140         DB      0
00EB" 1A00   0141         DW     26
00ED" 00     0142         DB      0
00EE" 00     0143         DB      0
                                0144 ;
                                0145 ;=====
                                0146 ;
0147         ENTRY   CONIN
0148         ENTRY   TRMIN
0149         ENTRY   TRMOUT
0150         ENTRY   TKZERO
0151         ENTRY   TRKSET
0152         ENTRY   SECSET

```

```

0153          ENTRY  SETDMA
0154          ENTRY  DISKRD
0155          ENTRY  DISKWR
0156          ENTRY  SELDRV
0157          ENTRY  TSTAT
0158          ENTRY  DSKSTA
0159          ENTRY  SETDEN
0160          ENTRY  SETSID
0161          ENTRY  LSTOUT,LSTSTA,LSTOUI
0162          ENTRY  DISKST,DKRDST,WRTCMD
0163 ;
0164 ;*****
0165 ;
0166 ;   Physical I/O Drivers routine
0167 ;
0168 ;*****
0169 ;
(F800) 0170 FW:      EQU    0F800H
(F803) 0171 CONIN:  EQU    FW+03H      ; Terminal input
      t
(F806) 0172 TRMOUT: EQU    FW+06H      ; Terminal output
      t
(F809) 0173 TKZERO: EQU    FW+09H      ; Reset to track zero
      k zero
(F80C) 0174 TRKSET: EQU    FW+0CH      ; Track setting
(F80F) 0175 SECSET: EQU    FW+0FH      ; Sector setting
      g
(F812) 0176 SETDMA: EQU    FW+12H      ; Set DMA address
      ss
(F815) 0177 DISKRD: EQU    FW+15H      ; Disk read
(F818) 0178 DISKWR: EQU    FW+18H      ; Disk write
(F81B) 0179 SLDREV: EQU    FW+1BH      ; Select drive
(F821) 0180 TSTAT:  EQU    FW+21H      ; Terminal input status
      t status
(F827) 0181 DSKSTA: EQU    FW+27H      ; diskette status
      us
(F82D) 0182 SETDEN: EQU    FW+2DH      ; Set disk density
      ity
(F830) 0183 SETSID: EQU    FW+30H      ; Set disk side
(F833) 0184 LSTOUT: EQU    FW+33H      ; print character ( wait )
      er ( wait )
(F836) 0185 LSTSTA: EQU    FW+36H      ; print status
(F840) 0186 LSTOUI: EQU    FW+40H      ; print character ( no wait )
      er ( no wait )
(FBFA) 0187 DISKST EQU    FW+3FAH      ; disk controller board status
      er board status
(FBFC) 0188 DKRDST EQU    FW+3FCH      ; disk read status
      tus
(F83C) 0189 WRTCMD EQU    FW+3CH      ; write command
      A0H,A1H
0190 ;
0191 ;*****
0192 ;
00EF" 3A0300" 0193 SELDRV: LD      A,(SNGDRV)      ; select drive
      for single drive system
00F2" B7      0194          OR      A
00F3" 2802    0195          JR      Z,SELDR1

```

```

00F5" 0E00          0196          LD      C,0
00F7" C31BF8       0197 SELDRI: JP      SLDRV
                   0198 ;
00FA" CD03F8       0199 TRMIN: CALL    CONIN
00FD" FE00         0200          CP      BRK          ; Break-key ?
00FF" C0           0201          RET     NZ
0100" E5           0202          PUSH   HL
0101" 2A5900"      0203          LD      HL,(BRKADR)
0104" 7C           0204          LD      A,H
0105" B5           0205          OR     L
0106" 2804         0206          JR     Z,TRMIN9
0108" 310001       0207          LD      SP,STACK
010B" E9           0208          JP     (HL)          ; branch to pro

                   cess
010C" E1           0209 TRMIN9: POP    HL
010D" 3E00         0210          LD      A,BRK
010F" C9           0211          RET
                   0212 ;
                   0213 ;-----
                   0214 ;
0110" (0780)       0215 SCNMAP DS     24*80
0890" (0780)       0216 SCNATR DS     24*80
1010" (0100)       0217 TMPBUF DS     256
1110" (0080)       0218 DMABUF DS     128
                   0219 ;
1190" (0000)       0220          END

Errors            0

Data length      1190 (4496)

```

```

0001          ENTRY   CHKDSK
0002          EXTRN   DSKRD,ERR80,ASCBIN,INIDSK
0003          EXTRN   TKZERO,SELDRV,INIRDK
0004 ;
0005          EXTRN   TRACK,SIDE,SECTOR,DMASET
0006          EXTRN   DISKST,SIDTYP,DRIVE,SECLEN,SECSEQ,SYSFL
G
0007          EXTRN   VOLID,TMPBUF,TRKER1,TRKER2,DSKTYP,LRCLE
N
0008 ;
0009 ;=====
0010 ;   IBM formatting diskette checking routine
0011 ;=====
0012 ;
0013          REL
0014 ;
0000' E5      0015  CHKDSK: PUSH   HL
0001' D5      0016          PUSH   DE
0002' C5      0017          PUSH   BC
0003' 210000# 0018          LD     HL,SYSFLG
0006' 4E      0019          LD     C,(HL)
0007' C5      0020          PUSH   BC
0008' CD0000# 0021          CALL  INIRDK
000B' 3600    0022          LD     (HL),0           ; set system of
f
000D' 3A0000# 0023          LD     A,(DRIVE)
0010' 4F      0024          LD     C,A
0011' CD0000# 0025          CALL  SELDRV
0014' CD0000# 0026          CALL  TKZERO           ; recalibrate d
isk drive
0017' 218000  0027          LD     HL,128
001A' 220000# 0028          LD     (LRCLEN),HL       ; set record le
ngth to 128
001D' AF      0029          XOR    A           ; read track 0,
side 0
001E' 320000# 0030          LD     (TRACK),A       ; sector 7
0021' 320000# 0031          LD     (SIDE),A
0024' 3E07    0032          LD     A,7
0026' 320000# 0033          LD     (SECTOR),A
0029' 210000# 0034          LD     HL,TMPBUF
002C' 220000# 0035          LD     (DMASET),HL
002F' CD0000# 0036          CALL  DSKRD           ; issue read di
sk
0032' DAE900' 0037          JP     C,CHKERO       ; error return
0035' DD212A00# 0038          LD     IX,TMPBUF
0039' DD7E4F  0039          LD     A,(IX+79)
003C' FE57    0040          CP     'W'
003E' C2E300' 0041          JP     NZ,CHKER1       ; not an IBM fo
rmat
0041' DD7E00  0042          LD     A,(IX+0)
0044' FE56    0043          CP     'V'
0046' C2EC00' 0044          JP     NZ,CHKER2       ; missing volum
e label
0049' 213700# 0045          LD     HL,TMPBUF
004C' 010400  0046          LD     BC,4
004F' 09      0047          ADD    HL,BC
0050' 110000# 0048          LD     DE,VOLID

```

```

0053' 010600      0049      LD      BC,6
0056' EDB0        0050      LDIR                      ; get volume ID

0058' 3A0000#    0051      LD      A,(DISKST)        ; get disk stat
                        us

005B' E608        0052      AND     00001000B
005D' EE08        0053      XOR     00001000B
005F' 0F          0054      RRCA
0060' 0F          0055      RRCA
0061' 0F          0056      RRCA
0062' 4F          0057      LD      C,A
0063' DD7E4B      0058      LD      A,(IX+75)
0066' FE20        0059      CP      ' '                ; sector length
                        = 128

0068' 280F        0060      JR      Z,CHK02
006A' FE31        0061      CP      '1'                ; sector length
                        = 256

006C' C2F100'    0062      JP      NZ,CHKER3
006F' DD7E47      0063      LD      A,(IX+71)        ; if 256 volume
                        surface must be

0072' 81          0064      ADD     A,C                ; 'M'
0073' FE4E        0065      CP      'M'+1
0075' 207A        0066      JR      NZ,CHKER3        ; N: error
0077' 180C        0067      JR      CHK03
                        0068 ;

0079' DD7E47      0069  CHK02: LD      A,(IX+71)        ; if 128 volume
                        surface must be

007C' 81          0070      ADD     A,C                ; ' ' or '2'
007D' FE20        0071      CP      ' '
007F' 2804        0072      JR      Z,CHK03
0081' FE33        0073      CP      '2'+1
0083' 206C        0074      JR      NZ,CHKER3
                        0075 ;

0085' 79          0076  CHK03: LD      A,C
0086' 320000#    0077      LD      (SIDTYP),A        ; side ( 0 - si
                        ngle, 1 - double )

0089' DD7E4B      0078      LD      A,(IX+75)
008C' E601        0079      AND     00000001B
008E' 320000#    0080      LD      (DSKTYP),A        ; 0 - 128 bytes
                        , 1 - 256 bytes
                        0081 ;

0091' DD6E4C      0082      LD      I,(IX+76)
0094' DD664D      0083      LD      H,(IX+77)
0097' 220000#    0084      LD      (SECSEQ),HL        ; sector sequen
                        ce code
                        0085 ;

009A' 3E05        0086  ERMAP: LD      A,5                ; get sector 5
                        ERMAP

009C' 322700#    0087      LD      (SECTOR),A
009F' CD3000#    0088      CALL   DSKRD
00A2' 3845        0089      JR      C,CHKERO
00A4' 3E00        0090      LD      A,0
00A6' 320000#    0091      LD      (TRKER1),A        ; clear error t
                        rack

00A9' 320000#    0092      LD      (TRKER2),A
                        0093 ;

00AC' DD214A00#  0094      LD      IX,TMPBUF

```

```

00B0' DD7E08      0095      LD      A,(IX+8)
00B3' FE20        0096      CP          ; any error ?
00B5' 281F        0097      JR      Z,CHK08      ; N: - exit
00B7' DD6E06      0098      LD      L,(IX+6)
00BA' DD6607      0099      LD      H,(IX+7)
00BD' CD0000#     0100      CALL   ASCBIN
00C0' 32A700#     0101      LD      (TRKER1),A      ; get first err
                        or track
                        0102 ;
00C3' DD7E0C      0103      LD      A,(IX+12)
00C6' FE20        0104      CP          ; any more erro
                        r ?
00C8' 280C        0105      JR      Z,CHK08      ; N: - exit
00CA' DD6E0A      0106      LD      L,(IX+10)
00CD' DD660B      0107      LD      H,(IX+11)
00D0' CDBE00#     0108      CALL   ASCBIN
00D3' 32AA00#     0109      LD      (TRKER2),A      ; get second er
                        ror track
                        0110 ;
00D6' CD0000#     0111  CHK08:  CALL   INIDSK
00D9' B7          0112      OR      A          ; clear carry f
                        lag
                        0113 ;
00DA' C1          0114  CHK09:  POP     BC
00DB' 210400#     0115      LD      HL,SYSFLG
00DE' 71          0116      LD      (HL),C      ; restore syste
                        m flag
00DF' C1          0117      POP     BC
00E0' D1          0118      POP     DE
00E1' E1          0119      POP     HL
00E2' C9          0120      RET
0121 ;
0122 ;-----
0123 ;
00F3' 210000"     0124  CHKER1: LD      HL,SFER1      ; display error
                        message
00E6' CD0000#     0125  CHKERR: CALL   ERR80
00E9' 37          0126  CHKERO: SCF
00EA' 18EE        0127      JR      CHK09
0128 ;
00EC' 211500"     0129  CHKER2: LD      HL,SFER2
00EF' 18F5        0130      JR      CHKERR
0131 ;
00F1' 212C00"     0132  CHKER3: LD      HL,SFER3
00F4' 18F0        0133      JR      CHKERR
0134 ;
0135 ;-----
0136 ;
0137 ;
0138      DATA
0139 ;
0140 ;SFER1 DB      's',23,0,18,23,'Not the IBM format'
0141 ;SFER2 DB      's',23,0,20,25,'Missing volume label'
0142 ;SFER3 DB      's',23,0,21,26,'Illegal diskette type'
0000" 0D0A4E6F    0143  SFER1  DB      0DH,0AH,'Not the IBM format','$'
74207468
65204942

```

```

4D20666F
726D6174
24
0015" 0D0A4D69      0144 SFER2  DB      0DH,0AH,'Missing volume label','$'
7373696E
6720766F
6C756D65
206C6162
656C24
002C" 0D0A496C      0145 SFER3  DB      0DH,0AH,'Illegal diskette type','$'
6C656761
6C206469
736B6574
74652074
79706524

                                0146 ;
0044" (0000)              0147      END

Errors                      0

Program Length  00F6 (246)
Data length     0044 (68)
```


		0001	EXTRN	SEARCH,OPEN,CLOSE,DSMRD,DRVSL,DMASET,IN
			IVAR	
		0002	EXTRN	SNGDRV,DRVSEL,CHKDSK
	(0002)	0003	CONOUT EQU	02H
	(0009)	0004	PRTSTR EQU	09H
	(0005)	0005	BDOS EQU	05H
0000'		0006	START:	ORG 100H
0100	CD0000#	0007	CALL	INIVAR
0103	3E00	0008	LD	A,0
0105	320000#	0009	LD	(SNGDRV),A
0108	3AF001	0010	LD	A,(FCB)
010B	CD0000#	0011	CALL	DRVSEL
010E	CD0000#	0012	CALL	CHKDSK
0111	ED73EE01	0013	LD	(OLDSP),SP
0115	31B402	0014	LD	SP,STKTOP
0118	110C02	0015	LD	DE,NOTFIND
011B	21F001	0016	LD	HL,FCB
011E	CD0000#	0017	CALL	OPEN
0121	DA5F01	0018	JP	C,EXIT
0124	216E01	0019	READX: LD	HL,BUFFER
0127	220000#	0020	LD	(DMASET),HL
012A	FD21F001	0021	LD	IY,FCB
012E	AF	0022	XOR	A
012F	CD0000#	0023	CALL	DSMRD
0132	111D02	0024	LD	DE,IOER
0135	DA5F01	0025	JP	C,EXIT
0138	E5	0026	PUSH	HL
0139	2A0402	0027	LD	HL,(RECNO)
013C	23	0028	INC	HL
013D	220402	0029	LD	(RECNO),HL
0140	E1	0030	POP	HL
0141	3C	0031	INC	A
0142	CA5C01	0032	JP	Z,END
0145	018000	0033	LD	BC,0128
0148	216E01	0034	LD	HL,BUFFER
014B	7E	0035	PRINT: LD	A,(HL)
014C	5F	0036	LD	E,A
014D	C5	0037	PUSH	BC
014E	E5	0038	PUSH	HL
014F	0E02	0039	LD	C,CONOUT
0151	CD0500	0040	CALL	BDOS
0154	E1	0041	POP	HL
0155	C1	0042	POP	BC
0156	23	0043	INC	HL
0157	0D	0044	DEC	C
0158	20F1	0045	JR	NZ,PRINT
015A	18C8	0046	JR	READX
015C	112902	0047	END: LD	DE,OK
015F	0E09	0048	EXIT: LD	C,PRTSTR
0161	CD0500	0049	CALL	BDOS
0164	21F001	0050	LD	HL,FCB
		0051	;	CALL CLOSE
0167	ED7BEE01	0052	LD	SP,(OLDSP)
016B	C30000	0053	JP	0
016E	(0080)	0054	BUFFER: DS	128
01EE	(0002)	0055	OLDSP: DS	2
01F0	015A4A41	0056	FCB: DB	01H,'ZJAPCBL2'

```

5043424C
32
01F9 50000000 0057 DB 50H,00H,00H,00H,00H,00H
0000
01FF 20202000 0058 DB ' ',00H,00H,01H,00H
000100
0206 30303030 0059 DB 30H,30H,30H,30H,30H,30H
3030
(0204) 0060 RECNO EQU FCB+20
020C 0D0A4649 0061 NOTFIND: DB 0DH,0AH,'FILE NOT FOUND$'
4C45204E
4F542046
4F554E44
24
021D 0D0A492D 0062 IOER: DB 0DH,0AH,'I-O ERROR$'
4F204552
524F5224
0229 0D0A434F 0063 OK: DB 0DH,0AH,'COMPLETE$'
4D504C45
544524
0234 (0080) 0064 DS 128
(02B4) 0065 STKTOP: EQU $
02B4 (0000') 0066 END START

Errors 0

```



ประวัติผู้เขียน

นายสันติ กัระนันท์ เกิดวันที่ 8 กุมภาพันธ์ 2505 สำเร็จการศึกษานิติบัณฑิต (เกียรตินิยม) สาขาวิชาการบัญชี จากภาควิชาการบัญชี คณะพาณิชยศาสตร์และการบัญชี จุฬาลงกรณ์มหาวิทยาลัย ปีการศึกษา 2526 เข้าศึกษาระดับปริญญาโท สาขาวิชา วิทยาศาสตร์คอมพิวเตอร์ ภาควิชาวิศวกรรมคอมพิวเตอร์ ในปี พ.ศ. 2527

ปัจจุบันทำงานในตำแหน่งนักวิเคราะห์ระบบ แผนกระบบรายงานการบัญชี ประจำ ศูนย์คอมพิวเตอร์ สายบริการกลาง บริษัทปูนซีเมนต์ไทย จำกัด เป็นผู้บรรยายพิเศษ วิชา หลักภาษาโคบอล ภาควิชาสถิติ คณะพาณิชยศาสตร์และการบัญชี จุฬาลงกรณ์มหาวิทยาลัย วิชา ระบบคอมพิวเตอร์ ภาควิชาสถิติประยุกต์ คณะครุศาสตร์อุตสาหกรรมและวิทยาศาสตร์ สถาบัน เทคโนโลยีพระจอมเกล้า วิทยาเขตเจ้าคุณทหาร ลาดกระบัง