

Octal No.	COMMANDS	CONSISTING OF SUB-COMMANDS	W	CP	CODE
11.	OPy <u>CLEAR ADD</u>	Clear X Register	6519	2	92
		Initiate Read to X	6592	2	(70)
		Transmit EAR to SAR	6608	2	(76)
		Wait Storage	----	2	(82)
		Clear A	6517	2	94
		•Add X to A	6535	4	45
		•Clear PCR (EAR and CTS)	(EAR) 6611	4	97
		•Transmit PAK to SAR	6610	4	(79)
		•Initiate Read to PCR	6596	4	(72)
		•Advance PAK	6609	4	(86)
•Wait Storage	----	4	(82)		
12.	OAY <u>HOLD ADD</u>	Clear X Register	6519	2	92
		Initiate Read to X	6592	2	(70)
		Transmit EAR to SAR	6608	2	(76)
		Wait Storage	----	2	(82)
		•Add X to A	6535	4	45
		•Clear PCR (EAR and CTS)	(EAR) 6611	4	97
		•Transmit PAK to SAR	6610	4	(79)
		•Initiate Read to PCR	6596	4	(72)
		•Advance PAK	6609	4	(86)
		•Wait Storage	----	4	(82)
13.	ONy <u>CLEAR SUBTRACT</u>	Clear X Register	6519	2	92
		Initiate Read to X	6592	2	(70)
		Transmit EAR to SAR	6608	2	(76)
		Wait Storage	----	2	(82)
		Clear A	6517	2	94
		•Subtract X from A	6536	4	46
		•Clear PCR (EAR and CTS)	(EAR) 6611	4	97
		•Transmit PAK to SAR	6610	4	(79)
		•Initiate Read to PCR	6596	4	(72)
		•Advance PAK	6609	4	(86)
•Wait Storage	----	4	(82)		
14.	OSy <u>HOLD SUBTRACT</u>	Clear X Register	6519	2	92
		Initiate Read to X	6592	2	(70)
		Transmit EAR to SAR	6608	2	(76)
		Wait Storage	----	2	(82)
		•Subtract X from A	6536	4	46
		•Clear PCR (EAR and CTS)	(EAR) 6611	4	97
		•Transmit PAK to SAR	6610	4	(79)
		•Initiate Read to PCR	6596	4	(72)
		•Advance PAK	6609	4	(86)
		•Wait Storage	----	4	(82)

*primary positive*

*ordinary add*

*ordinary negative*

*ordinary subtract*

XA 888/C

12-19-49

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Octal No.	COMMANDS	CONSISTING OF SUB-COMMANDS	T	CP	CODE
15.		See XA 8780			
16.	Yqy FILL Q  <i>transmit Y → Q</i>	Clear X Register Initiate Read to X Transmit EAR to SAR Wait Storage Clear Q Register Transmit X to Q Clear PCR (EAR and CTS) Transmit PAK to SAR Initiate Read to PCR Advance PAK Wait Storage	6519 6592 6608 ---- 6518 6515 (EAR) 6611 6610 6596 6609 ----	2 2 2 2 2 4 4 4 4 4 4	92 (70) (76) (82) 93 31 97 (79) (72) (86) (82)
17.	SDy SUBSTITUTE DIGITS	Initiate Write Transmit EAR to SAR Wait Storage Transmit Q to SAR/PAK Transmit A to SIR Clear PCR (EAR and CTS) Transmit PAK to SAR Advance PAK Initiate Read to PCR Wait Storage	6595 6608 ---- 6514 6511 (EAR) 6611 6610 6609 6596 ----	2 2 2 2 2 4 4 4 4 4	(71) (70) (82) 34 38 97 (79) (86) (72) (82)
21.	APy ABSOLUTE CLEAR ADD  <i>absolute position</i>	Clear X Register Initiate Read to X Transmit EAR to SAR Wait Storage Clear A *Absolute Add X to A Clear PCR (EAR and CTS) Transmit PAK to SAR Initiate Read to PCR Advance PAK Wait Storage	6519 6592 6608 ---- 6517 6533 (EAR) 6511 6610 6596 6609 ----	2 2 2 2 2 4 4 4 4 4 4	92 (70) (76) (82) 94 47 97 (79) (72) (86) (82)
22.	AAy ABSOLUTE HOLD ADD  <i>absolute add</i>	Clear X Register Initiate Read to X Transmit EAR to SAR Wait Storage *Absolute Add X to A Clear PCR (EAR and CTS) Transmit PAK to SAR Initiate Read to PCR Advance PAK Wait Storage	6519 6592 6608 ---- 6533 (EAR) 6611 6610 6596 6609 ----	2 2 2 2 4 4 4 4 4 4	92 (70) (76) (82) 47 97 (79) (72) (86) (82)

HARLAN SNYDER

Octal No.	COMMANDS	CONSISTING OF SUB-COMMANDS	W	CP	CODE
23.	ANY ABSOLUTE CLEAR SUBTRACT	Clear X Register Initiate Read to X Transmit EAR to SAR Wait Storage Clear A *Absolute Subtract X from A Clear PCR (EAR and CTS) Transmit PAK to SAR Initiate Read to PCR Advance PAK Wait Storage	6519 6592 6608 ---- 6517 6534 (EAR) 6611 6610 6596 6609 ----	2 2 2 2 2 4 4 4 4 4 4	92 (70) (76) (82) 94 48 97 (79) (72) (86) (82)
	<i>absolute negative</i>				
24.	ASY ABSOLUTE HOLD SUBTRACT	Clear X Register Initiate Read to X Transmit EAR to SAR Wait Storage *Absolute Subtract X from A Clear PCR (EAR and CTS) Transmit PAK to SAR Initiate Read to PCR Advance PAK Wait Storage	6519 6592 6608 ---- 6534 (EAR) 6611 6610 6596 6609 ----	2 2 2 2 4 4 4 4 4	92 (70) (76) (82) 48 97 (79) (72) (86) (82)
	<i>absolute subtract</i>				
25.	ALk SHIFT A LEFT	Transmit EAR to ASK *Initiate Shift A Wait Arithmetic Clear PCR (EAR and CTS) Initiate Read to PCR Transmit PAK to SAR Advance PAK Wait Storage	6612 ---- ---- (EAR) 6611 6593 6610 6609 ----	1 (3) (3) 4 4 4 4	(67) 60 (87) 97 (72) (79) (80) (82)
	<i>accumulator left</i>				
26.	Qlk SHIFT Q LEFT	Transmit EAR to ASK *Initiate Shift Q Wait Arithmetic Clear PCR (EAR and CTS) Initiate Read to PCR Transmit PAK to SAR Advance PAK Wait Storage	6612 ---- ---- (EAR) 6611 6593 6610 6609 ----	1 3 3 4 4 4 4	(67) 35 (87) 97 (72) (79) (86) (82)
	<i>Q left</i>				
27.	SEy SUBSTITUTE EXECUTION ADDRESS	Initiate Write Transmit EAR to SAR Wait Storage Block Left 10 SIR Transmit A to SIR Clear PCR (EAR and CTS) Transmit PAK to SAR Advance PAK Initiate Read to PCR Wait Storage	6595 6612 ---- 6591 6511 (EAR) 6611 6610 6609 6593 ----	2 2 2 2 2 4 4 4 4 4	(71) (70) (82) (78) 38 97 (79) (86) (72) (82)

HARLAN SNYDER

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Octal No.	COMMANDS	CONSISTING OF SUB-COMMANDS	W	CP	CODE		
31.	SPy SPLIT CLEAR ADD  <i>split positive</i>	Clear X Register	6519	2	92		
		Initiate Read to X	6592	2	(70)		
		Transmit EAR to SAR	6608	2	(76)		
		Wait Storage	---	2	(82)		
		Clear A	6517	2	94		
		*Split Add X to A	6531	4	41		
		*Add X to A	6535	4	(45)		
		Clear PCR (EAR and CTS)	(EAR) 6611	4	97		
		Transmit PAK to SAR	6610	4	(79)		
		Initiate Read to PCR	6596	4	(72)		
		Advance PAK	6609	4	(86)		
		Wait Storage	---	4	(82)		
		32.	SAY SPLIT HOLD ADD  <i>split add</i>	Clear X Register	6519	2	92
Initiate Read to X	6592			2	(70)		
Transmit EAR to SAR	6608			2	(76)		
Wait Storage	---			2	(82)		
*Split Add X to A	6531			4	41		
*Add X to A	6535			4	(45)		
Clear PCR (EAR and CTS)	(EAR) 6611			4	97		
Transmit PAK to SAR	6610			4	(79)		
Initiate Read to PCR	6596			4	(72)		
Advance PAK	6609			4	(86)		
Wait Storage	---			4	(82)		
33.	SNy SPLIT CLEAR SUBTRACT  <i>split negative</i>			Clear X Register	6519	2	92
				Initiate Read to X	6592	2	(70)
		Transmit EAR to SAR	6608	2	(76)		
		Wait Storage	---	2	(82)		
		Clear A	6517	2	94		
		*Split Subtract X from A	6531	4	42		
		Clear PCR (EAR and CTS)	(EAR) 6611	4	97		
		Transmit PAK to SAR	6610	4	(79)		
		Initiate Read to PCR	6596	4	(72)		
		Advance PAK	6609	4	(86)		
		Wait Storage	---	4	(82)		
		34.	SSy SPLIT HOLD SUBTRACT  <i>split subtract</i>	Clear X Register	6519	2	92
				Initiate Read to X	6592	2	(70)
Transmit EAR to SAR	6608			2	(76)		
Wait Storage	---			2	(82)		
*Split Subtract X from A	6531			4	42		
Clear PCR (EAR and CTS)	(EAR) 6611			4	97		
Transmit PAK to SAR	6610			4	(79)		
Initiate Read to PCR	6596			4	(72)		
Advance PAK	6609			4	(86)		
Wait Storage	---			4	(82)		

HARLAN SNYDER

Octal No.	COMMANDS	CONSISTING OF SUB-COMMANDS	Y	CP	CODE
35.	AYy STORE A	Initiate Write Transmit EAR to SAR Wait Storage Transmit A to SIR Clear PCR (EAR and CTS) Transmit PAK to SAR Advance PAK Initiate Read to PCR Wait Storage	6595 6508 ---- 6511 (EAR) 6611 6610 6609 6596 ----	2 2 2 2 4 4 4 4 4	(71) (70) (82) (78) 97 (79) (86) (72) (82)
	<i>transmit A → Y</i>				
36.	QYy STORE Q	Initiate Write Transmit EAR to SAR Wait Storage Transmit Q to SIR Clear PCR (EAR and CTS) Initiate Read to PCR Transmit PAK to SAR Advance PAK Wait Storage	6595 6508 ---- 6512 (EAR) 6611 6596 6610 6609 ----	2 2 2 2 4 4 4 4 4	(71) (70) (82) 32 97 (72) (79) (86) (82)
	<i>xmit Q → Y</i>				
41.	QP- CLEAR ADD FROM Q	Clear A Register *Add Q to A Clear PCR (EAR and CTS) Transmit PAK to SAR Advance PAK Initiate Read to PCR Wait Storage	6517 6513 (EAR) 6611 6610 6609 6596 ----	2 4 4 4 4 4 4	94 40 97 (79) (86) (72) (82)
	<i>Q positive</i>				
42.	QA- HOLD ADD FROM Q	*Add Q to A Clear PCR (EAR and CTS) Transmit PAK to SAR Advance PAK Initiate Read to PCR Wait Storage	6513 (EAR) 6611 6610 6609 6596 ----	4 4 4 4 4 4	40 97 (79) (86) (72) (82)
	<i>Q add</i>				
43.	AQ- TRANSMIT A to Q	Clear Q Register Transmit A to Q Clear PCR (EAR and CTS) Transmit PAK to SAR Initiate Read to PCR Advance PAK Wait Storage	6518 6516 (EAR) 6611 6610 6596 6609 ----	2 4 4 4 4 4 4	93 39 97 (79) (72) (86) (82)
	<i>xmit A → Q</i>				
44.	QJy Q-CONDITIONAL JUMP	If q23 equals 1: *Clear PAK *Transmit EAR to PAK *Shift Q left 1 Transmit PAK to SAR Advance PAK Clear PCR (EAR and CTS) Initiate Read to PCR Wait Storage	(IICJ) 6606 6607 (IIICJ) ---- 6610 6609 (EAR) 6611 6596 ----	2 3 3 4 4 4 4 4	98 (85)  (79) (86) 97 (72) (82)
	<i>- Jump + no Jump Both cases shift Q left 1</i>				

YA 88818

Octal No.	COMMANDS	CONSISTING OF SUB-COMMANDS	W	CP	CODE
44. (continued)		If $q_{23}$ equals 0: *Shift Q left 1 Transmit PAK to SAR Advance PAK Clear PCR (EAR and CTS) Initiate Read to PCR Wait Storage	----- 6610 6609 (EAR) 6611 6596 -----	3 4 4 4 4 4	(79) (86) 97 (72) (82)
45.	UJy JUMP	Clear PAK Transmit EAR to PAK Transmit PAK to SAR Advance PAK Clear PCR (EAR and CTS) Initiate Read to PCR Wait Storage	6606 6607 6610 6609 (EAR) 6611 6596 -----	1 3 4 4 4 4 4	98 (85) (79) (86) 97 (72) (82)
46.	CJy SIGN <u>CONDITIONAL JUMP</u>  - JUMP  + NO JUMP	If $a_{47}$ equals 1: <u>JUMP</u> Clear PAK Transmit EAR to PAK Transmit PAK to SAR Advance PAK Clear PCR (EAR and CTS) Initiate Read to PCR Wait Storage  If $a_{47}$ equals 0: <u>NO JUMP</u> Transmit PAK to SAR Advance PAK Clear PCR (EAR and CTS) Initiate Read to PCR Wait Storage	(IIJ) 6606 (IIIJ) 6607 6610 6609 (EAR) 6611 6596 -----  6610 6609 (EAR) 6611 6596 -----	2 3 4 4 4 4 4  4 4 4 4 4	98 (85) (79) (86) 97 (72) (82)  (79) (86) 97 (72) (82)
47.	ZJy <u>ZERO CONDITIONAL JUMP</u>  A ≠ 0 JUMP  A = 0 NO JUMP	*Subtract 1 from A (Initiate Delay Ct.)  Wait Arithmetic  If A does not equal 0: <u>JUMP</u> Clear PAK Transmit EAR to PAK Transmit PAK to SAR Advance PAK Clear PCR (EAR and CTS) Initiate Read to PCR Wait Storage  If End Borrow Occurs, A equals 0: <u>NO JUMP</u> Transmit PAK to SAR Advance PAK Clear PCR (EAR and CTS) Initiate Read to PCR Wait Storage	6541  -----  (IIJ) 6606 (IIIJ) 6607 6610 6609 (EAR) 6611 6596 -----  6610 6609 (EAR) 6611 6596 -----	1  1  2 3 4 4 4 4 4  4 4 4 4 4	49  (87)  (98) (85) (79) (86) 97 (72) (82)  ( ) (85) (86) 97 (72) (82)

HARLAN SNYDER

AA 0004

Octal No.	COMMANDS	CONSISTING OF SUB-COMMANDS	W	CP	CODE
51	LPy CLEAR LOGICAL MULTIPLY	Clear X Register Initiate Read to X Transmit EAR to SAR Wait Storage Clear A *Split Add X to A *Add X to A *Add Q to A Transmit PAK to SAR Clear PCR (EAR and CTS) Initiate Read to PCR Advance PAK Wait Storage	6519 6592 6608 ---- 6517 6531 6535 6513 6610 (EAR) 6611 6596 6609 ----	2 2 2 2 2 4 4 4 4 4 4 4 4 4	92 (70) (76) (82) 94 41 (45) 40 (79) 97 (72) (86) (82)
		<i>logical positive</i>			
52.	LAY HOLD LOGICAL MULTIPLY	Clear X Register Initiate Read to X Transmit EAR to SAR Wait Storage *Split Add X to A *Add X to A *Add Q to A Clear PCR (EAR and CTS) Transmit PAK to SAR Initiate Read to PCR Advance PAK Wait Storage	6519 6592 6608 ---- 6531 6535 6513 (EAR) 6611 6610 6596 6609 ----	2 2 2 2 4 4 4 4 4 4 4 4 4	92 (70) (76) (82) 41 (45) 40 97 (79) (72) (86) (82)
		<i>logical add</i>			
53.	POy PRINT ONLY	Initiate Read to PPR# Wait Storage Transmit EAR to SAR Clear PCR (EAR and CTS) Advance PAK Transmit PAK to SAR Initiate Read to PCR Wait Storage	6593 ---- 6608 (EAR) 6611 6609 6610 6596 ----	2# 2 2 4 4 4 4 4	(68) (82) (76) 97 (86) (85) (72) (82)
54.	PPy PRINT AND PUNCH	Initiate Read to PPR# Wait Storage Transmit EAR to SAR Clear PCR (EAR and CTS) Advance PAK Transmit PAK to SAR Initiate Read to PCR Wait Storage Connect Punch	6593 ---- 6608 (EAR) 6611 6609 6610 6596 ---- ----	2# 2 2 4 4 4 4 4 4 D.C.	(68) (82) (76) 97 (86) (85) (72) (82) (10)

HARLAN SNYDER

#  
If machine is printing & POy or PPy occurs, this sub-command will be sent out when print acknowledge is received.

37888 XA

Octal No.	COMMANDS	CONSISTING OF SUB-COMMANDS	W	CP	CODE
55.	IS- <u>INTERMEDIATE STOP</u>	Indicate Intermediate Stop Resume (by push button) as follows: Clear PCR (EAR and CTS) (EAR) Advance PAK Transmit PAK to SAR Initiate Read to PCR Wait Storage	6611 6609 6610 6596 ---	1 4 4 4 4	(84) 97 (86) (85) (72) (82)
56.	CS- <u>CONDITIONAL STOP</u>	Indicate Conditional Stop Resume (by push button) as follows: Clear PCR (EAR and CTS) (EAR) Advance PAK Transmit PAK to SAR Indicate Read to PCR Wait Storage	6611 6609 6610 6596 ---	1 4 4 4 4	91 97 (86) (85) (72) (82)
57.	FS- <u>FINAL STOP</u>	Indicate Final Stop		1	(83)
61.	MPy <u>CLEAR MULTIPLY</u>  <i>mult positive</i>	Clear X Register Initiate Read to X Transmit EAR to SAR Wait Storage Clear A *Initiate Multiply (PT. II) Wait Arithmetic Clear PCR (EAR and CTS) (EAR) Transmit PAK to SAR Advance PAK Initiate Read to PCR Wait Storage	6519 6592 6608 --- 6517 6549 --- 6611 6610 6609 6596 ---	2 2 2 2 2 4 4 4 4 4 4	92 (70) (76) (82) 94 (63) (87) 97 (79) (86) (72) (82)
62.	MAY <u>HOLD MULTIPLY</u>  <i>mult add</i>	Set ASK to 24 Clear X Register Initiate Read to X Transmit EAR to SAR Wait Storage *Initiate Shift A Wait Arithmetic *Initiate Multiply (PT. II) Wait Arithmetic Clear PCR (EAR and CTS) (EAR) Initiate Read to PCR Transmit PAK to SAR Advance PAK Wait Storage	6519 6592 6608 --- --- 6549 --- 6611 6596 6610 6609 ---	1 2 2 2 2 3 3 4 4 4 4 4 4	(62) 92 (70) (76) (82) 60 (87) (63) (87) 97 (72) (79) (86) (82)
63.	DPy <u>DIVIDE</u>  <i>divide posit</i>	Set ASK to 24 Clear X Register Initiate Read to X Transmit EAR to SAR Wait Storage Clear Q Register *Initiate Divide Wait Arithmetic Clear PCR (EAR and CTS) (EAR) Transmit PAK to SAR Advance PAK Initiate Read to PCR Wait Storage	6519 6592 6608 --- 6518 6550 --- 6611 6610 6609 6596 ---	1 2 2 2 2 4 4 4 4 4 4 4 4	(62) 92 (70) (76) (82) 93 (64) (87) 97 (79) (86) (72) (82)

HARLAN SNYDER

XA 88845



Octal No.                      COMMANDS                      CONSISTING OF SUB-COMMANDS                      W                      CP                      CODE

71.	NPY CLEAR ADD + 1	Clear X Register	6519	2	92
		Initiate Read to X	6592	2	(70)
		Transmit EAR to SAR	6608	2	(76)
		Wait Storage	---	2	(82)
		Clear A	6517	2	94
		*Set a <sub>0</sub> to 1	6524	3	54
		*Add X to A	6535	4	45
		Clear PCR (EAR and CTS)	(EAR) 6611	4	97
		Transmit PAK to SAR	6610	4	(79)
		Initiate Read to PCR	6596	4	(72)
		Advance PAK	6609	4	(86)
		Wait Storage	---	4	(82)

\* Indicates sub-commands originated in Main Control, re-processed, and issued from ASC as "ASC Sub-commands". Other sub-commands are issued from Main Control.

HARLAN SNYDER

XA 8884C