

* HIGH/LOW LIMIT/COUNTER/TIMER SEQUENCER *

5 CYCLE SEQUENCER COUNT / CYCLE NUMBER TABLE

COUNT
(C5:1 CTU)

CYCLE #
(SYSTEM)

0

DOING CYCLE #1

1

DOING CYCLE 2

2

DOING CYCLE #3.

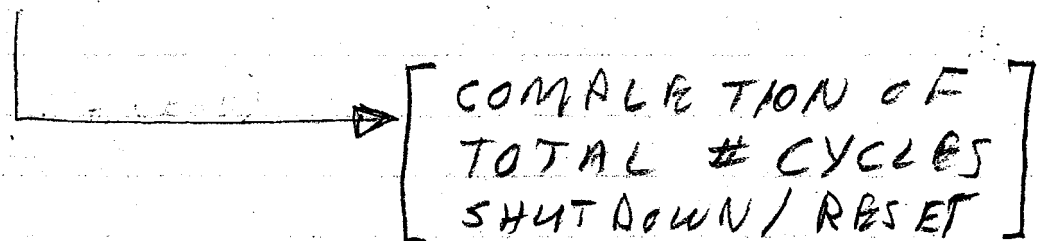
3

DOING CYCLE 4

4

DOING CYCLE #5

5 $\rightarrow$ ϕ (END)



RESTART BY START UP PB

* OR PROVIDE AUTO REPEAT *

NOTE !!

OUTPUT STATUS: BEFORE START-UP
OR UPON SHUT-DOWN $\downarrow$

• OFF : OUTPUTS $\Rightarrow$ 1, 2, 3, 4

• ON : OUTPUT $\Rightarrow \phi$ (THEN FOLLOWS
TIMING SEQUENCE UPON START)

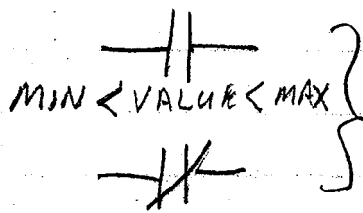
• MULTIPLE CYCLE/TIMING SEQUENCES FOR THE
SAME OUTPUTS (ie #1, #3) MUST BE ON THE
SAME RUNG! $\Rightarrow$



* ALLEN-BRADLEY MLOGIX 1000 PLC *

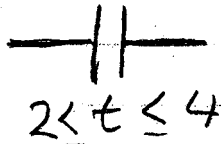
HIGH/LOW LIMIT CONTACTS FOR COUNTER + TIMER GENERATED SEQUENCERS

SEQUENCE R CONTACTS :



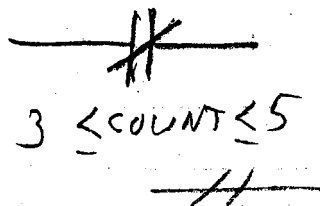
ACTIVATED AT A INTERVAL
OF "TIME" OR "COUNTS"
BETWEEN A MINIMUM
(LOW LIMIT) VALUE AND A
MAXIMUM (HIGH LIMIT) VALUE

EX TIMER



"CLOSED" BETWEEN
 $t=2s$ TO $t=4s$

- COUNTER

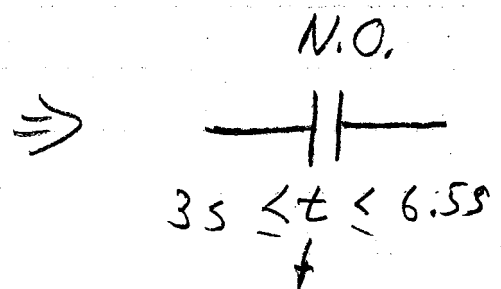
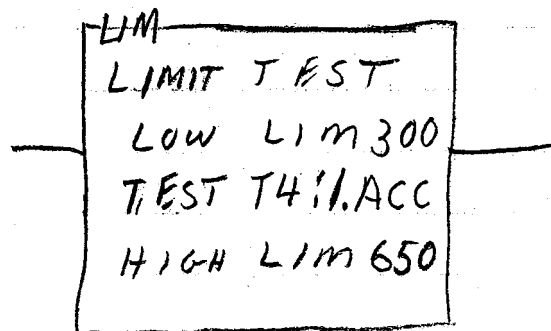


"OPEN" AT
COUNTS = 3, 4, 5

MLOGIX

SYNTAX :

LIM ⇒ LIMIT TEST
.....



T4:1.ACC
ACCUMULATED
TIME (t) ON TIMER
#1

NOTE: TO MAKE LIM N.C.
SET LOW LIM > HIGH LIM

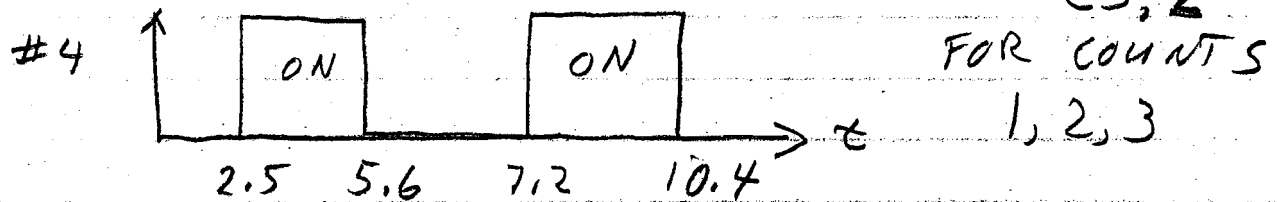
* ALLEN-BRADLEY MLOGIX 1000 PLC * HIGH/LOW LIMIT CONTACTS

EXAMPLE

COUNTER #2 $\Rightarrow$ C5:2

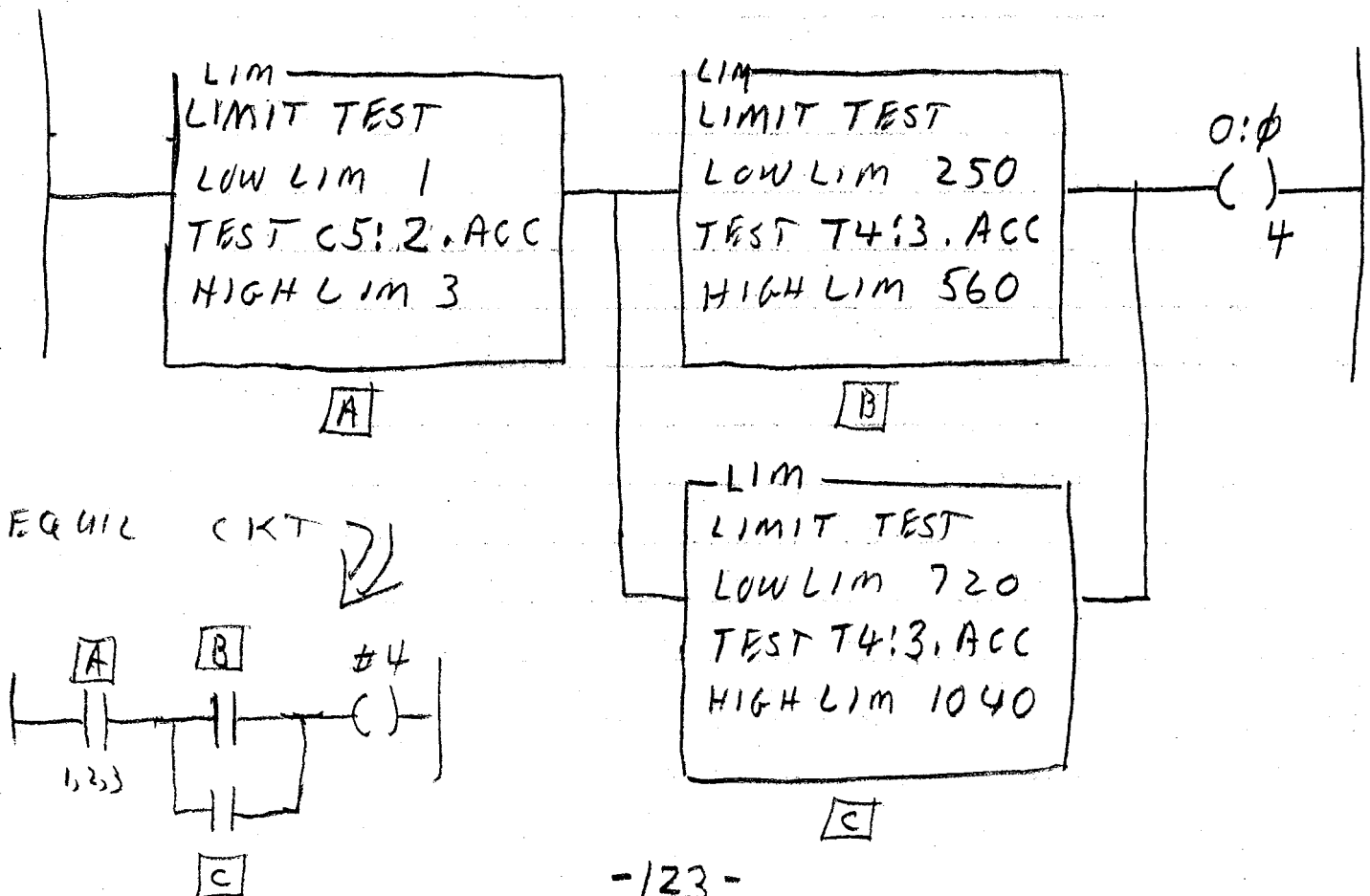
TIMER #3 $\Rightarrow$ T4:3

CONTROLS OUTPUT #4 FOR COUNTS =
1, 2, 3 AS FOLLOWS:

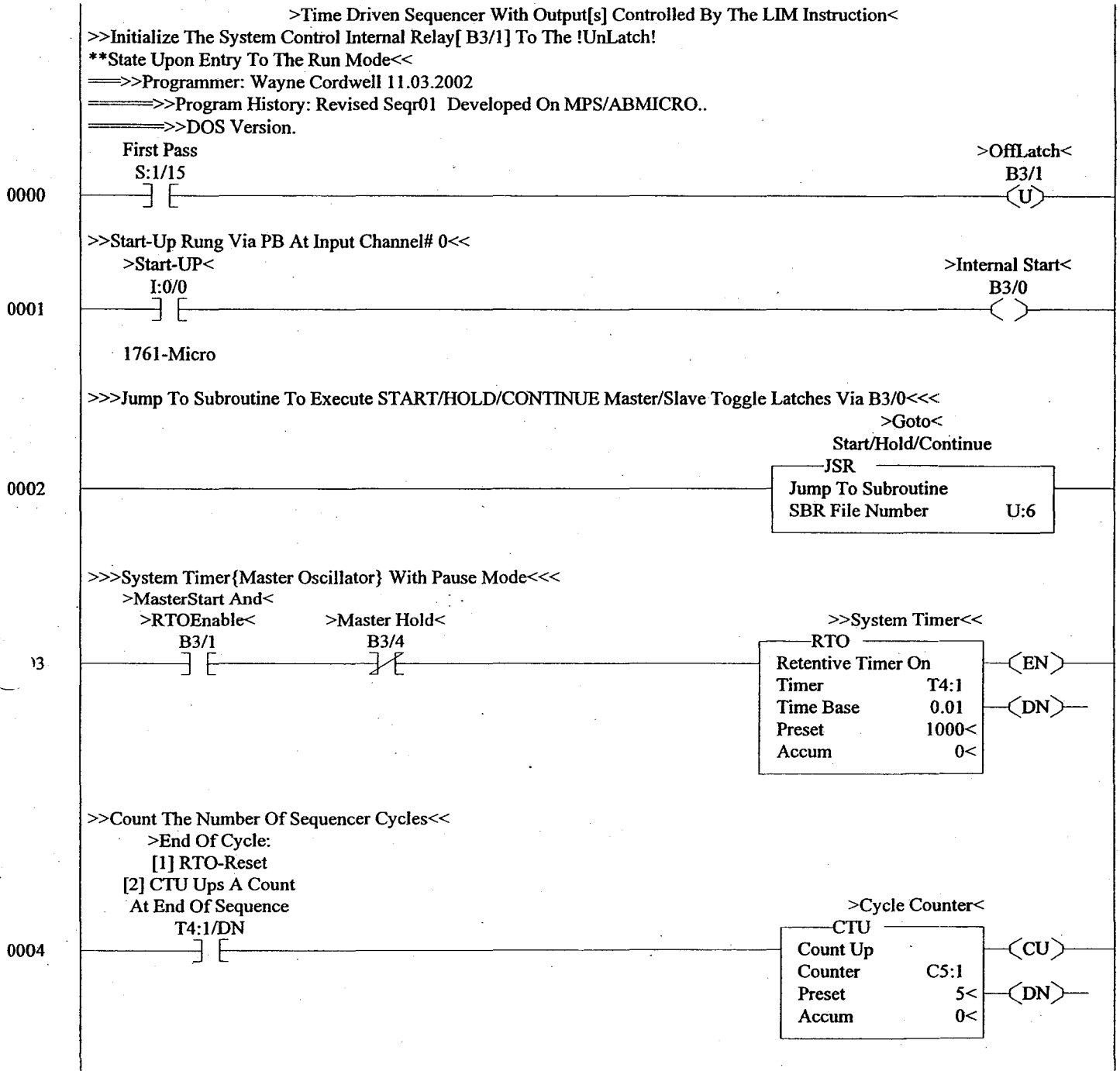


NOTE TIMER T4:3 IS A 10ms (.01SEC) RESOLUTION TIMER
THEREFORE, $t = 490$ IS 4.9 SECONDS

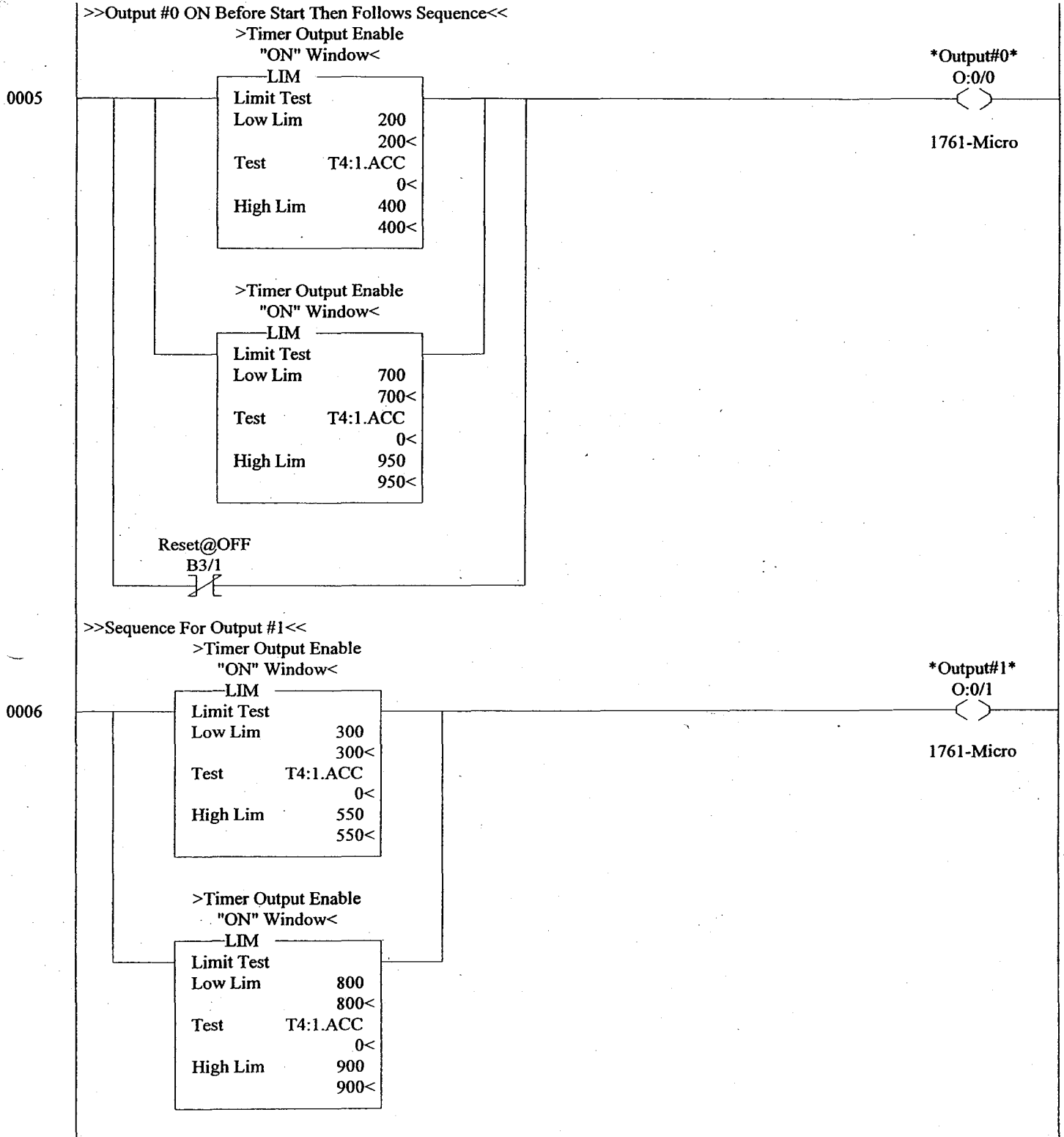
MOTOR LADDER LOGIC PORTION OF SEQUENCER

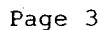


LAD 2 - SEQR_LIMIT - Sequencer Output Control By LIM Instruction --- Total Rungs in File = 14

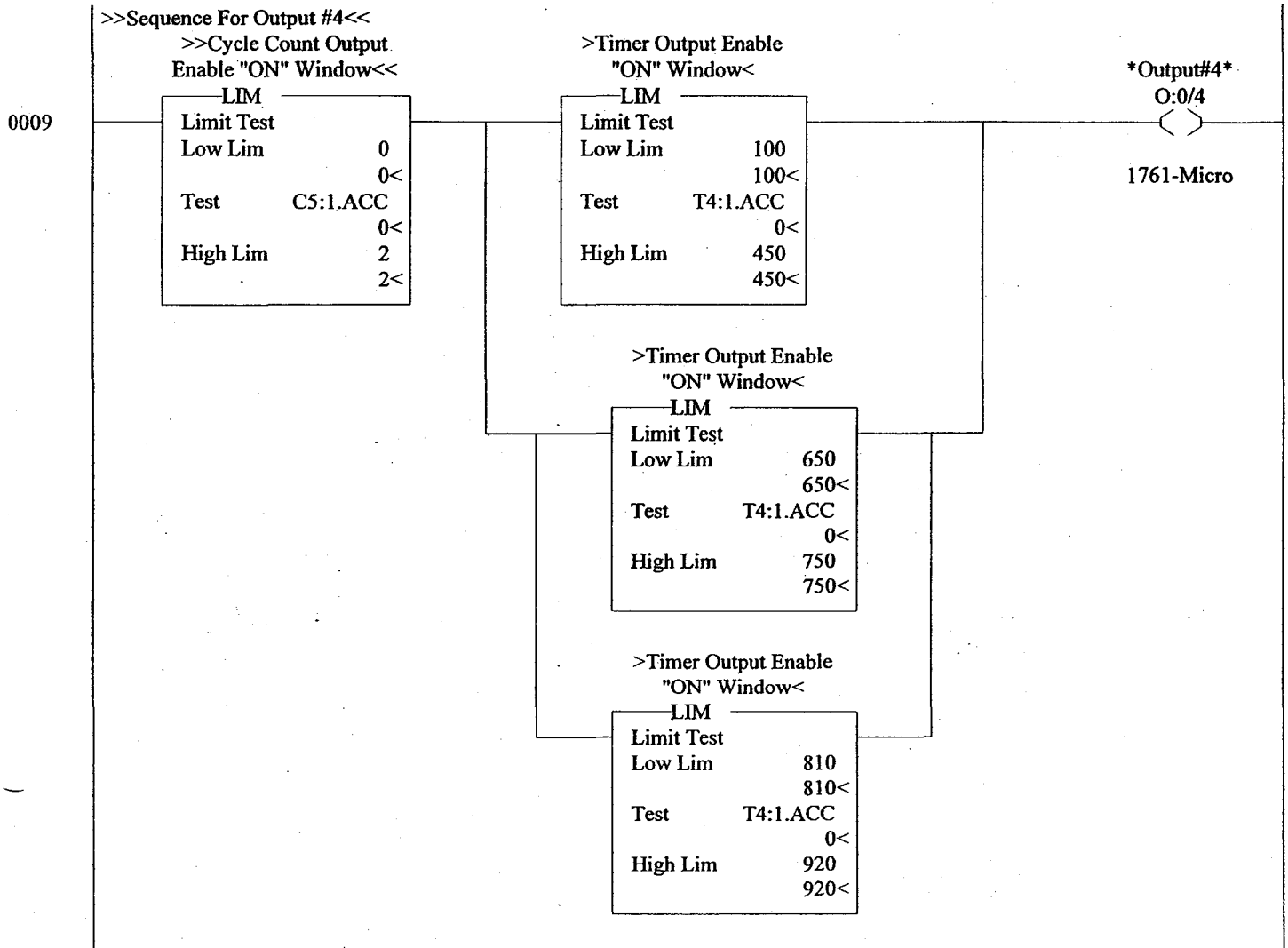


LAD 2 - SEQR_LIMIT - Sequencer Output Control By LIM Instruction --- Total Rungs in File = 14

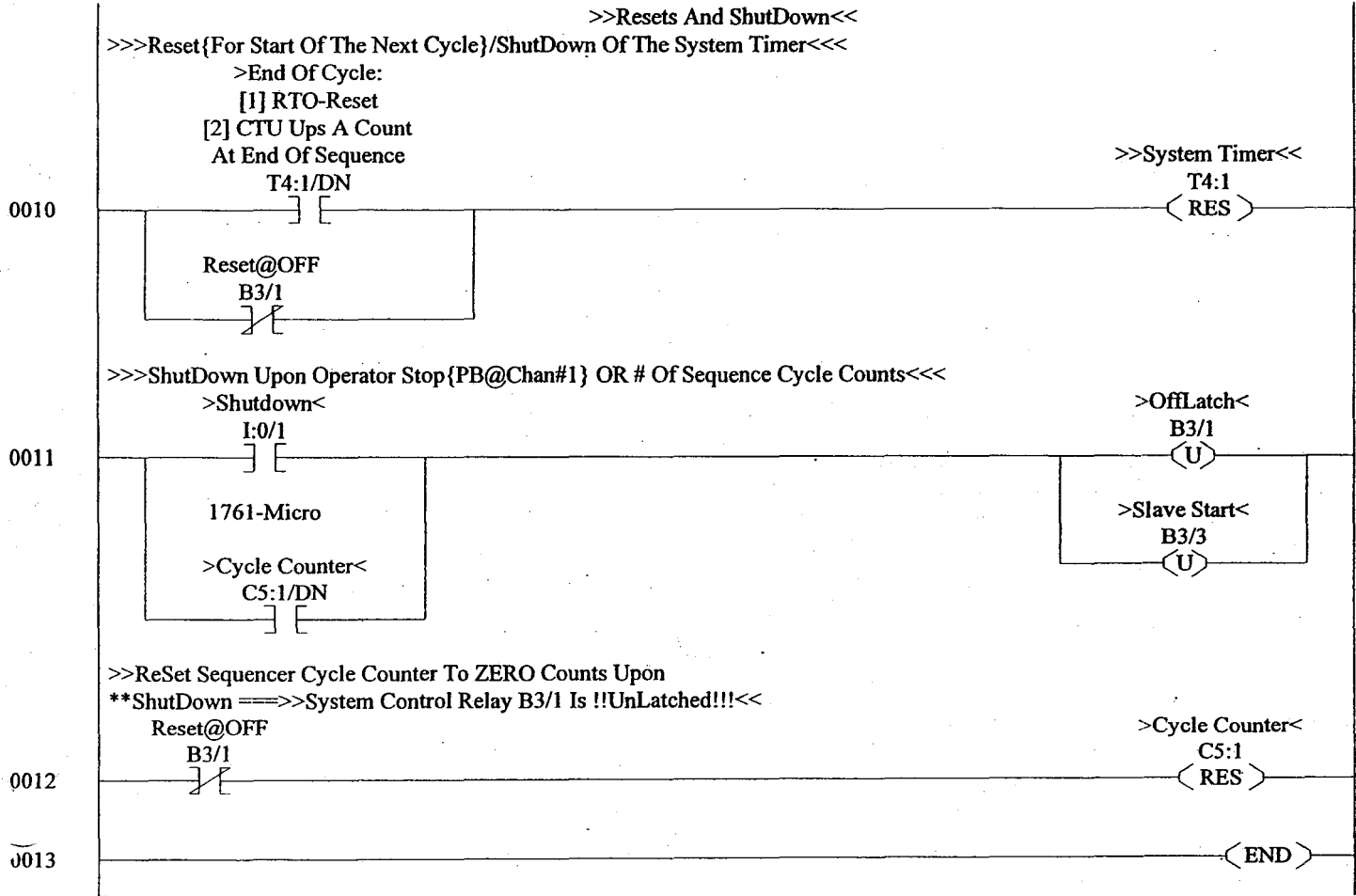




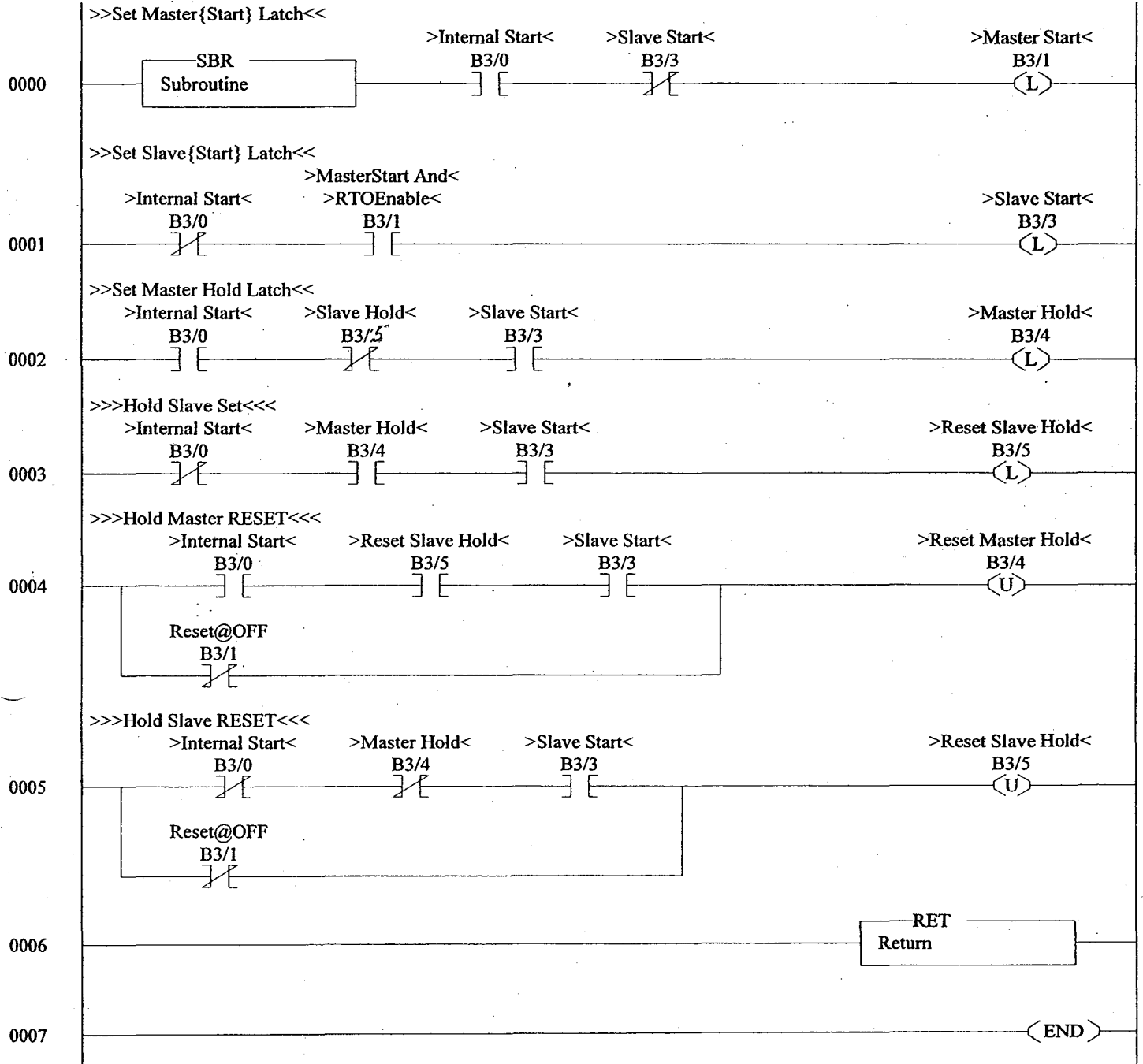
LAD 2 - SEQR_LIMIT - Sequencer Output Control By LIM Instruction --- Total Rungs in File = 14



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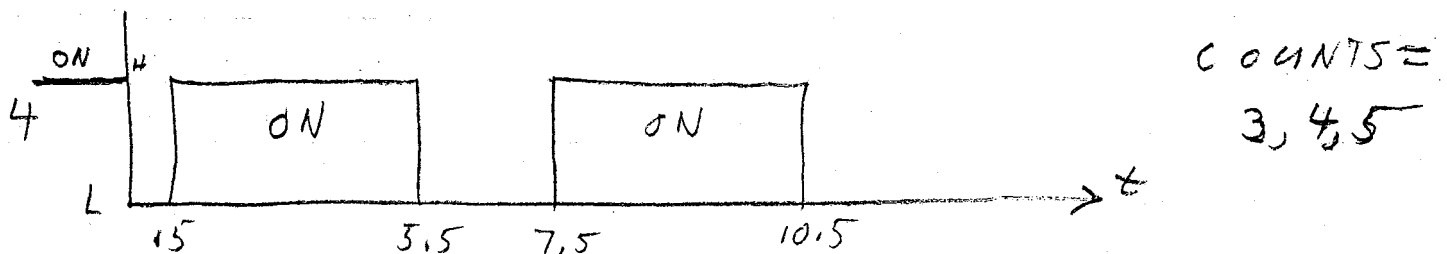
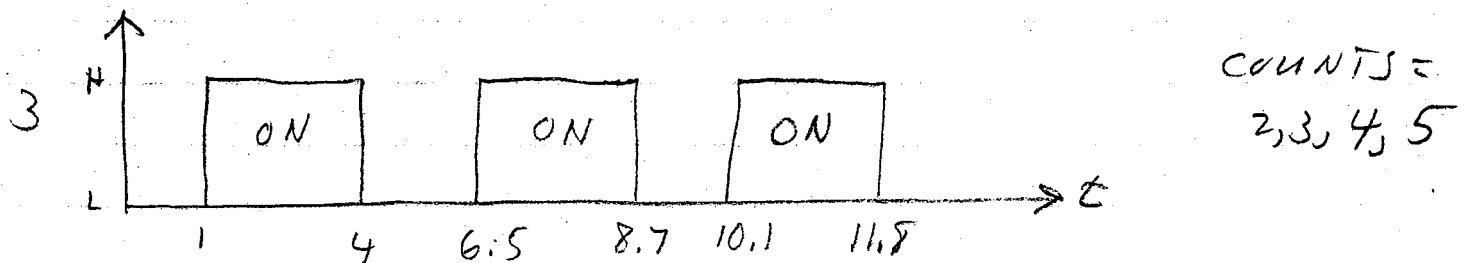
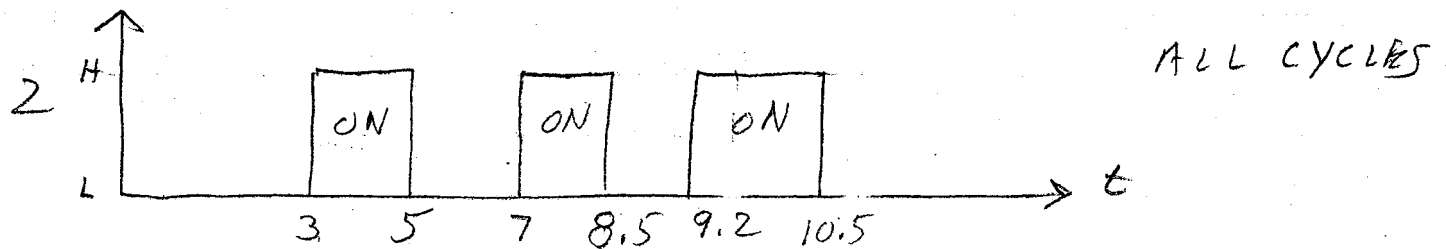
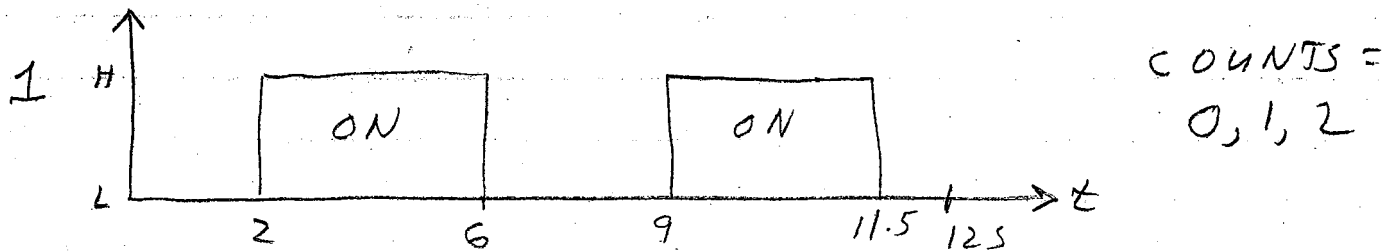
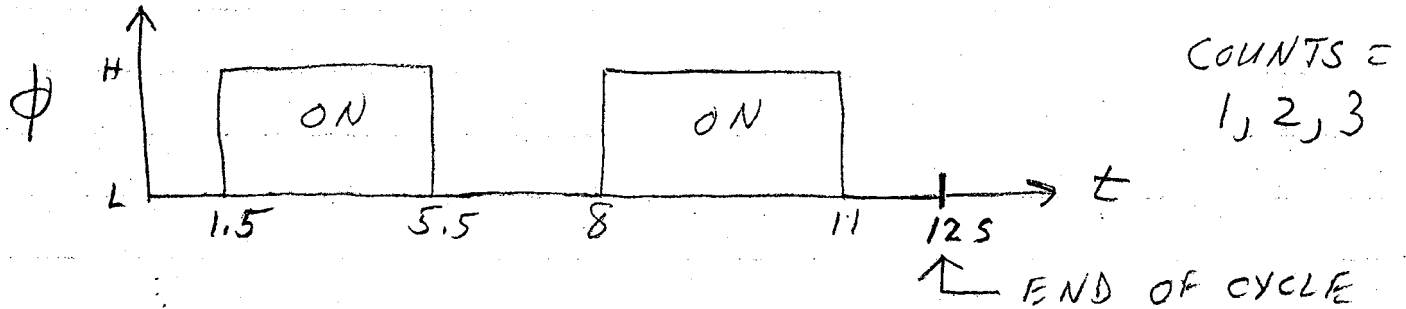


LAD 6 - START_HOLD --- Total Rungs in File = 8



CLASS PROJECT MLOGIX1000

MODIFY LIMTESTSEQRDEMOΦ1 TO THE FOLLOWING
 FILE NAME LTSEQRΦ1H
 COUNTER CS:1 ⇒ 6 CYCLES
 CYCLE TIME = 12 SECS



* INDUSTRIAL CONTROLS LAST DAY TEST *

5.15.98

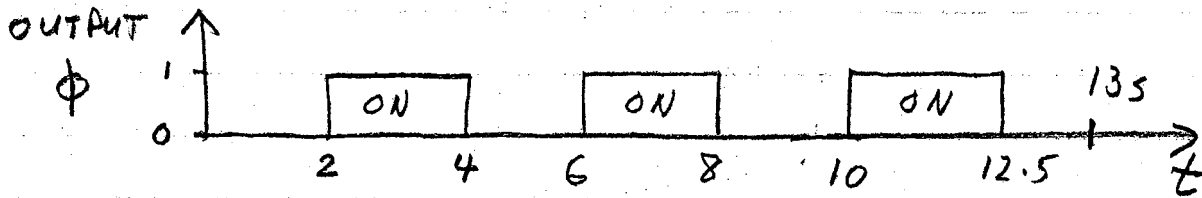
P61

* HIGH/LOW LIMIT CONTACT/COUNTER AND *
* TIMER GENERATED SEQUENCER *

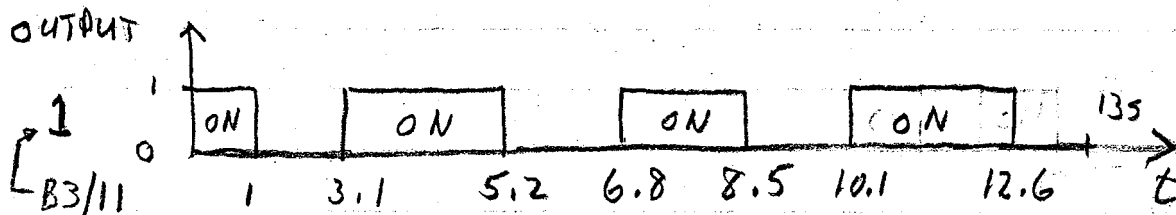
CYCLES = 7

CYCLE TIME = 13 SECS

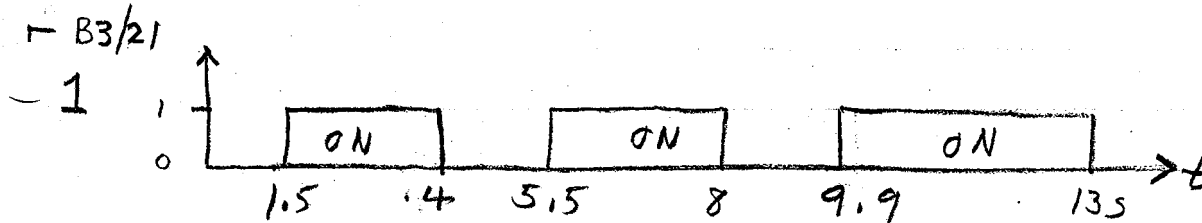
ADDRESSES: TIMER $\Rightarrow$ T4:1, COUNTER C5:1



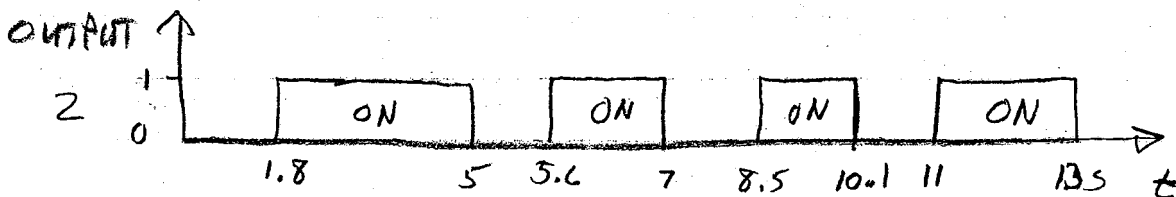
COUNT = $\phi, 1, 2, 3$



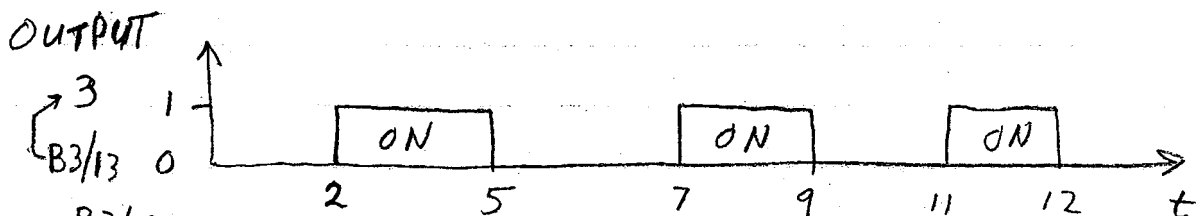
COUNT = $\phi, 1, 3$



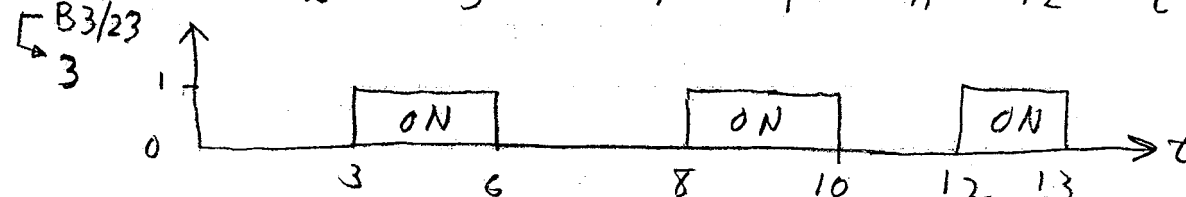
COUNT = 4, 5, 6



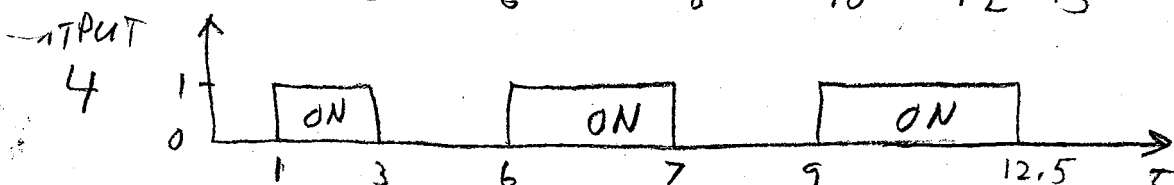
COUNT = 1, 2, 3, 4



COUNT = $\phi, 1, 2, 3$



COUNT = 4, 5, 6

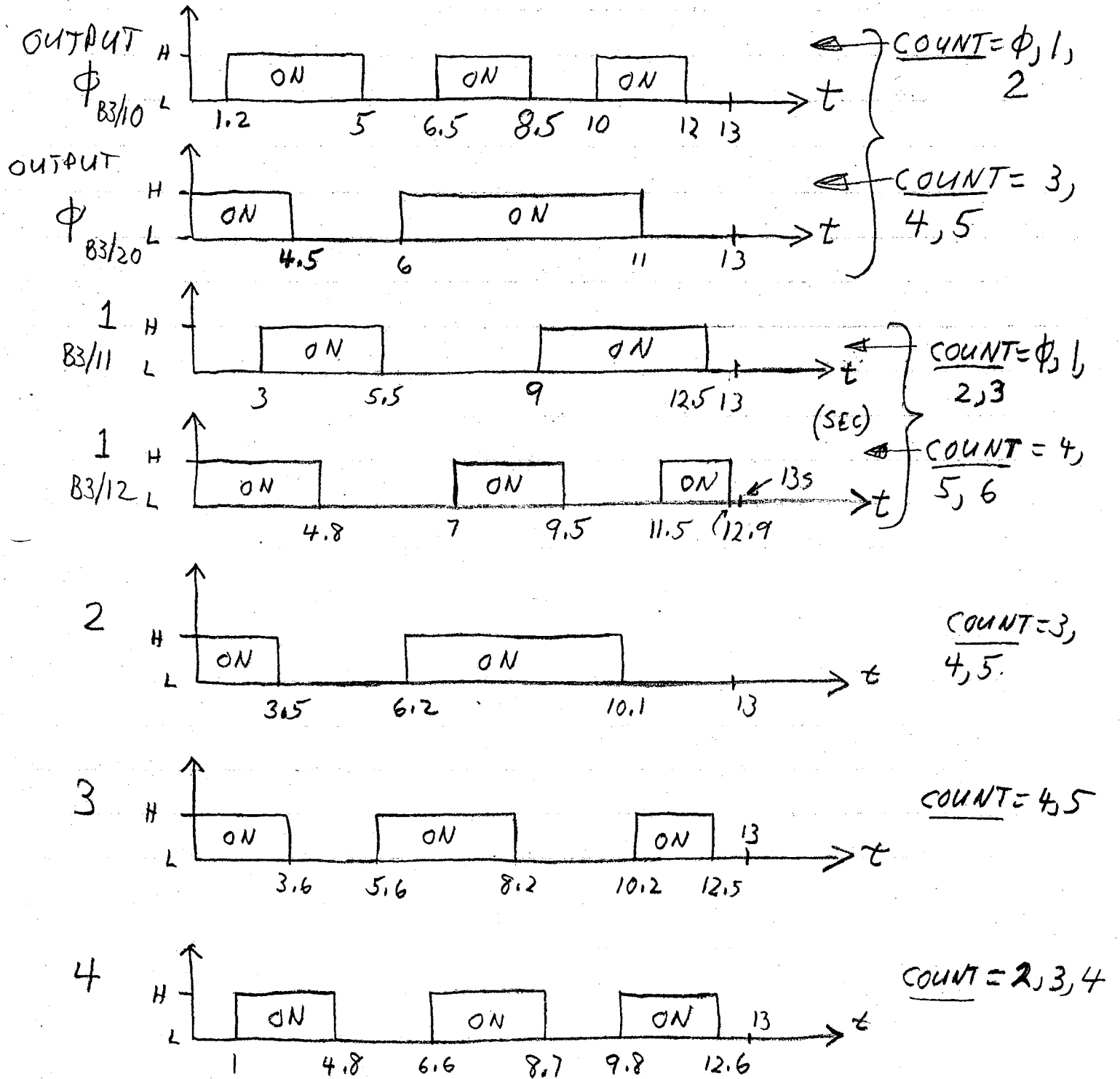


ALL COUNTS

-127-

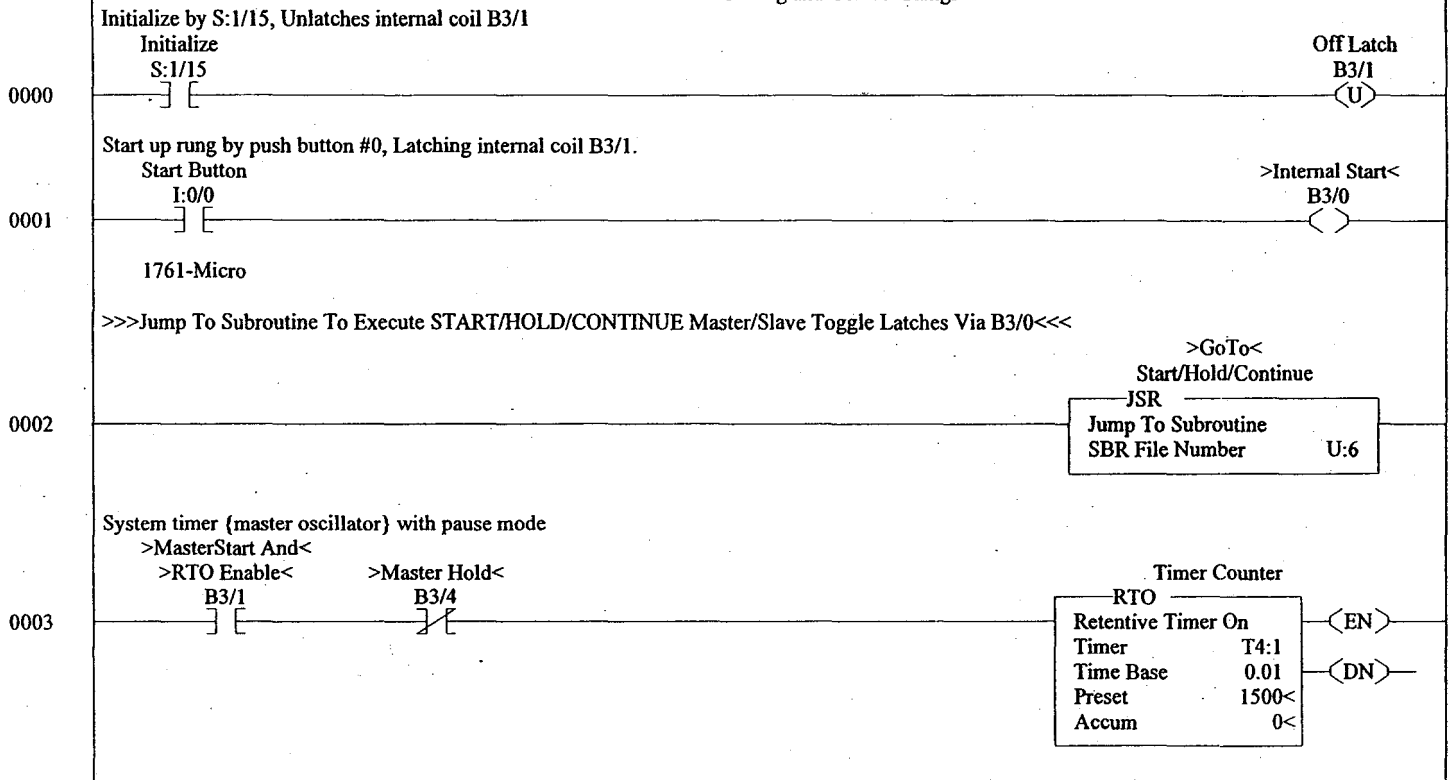
* MLOGIX1000TM LAST DAY TEST *

HIGH/LOW LIMIT CONTACT/COUNTER <
> AND TIMER GENERATED SEQUENCER <
* # CYCLE = 7 CYCLE TIME = 13 SEC *



CYCLES = 7, CYCLE TIME = 13 SECS
128

LAD 2 - SEQR_OUTPT --- Total Rungs in File = 19

>Time Driven Sequencer With Pause And Auto Repeat Modes<<
Timing and Control Rungs

- STUDY THE OPERATION OF THIS PROGRAM
- CONSTRUCT THE TIMING DIAGRAM FOR EACH OUTPUT
- ARE THERE ANY ERRORS OR IMPROVEMENTS IN PROGRAM
- NOTE: FEATURES IN THIS PROGRAM ARE TO BE USED LATER, STUDY CAREFULLY

LAD 2 - SEQR_OUTPT ---- Total Rungs in File = 19

Output #1 Timing Diagram

Output #1 "on" for : [1] 0 sec < t < 1.3 sec or [2] 3.05 secs < t < 7.35 secs or [3] 11 secs < t < 13.1 secs for counts 0, 1, 2, 4, 5, 6

0005

LIM	
Limit Test	
Low Lim	0
	0<
Test	C5:1.ACC
	0<
High Lim	2
	2<

LIM	
Limit Test	
Low Lim	0
	0<
Test	T4:1.ACC
	0<
High Lim	130
	130<

Output #1
O:0/1

1761-Micro

LIM	
Limit Test	
Low Lim	4
	4<
Test	C5:1.ACC
	0<
High Lim	6
	6<

LIM	
Limit Test	
Low Lim	305
	305<
Test	T4:1.ACC
	0<
High Lim	735
	735<

LIM	
Limit Test	
Low Lim	1100
	1100<
Test	T4:1.ACC
	0<
High Lim	1310
	1310<

>MasterStart And<
>RTO Enable<
B3/1
[/]

LAD 2 - SEQR_OUTPT --- Total Rungs in File = 19

Output #2 Timing Diagram

Output #2 "on" for : [1] 1.4 sec < t < 2.5 sec or [2] 3.3 secs < t < 5 secs or [3] 9.12 secs < t < 11.8 secs or [4] 12.9 secs < t < 14.6 secs for all counts

Output #2
0:0/2

1761-Micro

0006

LIM	
Limit Test	
Low Lim	140
	140<
Test	T4:1.ACC
	0<
High Lim	250
	250<

LIM	
Limit Test	
Low Lim	330
	330<
Test	T4:1.ACC
	0<
High Lim	500
	500<

LIM	
Limit Test	
Low Lim	912
	912<
Test	T4:1.ACC
	0<
High Lim	1180
	1180<

LIM	
Limit Test	
Low Lim	1290
	1290<
Test	T4:1.ACC
	0<
High Lim	1460
	1460<

>MasterStart And<

>RTO Enable<

B3/1

1/1

LAD 2 - SEQR_OUTPT --- Total Rungs in File = 19

Output #3 Timing Diagram 1

Output #3 "on" for : [1] 0.9 sec < t < 2.6 sec or [2] 7.25 secs < t < 12.4 for count 0

>Timing Diagram #1<
>>Output #3<<
B3/13

0007

EQU	
Equal	
Source A	C5:1.ACC
	0<
Source B	0
	0<

LIM	
Limit Test	
Low Lim	90
	90<
Test	T4:1.ACC
	0<
High Lim	260
	260<

LIM	
Limit Test	
Low Lim	725
	725<
Test	T4:1.ACC
	0<
High Lim	1240
	1240<

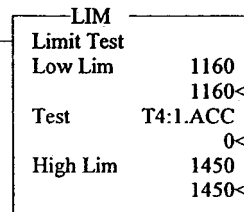
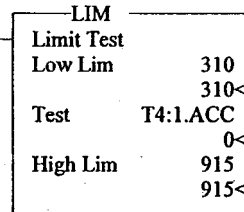
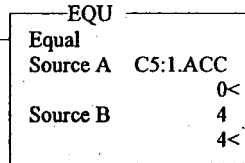
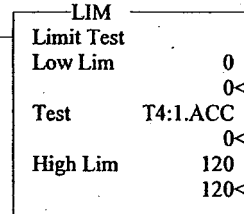
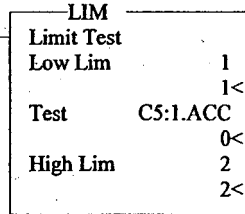
Output #3 Timing Diagram #2

Output #3 "on" for : [1] 0 sec < t < 1.2 sec or [2] 3.1 secs < t < 9.15 secs or [3] 11.6 secs < t < 14.5 secs for counts 1, 2, 4

>MasterStart And<
>RTO Enable<

0008

B3/1



>Timing Diagram #2<
>>Output #3<<
B3/23

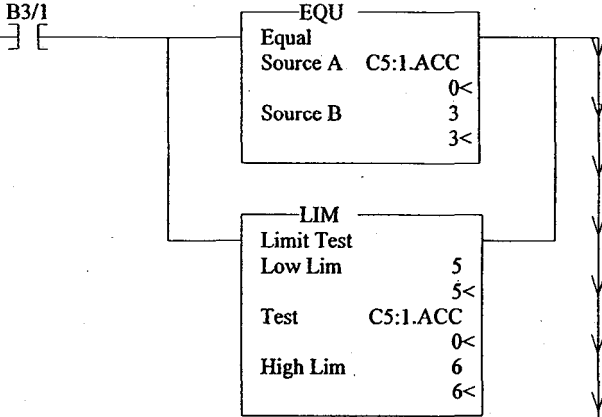
LAD 2 - SEQR_OUTPT --- Total Rungs in File = 19

Output #3 Timing Diagram #3

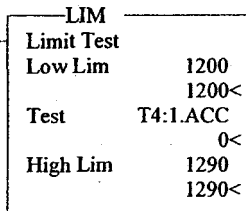
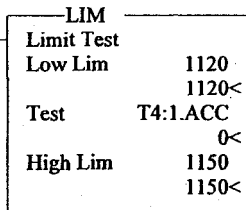
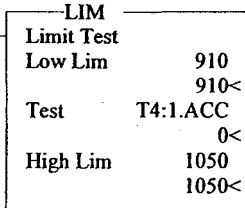
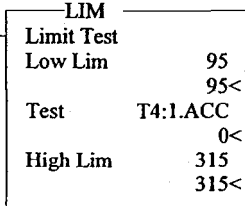
Output #3 "on" for : [1] 0.95 sec < t < 3.15 sec or [2] 9.1 secs < t < 10.5 secs or [3] 11.2 secs < t < 11.5 secs or [4] 12 secs < t < 12.9 for counts 3, 5, 6

>MasterStart And<
>RTO Enable<

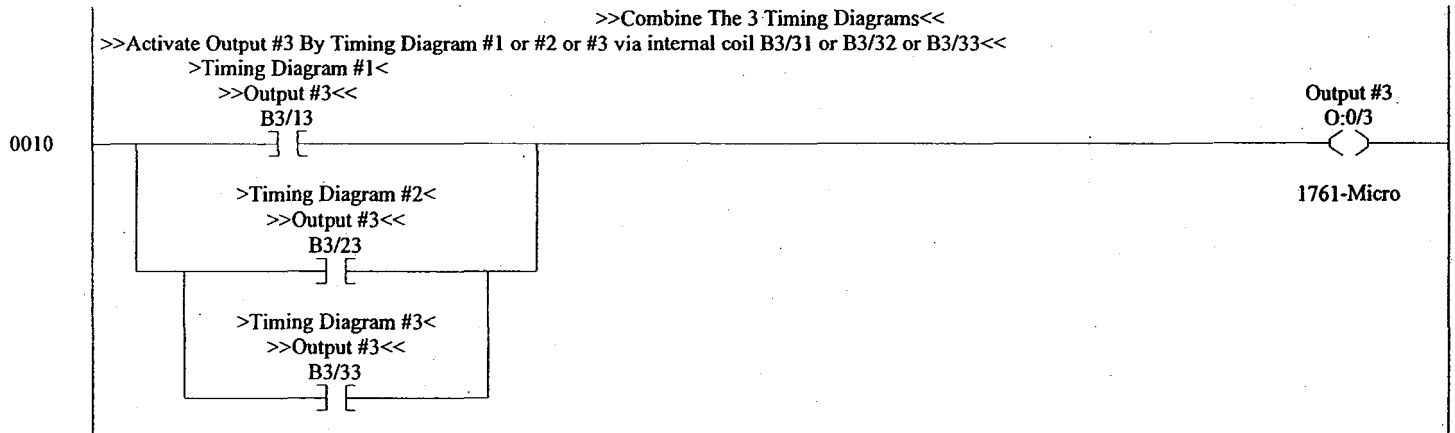
0009

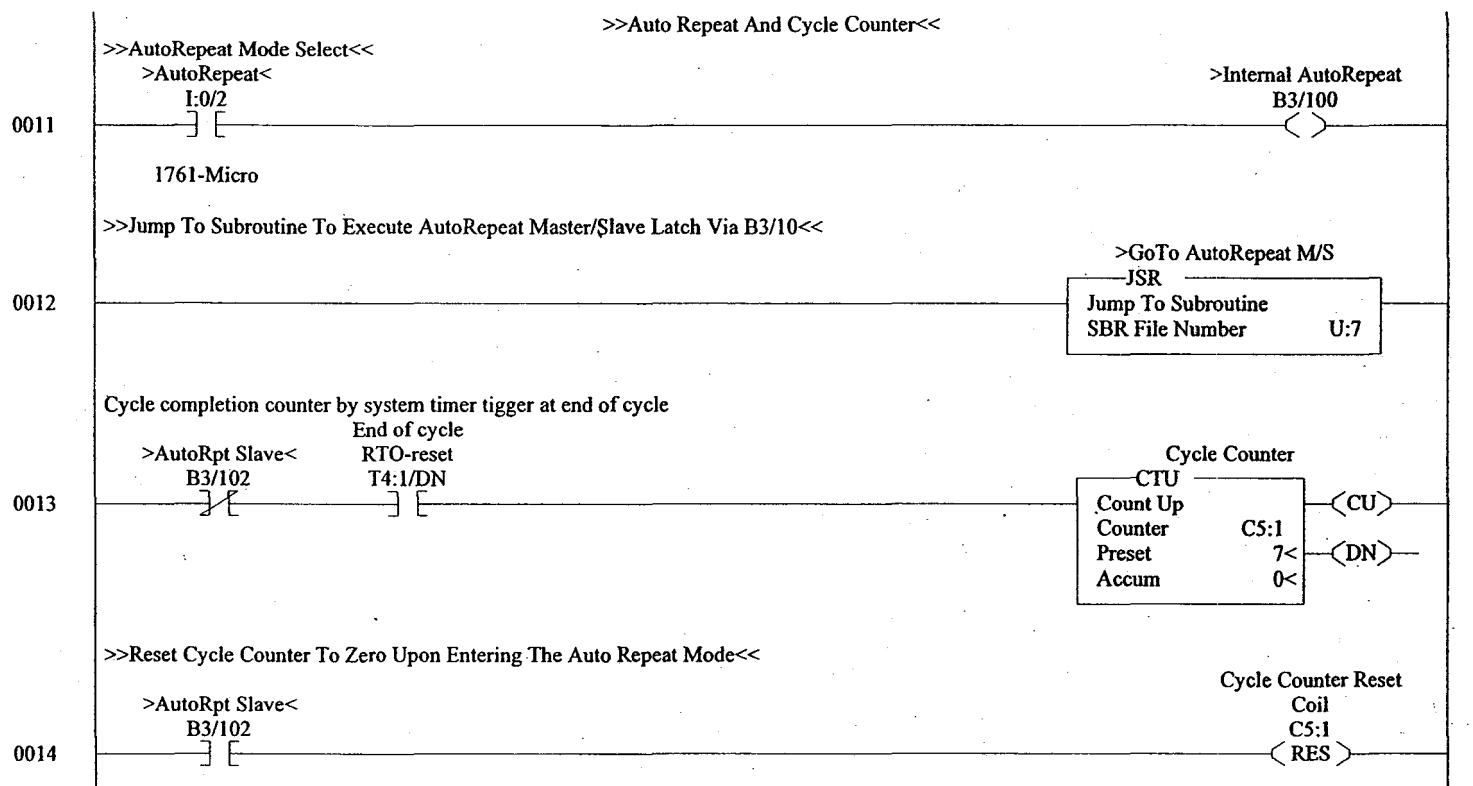


>Timing Diagram #3<
>>Output #3<<
B3/33

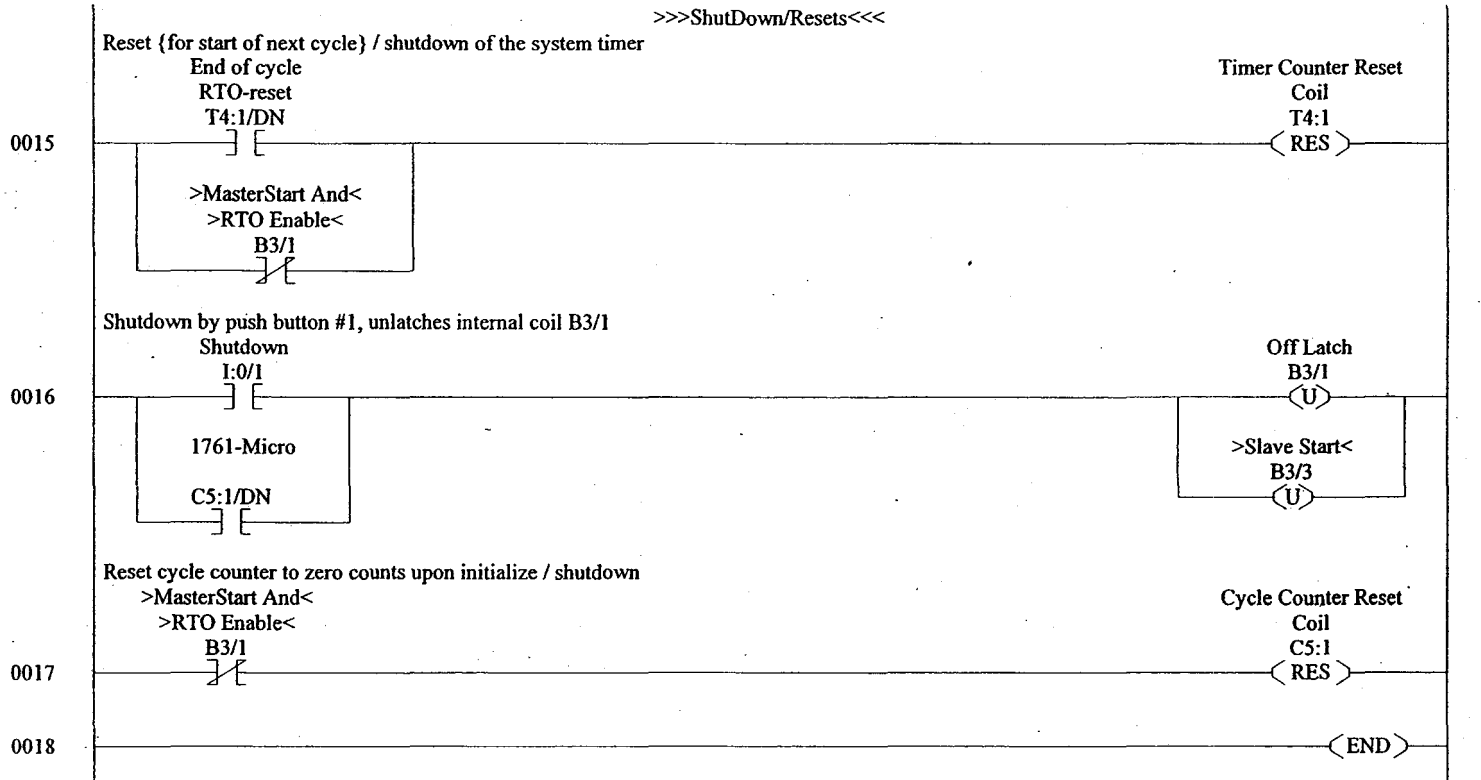


LAD 2 - SEQR_OUTPT --- Total Rungs in File = 19

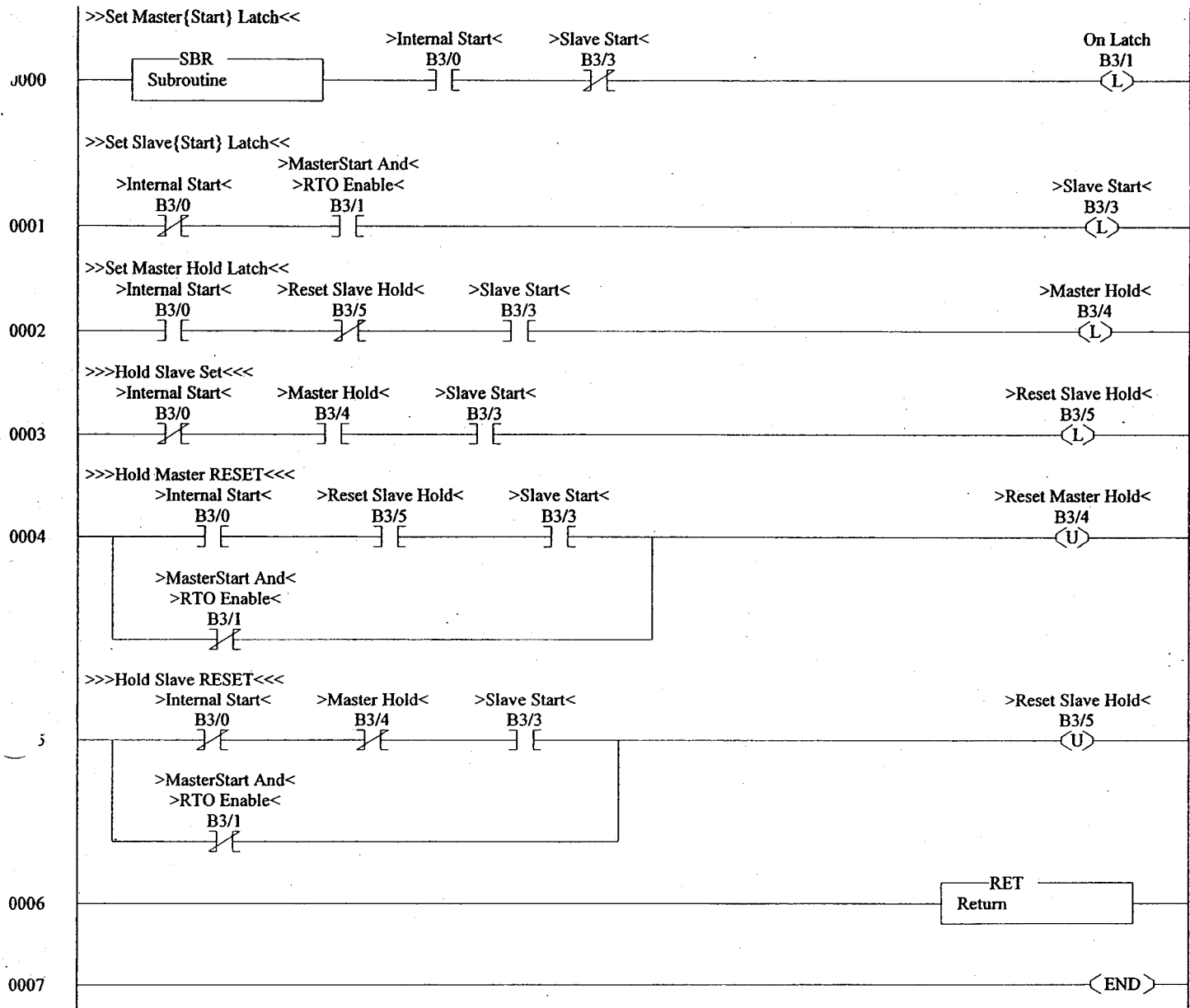




LAD 2 - SEQR_OUTPT --- Total Rungs in File = 19



LAD 6 - START_HOLD --- Total Rungs in File = 8



LAD 7 - AUTOREPEAT --- Total Rungs in File = 6

