ARAPPLE COMPUTER

SOFTWARE MANUAL

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SECTION 1. INTRODUCTION

This manual provides information for writing and running programs in the Arabic mode on the ARAPPLE computer. The reader should be familiar with information in the following reference documents:

(1) Applesoft II, Basic Programming Reference Manual;

(2) Applesoft Disk Operating System Instructional and Reference Manual (DOS 3.2);

(3) User's Manual for Model 761 Teleprinter (ARABPRINT 60 manual).

This manual contains specific rules to follow when writing programs to run in the Arabic mode. Also included are three reference tables: decimal ASCII code for Arabic characters; the decimal code for the ARABPRINT 60 character set; and the Arabic Basic Operating Commands.

SECTION 2. ENGLISH AND ARABIC MODES

The ARAPPLE computer can be in either of two modes of operation: English or Arabic. The mode is determined by the position of the switch mounted on a card accessible at the rear of the chassis. This card is in the first vertical opening (i.e., the far right slot of the unit when viewed from the rear). The home position of the cursor on the video display indicates the mode of the unit. Table 2-1 summarizes this information, and lists the correct procedure for changing between modes.

Table 2-1. ARAPPLE Modes of Operation

MODE	SWITCH POSITION	INDICATION
English	Down	Video display cursor (*) on left side of screen.
Arabic	Up	Video display cursor (*) on right side of screen.

To change the mode, follow this procedure:

(1) Press RESET button.

(2) Change position of the switch.

(3) Press RESET button.

(4) Verify correct indication of the desired mode on the video display.

SECTION 3. INITIALIZING A BLANK DISKETTE

Before writing Arabic programs, a blank diskette must be initialized. This diskette is used to store programs and data files.

Initialize the diskette using the procedure described in the DOS 3.2 reference manual (pages 13-14). Be sure to use the proper System Master Diskette received with the ARAPPLE computer:

DOS 3.1 ARAPPLE (16K) for a 16K machine;

DOS 3.1 ARAPPLE (32K) for a 32K machine;

DOS 3.1 ARAPPLE (48K) for a 48K machine.

Note that the initialization procedure in DOS 3.1 is written as follows:

INIT filename, drive number, volume number

For example,

INIT HELLO, D1, V1

SECTION 4. WRITING PROGRAMS TO BE RUN IN ARABIC MODE

4-1. INTRODUCTION

All programs are written and debugged in the English mode. Programs can be run in either English or Arabic mode. This section lists important considerations for programs to be run in the Arabic mode.

4-2. PRINTING A STRING WITH THE PRINT COMMAND

When using the PRINT command to print a string in the Arabic mode, type it as written in Arabic.

For example, to print " صباح الخير " in the Arabic mode, write the following statement (or one like it):

    10 PRINT "NBAF A'G$J"

It is important to insert the space character after the letter F, to separate the two words " صباح " and " الخير ". Otherwise, the output will be printed "صباحالخير".

RULE

Leave a space character after the following characters if they are located at the end of a word:

ب، ت، ث، ج، ح، خ، س، ش، ص، ض، ع، غ، ف، ق

4-3. HTAB AND TAB COMMANDS

HTAB moves the cursor to a designated position from the left edge of the current screen line in the English mode.

To move the cursor to a designated position from the right edge (for the Arabic mode), change the expression from HTAB S to HTAB (40-S), where S is an integer value from one to 40.

This rule also applies to the TAB command.

4-4. RESTRICTIONS ON LITERAL INPUT CHARACTERS FROM AN INPUT REQUEST

If an INPUT statement requires literal data from the user, the comma (,) and the colon (:) are not valid characters. However, in the Arabic mode, the comma represents " " and the colon represents " لا ", which are two commonly used input characters.

To solve this problem and allow the user to input any character, write a general GET routine using the GET command (refer to Applesoft manual, p. 167) to accept any character from the keyboard.

4-5. RESTRICTIONS ON LITERAL INPUT CHARACTERS USED FOR A FILE NAME

If an INPUT statement requires literal data from the user which is to be used for a file name, the comma and the colon are not valid characters.

To solve this problem, use the general GET routine (see paragraph 4-4) to accept the character. Then replace the comma and colon with two other characters such as "   " and "   " to make a valid file name.

4-6. INPUT STATEMENT AND NUMERIC STRINGS

If an INPUT statement in the Arabic mode requires a *numeric string* from the user, it must be inverted before any operations are performed on it. This is because numbers in Arabic are written from right to left, but numeric strings in the computer are concatenated from left to right regardless of the mode (English or Arabic).

For example, to enter the string " ٤٣٢١ ", the user types in this sequence: " ١ ", " ٢ ", " ٣ ", " ٤ ". This string will be stored as "1234". Accessing the value by the VAL command provides the reversed value: " ١٢٣٤ ". Reversing the digits upon input provides the desired value.

4-7. FILE RECORD NUMBERS

If any record from a file is to be read or written in the Arabic mode, then the record number which will be used in the READ or WRITE statement must be reversed before executing the command. Otherwise, the record number with reverse digits is accessed, due to the transposition described in paragraph 4-6.

For example, to read record no. 21 stored in the file named TESTFILE use this statement:

    20 PRINT CHR$(4); "READ TESTFILE, R"; 12

SECTION 5. RUNNING PROGRAMS IN ARABIC MODE

This procedure describes running a program in the Arabic mode. The program has been written, debugged, and stored on an initialized diskette. In this example, the program is named "ARABIC PROGRAM."

(1)   Turn power on.

(2)   Set the unit in English mode.

(3)   Boot the diskette on which "ARABIC PROGRAM" is saved.

(4)   Type LOAD ARABIC PROGRAM; press RETURN key.

(5)   After program is loaded, press RESET button.

(6)   Set the mode switch at the rear of the unit into the Arabic position (UP).

(7)   Press RESET button; verify cursor (*) at right side of screen.

(8)   Press CTRL -C by simultaneously holding down the CONTROL key and the C key; press RETURN key.

(9)   Type CALL 976 which will appear as " تا س-س ٦٧٩ "; press RETURN key.

(10)   Type " نفذ " to run the program in the Arabic mode.

SECTION 6. ARABPRINT 60 OPERATIONS

6-1. INTRODUCTION

The ARABPRINT 60 line printer prints either Arabic or English characters. The Arabic character set is the primary set of the printer. This section describes setting the printer in either mode, both manually and automatically under software program control.

6-2. MANUAL OPERATION

Turn on the printer by setting the power switch on the rear panel in the up position. Observe that the power indicator comes on, and that the print head moves to the Arabic home position at the right side.

6-2.1 Select Arabic Character Set

To select Arabic mode after the turn-on procedure:

(1) Press SELECT button on the front panel.

(2) Press ON LINE button on the front panel.

To select the Arabic mode if the machine is in the English mode:

(1) Press ALT CHAR button (the red lamp is off).

(2) Press SELECT button (the red lamp is off).

(3) Press SELECT button a second time (the red lamp turns on, and the print head moves from the left side to the right side).

6-2.2 Select English Character Set

To select the English mode, after the turn-on procedure and prior to running the program for English printout, do the following:

(1) Press ALT CHAR button.

(2) Press SELECT button.

(3) Press ON LINE button.

To select the English mode if the machine is in the Arabic mode:

(1) Press ALT CHAR button (the red lamp is on).

(2) Press SELECT button (the red lamp goes off).

(3) Press SELECT button a second time (the red lamp comes on, and the print head moves to the left side).

6-3 PROGRAMMED OPERATION

The mode of the ARABPRINT 60 can be changed under program control to print in either mode, or to print using both character sets on the same line. To operate the printer under program control, define the following strings in the program:

```
E$  = CHR$(27)
N$  = CHR$(14)
O$  = CHR$(15)
S$  = CHR$(19)
Q$  = CHR$(17)
```

Then set the line printer into either mode manually.

6-3.1   Select Arabic Character Set

To select the Arabic mode when the printer is in the English mode, add the following subroutine to the program. Calling the routine with GOSUB 100 makes the desired change.

```
100 PRINT E$; S$; O$:  FOR J=1 TO 500:  NEXT J:
    PRINT E$; Q$:  FOR J=1 TO 2000: NEXT J:  RETURN
```

6-3.2   Select English Character Set

To select the English mode when the printer is in the Arabic mode, add the following subroutine to the program. Calling the routine with GOSUB 200 makes the desired change.

```
200 PRINT E$; S$; N$:  FOR J=1 TO 500:  NEXT J:
    PRINT E$; Q$:  FOR J=1 TO 2000: NEXT J:  RETURN
```

6-3.3   Arabic and English in Arabic Mode

To print Arabic and English on the same line with the printer in the Arabic mode, write the PRINT statements in the following manner:

(1)   Print the Arabic part followed by a semicolon (;).

(2)   Print N$, followed by a semicolon (;).

(3)   Print the English part in the reverse order (i.e., from right to left).

For example, to print out the line "HELLO   هلو ", use the statement:

```
10 PRINT "ZA', "; N$; "OLLEH"
```

6-3.4   Arabic and English in English Mode

To print English and Arabic on the same line with the printer in the English mode, write the PRINT statements in the following manner:

(1)   Print the English part followed by a semicolon.

(2)   Print O$, followed by a semicolon.

(3)   Print the Arabic part in reverse order (i.e., from left to right).

For example, to print out the line "HELLO ‏هالو‏ ", use the statement:

    20 PRINT "HELLO"; O$; " ,'AZ"

Note:

Remember that you should always initialize the printer prior to printing any character on it. This initialization process should be done as follows:

    10 PR #4: PRINT

With the assumption that the interface card for the printer is installed in slot #4.

TABLE A-1. ARABIC ASCII CHARACTER CODES

CODE		CHARACTER	CODE		CHARACTER
Decimal	Hexadecimal		Decimal	Hexadecimal	
32	20		62	3E	ڤ
33	21	ٮ	63	3F	ء
34	22	×	64	40	ؤ
35	23	÷	65	41	ٻ
36	24	ٻ	66	42	ت
37	25	ک	67	43	ث
38	26		68	44	ج
39	27	ل	69	45	ح
40	28	(	70	46	خ
41	29	)	71	47	د
42	2A	٭	72	48	ذ
43	2B	+	73	49	ر
44	2C	و	74	4A	ز
45	2D	ـ	75	4B	س
46	2E	؛	76	4C	ش
47	2F	/	77	4D	ص
48	30	٠	78	4E	ض
49	31	١	79	4F	ط
50	32	٢	80	50	ظ
51	33	٣	81	51	ع
52	34	٤	82	52	غ
53	35	٥	83	53	ق
54	36	٦	84	54	ق
55	37	٧	85	55	ك
56	38	٨	86	56	ل
57	39	٩	87	57	م
58	3A	ى	88	58	ن
59	3B	ي	89	59	ه
60	3C	ى	90	5A	ه
61	3D	=	94	5E	ء

TABLE A-2. ARABPRINT 60 CHARACTER SET WIDTHS

WIDTH IN DOTS	ASCII CODE DEC	ASCII CODE HEX	CHARACTER ARABIC	CHARACTER ENGLISH	WIDTH IN DOTS	ASCII CODE DEC	ASCII CODE HEX	CHARACTER ARABIC	CHARACTER ENGLISH
1	160	A0	·	p	6	127	7F	ل	W
3	101	65	ا	A	6	131	83	ن	Y
4	40	28		▽	6	145	91	ج	e
4	50	32	(	(	6	146	92	ح	f
4	51	33	)	)	6	147	93	خ	g
4	56	38		.	6	162	A2	ع	r
5	41	29		!	6	163	A3	غ	s
5	44	2C		$	6	165	A5	ق	u
5	45	2D		%	6	170	AA	م	x
5	46	2E		&	7	42	2A		"
5	47	2F		'	7	43	2B		#
5	54	36	و	,	7	52	34		*
5	60	3C	ا	0	7	53	35		+
5	61	3D		1	7	55	37		--
5	102	66		B	7	62	3E	٢	2
5	103	67		C	7	63	3F	٣	3
5	104	68		D	7	65	41	٥	5
5	105	69		E	7	75	4B		=
5	106	6A		F	7	76	4C		>
5	107	6B		G	7	114	72		L
5	112	70		J	7	115	73		M
5	113	71		K	7	120	78		P
5	124	7C		T	7	121	79		Q
5	125	7D		U	7	126	7E		V
5	130	82		X	7	132	84	ه	Z
5	136	88		·	7	142	8E	ب	b
6	64	40		4	7	143	8F	ت	c
6	66	42		6	7	144	90	ث	d
6	71	47		9	8	57	39	/	/
6	72	48		:	8	164	A4	ف	t
6	73	49		;	9	67	43	٧	7
6	74	4A		<	9	70	46	٨	8
6	77	4D		?	9	116	74		N
6	100	64		@	9	117	75		O
6	110	6E		H	9	154	9A		l
6	111	6F		I	9	155	9B		m
6	122	7A		R	10	156	9C		n
6	123	7B		S	10	157	9D		o

TABLE A-3. THE ARABIC BASIC OPERATING COMMANDS

ENGLISH ARABSOFT COMMAND	EQUIVALENT TO BE TYPED IN ARABIC MODE		ARABIC PRONUNCIATION
LOAD	ABHA	ابد ا	EBDA
RUN	%TI	نفد	NAFEZ
TRACE	CCBR	تتبع	TATABA
NOTRACE	A'S<	الغى	ALGHI
CONT	A&XW	اكمل	AKMEL