

FROM CONTROL

COUNT IN STORE

STORE SCR

MULTIPLY

DIVIDE

MATRIX ADDRESS	SO	S4	DC	DG
100				
OPERATION	WAVE-FORMS	TIMING		
Transfer address from M.reg. into J.reg. then read number from that address into M.reg.	MTF * DTF1 * DTF2 * DTG T1 VTG T2 OTM T3 GTJ T4 READ *			

MATRIX ADDRESS	SO	DA	DG
110			
OPERATION	WAVE-FORMS	TIMING	
Transfer address of storing location from M.reg. into Q.reg. and set J.reg. with address of SCR then read contents of SCR into M.reg.	MTF * DTF1 * DTF2 * ETJ * OTG T1 VTG T2 OTQ T3 OTM T3 GTQ T4 READ * WRITE *		

MATRIX ADDRESS	S1	S4	DC	DG
101				
OPERATION	WAVE-FORMS	TIMING		
Increase number in M.reg. by 1 then write the increased number back into store.	MTF * ITF * OTG T1 FTG T2 OTM T3 GTM T4 WRITE *			

MATRIX ADDRESS	S1	DA	DG
111			
OPERATION	WAVE-FORMS	TIMING	
Transfer address from Q.reg. into J.reg.	DTF * OTG T1 FTG T2 OTJ T3 GTJ T4		

MATRIX ADDRESS	S2	DA	DG
112			
OPERATION	WAVE-FORMS	TIMING	
Place top 5 digits of M.register into Q.register.	MTF * DTF2 * OTG T1 VTG T2 OTQ T3 GTQ T4		

MATRIX ADDRESS	S3	DA	DG
113			
OPERATION	WAVE-FORMS	TIMING	
Clear top 5 digits of M.register and write into address in J.reg.	MTF * DTF1 * OTG T1 VTG T2 OTM T3 GTM T4 CLEAR * WRITE *		

MATRIX ADDRESS	SO	S4	DD	DE
120				
OPERATION	WAVE-FORMS	TIMING		
Transfer address from M.reg. into J.reg. then read contents of that address into M.reg.	MTF * DTG T1 FTG T2 DTM T3 GTJ T4 READ * WRITE *			

MATRIX ADDRESS	S1	S4	DD	DE
121				
OPERATION	WAVE-FORMS	TIMING		
Transfer A.reg. into Q.reg. then set up count of 17 in PC. Set A.reg. and X overflow to zero. Compare X with Q1.	ATF * KTJ * TXQ1 * OTG T1 FTG T2 DTA T3 OTJ T3 OTQ T3 OTX T3 GTQ T4 JTPC T5			

MATRIX ADDRESS	S2	S4	DD	DE	CC
122C					
OPERATION	WAVE-FORMS	TIMING			
Right shift A.reg. 1 place and set X with overflow. Decrease count in PC by 1.	ATF * YTX * OTG T1 RTG T2 OTA T3 OTX T3 ITPC T4 GTA T4				

MATRIX ADDRESS	S2	S4	DD	DE	CA
122A					
OPERATION	WAVE-FORMS	TIMING			
Add A.reg. to M.reg. then right shift 1 place and place result in A.reg. and overflow in X. Decrease count in PC by 1.	ATF * MTF * YTX * OTG T1 RTG T2 OTA T3 OTX T3 ITPC T4 GTA T4				

MATRIX ADDRESS	S2	S4	DD	DE	CB
122B					
OPERATION	WAVE-FORMS	TIMING			
Subtract M.reg. from A.reg. then right shift 1 place and place result in A.reg. and overflow in X. Decrease count in PC by 1.	ATF * MTF * ITF * YTX * OTG T1 RTG T2 OTA T3 OTX T3 ITPC T4 GTA T4				

MATRIX ADDRESS	SO	S4	DD	DE
124				
OPERATION	WAVE-FORMS	TIMING		
Right shift Q.reg. by 1 place and add X1 (to Q18) then place result in Q.reg. and overflow in X. Test PC for 0. Compare X with Q1.	QTF * XTF * YTX * TPCO * OTG T1 RTG T2 OTX T3 OTQ T3 GTQ T4 TXQ1 *			

MATRIX ADDRESS	S3	S4	DD	DE	CC
123C					
OPERATION	WAVE-FORMS	TIMING			
Set X to zero	OTX T3				

MATRIX ADDRESS	S3	S4	DD	DE	CA
123A					
OPERATION	WAVE-FORMS	TIMING			
Add A.reg. to M.reg. and place result in A.reg. Set X to zero.	ATF * MTF * OTG T1 FTG T2 OTA T3 OTX T3 GTA T4				

MATRIX ADDRESS	S3	S4	DD	DE	CB
123B					
OPERATION	WAVE-FORMS	TIMING			
Subtract M.reg. from A.reg. and place result in A.reg. Set X to zero.	ATF * MTF * ITF * OTG T1 FTG T2 OTA T3 OTX T3 GTA T4				

MATRIX ADDRESS	SO	S4	DB	DE
130				
OPERATION	WAVE-FORMS	TIMING		
Transfer address from M.reg. into J.reg. then read contents of that address into M.reg.	MTF * DTG T1 FTG T2 DTM T3 GTJ T4 READ * WRITE *			

MATRIX ADDRESS	S1	S4	DB	DE
131				
OPERATION	WAVE-FORMS	TIMING		
Right shift Q.reg. by 1 place and place result in Q.reg. Set J.reg. to zero.	QTF * OTG T1 RTG T2 OTQ T3 OTJ T3 GTQ T4			

MATRIX ADDRESS	S2	S4	DB	DE
132				
OPERATION	WAVE-FORMS	TIMING		
Left shift Q.reg. by 1 place and set up count of 18 in PC.	QTF * KTJ * K2 * OTG T1 LTG T2 OTQ T3 GTQ T4 JTPC T5			

MATRIX ADDRESS	S3	S4	DB	DE
133				
OPERATION	WAVE-FORMS	TIMING		
Left shift A.reg. 1 place whilst transferring to G.reg. Set X with overflow. Test XM18.	ATF * YTX * OTG T1 LTG T2 OTX T3 TXM18 *			

MATRIX ADDRESS	SO	S4	DB	DE	CA
134B					
OPERATION	WAVE-FORMS	TIMING			
Add 1 to Q.reg. then left shift by 1 place. Set X with overflow. Decrease count in PC by 1. Retain setting at conditionals.	QTF * ITF * YTX * CRS * OTG T1 LTG T2 OTX T3 OTQ T3 GTQ T4 ITPC T4				

MATRIX ADDRESS	SO	S4	DB	DE	CA
134A					
OPERATION	WAVE-FORMS	TIMING			
Left shift Q.reg. by 1 place. Set X with overflow. Decrease count in PC by 1. Retain setting at conditionals.	QTF * YTX * CRS * OTG T1 LTG T2 OTX T3 OTQ T3 ITPC T4				

MATRIX ADDRESS	S2	S4	DB	DE	CA
136B					
OPERATION	WAVE-FORMS	TIMING			
Subtract M.reg. from A.reg. then left shift by 1 place and add X0 then place result in A.reg. Set X with overflow. Test PC for zero. Compare X and M18.	ATF * MTF * ITF * YTX * TPCO * OTG T1 LTG T2 OTA T3 OTX T3 GTA T4 TXM18 *				

MATRIX ADDRESS	S2	S4	DB	DE	CA
136A					
OPERATION	WAVE-FORMS	TIMING			
Add A.reg. to M.reg. then left shift by 1 place and add X0 then place result in A.reg. Set X with overflow. Test PC for zero. Compare X and M18.	ATF * MTF * YTX * ITF * TPCO * OTG T1 LTG T2 OTA T3 OTX T3 GTA T4 TXM18 *				

MATRIX ADDRESS	S1	S4	DB	DE
135				
OPERATION	WAVE-FORMS	TIMING		
Add round off constant (1) to Q.reg. then transfer Q.reg. to A.reg.	QTF * ITF * OTG T1 FTG T2 OTQ T3 GTA T4			

* Waveforms set true at T6 of previous timing cycle and set false at T6 of present timing cycle. Note that the waveforms CLEAR, READ, WRITE and some test waveforms (e.g. TM18) whilst being set true at T6 of previous timing cycle are not in fact used until T5 of present timing cycle.

TITLE
920 B CONTROL SEQUENCE
FUNCTIONS 10-15

SHEET 1 OF 2

LATEST MI INCORPORATED; MI 2998

ISSUE No.	1	2																		
ALTN No.	1620	1769																		
DATE	9-6-66	2-11-64																		
INITIALS	S.M.T.																			
PARTS LIST No.																				
DRAWN	S. TUCKER																			
CHECKED	CS. 706																			
APPROVED	A. Woods																			
DATE	30. 4. 66																			
MATERIAL																				
FINISH																				
TOLERANCES	DECIMAL 1																			
ANGULAR DIMENSIONS	FRACTIONAL 1																			
UNLESS OTHERWISE STATED																				
TITLE	920B CONTROL SEQUENCE FUNCTIONS 10-15										SCALE SHEET 1 OF 2 DRAWING No. 322D 7881									
ELLIOTT BROTHERS (LONDON) LTD																				

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