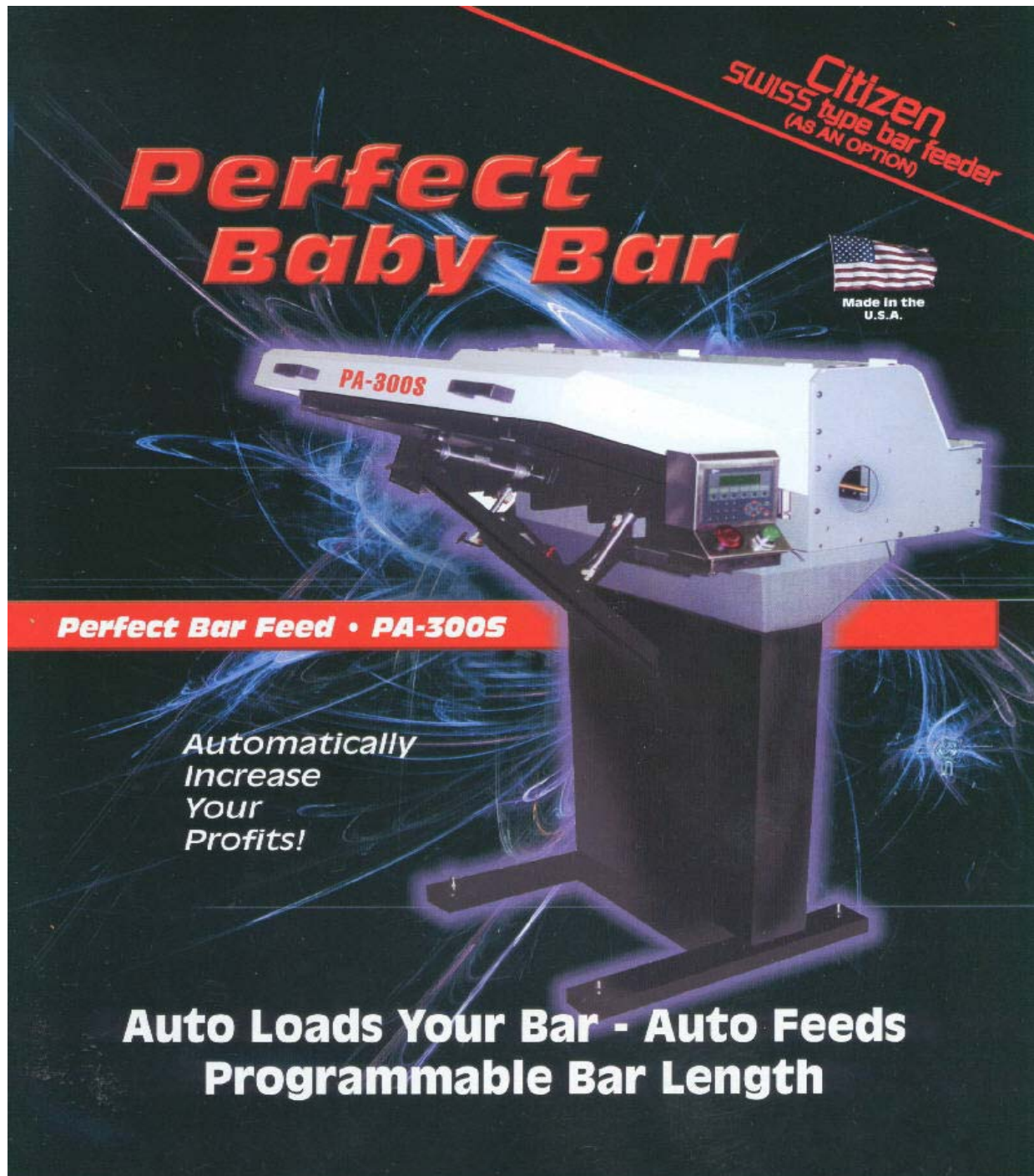


**Perfect Machinery**  
**Baby Bar Feed Operators Manual**  
**Model # PA-300S**



**Perfect Baby Bar**

*Citizen*  
SWISS type bar feeder  
(AS AN OPTION)

Made in the U.S.A.

**PA-300S**

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<b><u>INITIAL CONDITIONS:</u></b>	<b><u>I / O</u></b>
A. MAIN POWER IS OFF 230VAC LINE	-----
B. SERVO AMP HAS NO ALARMS (N.C.)	X00 ON
C. "SERVO HOME" PROX 1 UNOBSTRUCTED (N.O.) (SERVO IS NOT HOME) FIRST TIME POWER UP, SERVO HOME ROUTINE NOT COMPLETED	X01 OFF -----
D. "EMERGENCY STOP" RELEASED (TWIST TO RELEASE; RESET)	X02 ON
E. "REVERSE OVER-TRAVEL" N.C. LIMIT RELEASED (SERVO NOT O/T)	X03 ON
F. "AIR PRESSURE" SWITCH PS1 ON (N.O.) (MAIN AIR IS ON)	X04 ON
G. FORWARD OVER-TRAVEL" N.C. LIMIT RELEASED (SERVO NOT O/T)	X05 ON
H. "BAR STOCK DETECT" PROX 2 UNOBSTRUCTED (N.O.) (NOT PRESENT)	X06 OFF
I. "CARTRIDGE DOWN" CYLINDER REED SWITCH MADE (N.O.)	X07 ON
J. "CARTRIDGE UP" CYLINDER REED SWITCH RELEASED (N.O.)	X10 ON
K. "ADJ. LOWER CONTROL FEED" PROX 3 UNOBSTRUCTED (N.O.)	X11 OFF
L. "CNC DONE" SIGNAL IS OFF (2CR-24VDC, DE-ENERGIZED)	X12 OFF
M. "CNC COLLET OPENED" SIGNAL IS OFF (3CR-24VDC, DE-ENERGIZED)	X13 OFF
N. "ADJ. CARTRIDGE UP" PROX 2 UNOBSTRUCTED (N.O.)	X14 OFF
O. "UPPER CONTROL FEED" PROX 4 UNOBSTRUCTED (N.O.)	X15 OFF
P. "SERVO PULSE TRAIN" OFF (SERVO NOT MOVING)	Y00 OFF
Q. "SERVO DIRECTION" OFF (DIRECTIONAL CONTROL OFF)	Y01 OFF
R. "SERVO LOCK" OFF (SERVO SHAFT FREE SPINNING)	Y02 OFF
S. "SERVO RESET" OFF (SERVO AUTO RESET FUNCTION OFF)	Y03 OFF
T. "CNC START" IS OFF (1CR-24VDC, DE-ENERGIZED)	Y04 OFF
U. "SERVO AMP POWER" IS OFF (4CR-24VDC, DE-ENERGIZED)	Y05 OFF
V. "CARTRIDGE UP" SOL 1A IS OFF (24VDC, DE-ENERGIZED)	Y06 OFF
W. "CARTRIDGE DOWN" SOL 1B IS OFF (24VDC, DE-ENERGIZED)	Y07 OFF
X. "CNC OPEN COLLET" IS OFF (5CR-24VDC, DE-ENERGIZED)	Y10 OFF
Y. "BAR LOAD CYLS" SOL 2 OFF (RETRACTED) (24VDC, DE-ENERGIZED)	Y11 OFF
Z. OPERATOR MANUALLY LOADS BAR STOCK INTO GRAVITY FEED TRAY BAR LOAD CYLS PREVENTS BAR STOCK FROM ENTERING BABY BAR	----- -----
AA. READY TO POWER ON, HOME, AND THEN START SEQUENCE	-----

**POWER-UP SCREEN**

**I / O**

- 1) OPERATOR MANUALLY TURNS ON MAIN POWER -----
- POWER-UP DELAY OF 6 SECONDS -----



TB000 (POWER UP)

**HOME CYCLE REQUIRED**

**I / O**

- 2) EVERY POWER-UP REQUIRES SERVO TO HAVE HOME REFERENCE -----
- USES THE HOME PROX TO LOCK IN THE "ZERO COUNT" POSITION -----
- 3) OPERATOR PUSHES E150 "**HOME**" FUNCTION KEY -----
- IF CYCLE WAS NOT IN PROGRESS, NO POWER LOSS, SKIP TO [Home](#) -----



TB001 (HOME REQUIRED)

- IF AIR PRESSURE LOW, SECOND LINE DISPLAYS "**AIR PRESS LOW**" -----

**CONTINUE LAST CYCLE?**

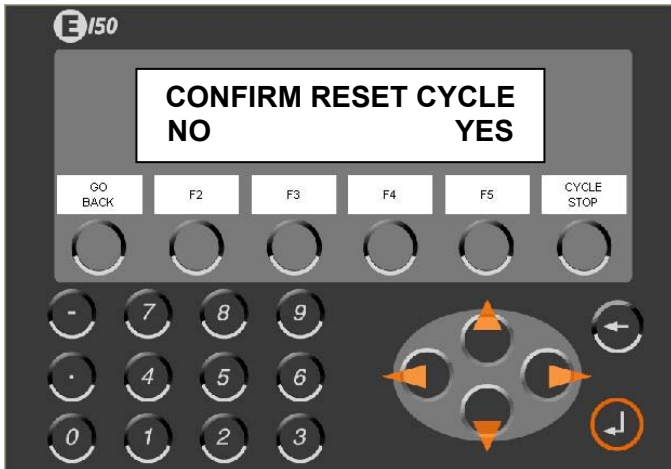
**I / O**

- 4) "HOME" KEY PUSHED, LAST CYCLE IN PROGRESS AND POWER LOSS -----  
 - CHOOSE YES TO CONTINUE LAST CYCLE -----  
 - CHOOSE NO TO START OVER (HOME) -----



TB002 (POWER & CONTINUE?)

- IF NO, CONFIRM TO RESET LAST CYCLE -----  
 - IF YES, CONFIRM TO RESUME PREVIOUS CYCLE -----



TB003 (CONFIRM RESET LAST CYCLE)



TB004 (CONFIRM CYCLE RESUME)

- IF RESET YES, SERVO WILL [Home](#) -----

**HOME CYCLE****I / O**

- |   |         |
|---|---------|
| 5) OPEN CNC COLLET (ENERGIZE 5CR)                           | Y10 ON  |
| A) CNC COLLET OPENED ENERGIZES 3CR (FEEDBACK)               | X13 ON  |
| 6) SERVO MOVES FORWARD A SHORT DISTANCE (3" APPROX.)        | -----   |
| A) SERVO MOVING FORWARD STOPS                               | -----   |
| 7) CLOSE CNC COLLET (DE-ENERGIZE 5CR)                       | Y10 OFF |
| A) CNC COLLET CLOSED DE-ENERGIZES 3CR (FEEDBACK)            | X13 OFF |
| 8) SERVO REVERSE HIGH SPEED TOWARD HOME PROX 1              | -----   |
| A) SERVO REVERSING HOME MAKES HOME PROX 1                   | X01 ON  |
| 9) SERVO SLOWS TO SLOW CREEP SPEED REVERSE                  | -----   |
| A) SERVO REVERSING VERY SLOWLY RELEASES HOME PROX 1         | X01 OFF |
| 10) SERVO STOPS AND RESETS ENCODER COUNTER TO ZERO (0.000") | -----   |
| A) GO TO <a href="#">Auto</a> CYCLE                         | -----   |



TB005 (SERVO IS HOMING)

- IF CONTINUE CYCLE, SECOND LINE DISPLAYS "CYCLE WILL **RUN**" -----



**AUTO CYCLE (HOME CYCLE IS COMPLETE)**

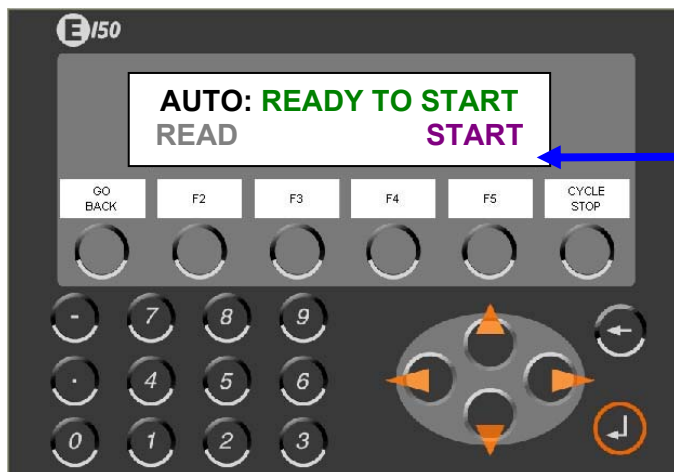
**I / 0**

1. OPERATOR PUSHES E150 “**AUTO**” FUNCTION KEY -----



TB010 (MODE SELECT)

- CHANGE SCREENS -----



TB030 (AUTO MAIN)

SCROLL& SET AUTO DATA	RANGE
50% SLOW SPEED JOG	(1-100)
100% FAST SPEED JOG	(1-100)
100% HOME SPEED JOG	(1-100)
***** REV DISABLED	
12:00PM 05/05/03 MO	(DATE/TIME)
***** TECH DEFAULT (DEFAULT/CHANGED)	
Login	
#RESET REV PASSWORD	

2. OPERATOR PUSHES E150 “**READ**” FUNCTION KEY -----

- TO READ A SAVED RECIPE FOR CURRENT OPERATION

3. OPERATOR PUSHES E150 “**START**” FUNCTION KEY (SETUP) -----

- **NO MECHANICAL OPERATION UNTIL OPERATOR SETUP** -----

- IF INTERLOCKS ARE NOT “**READY TO START**”, (SEE [Interlocks](#)) -----

- FIRST LINE DIPLAYS POSSIBLE CAUSES & “**START**” IS NOT SEEN -----

**AUTO CYCLE (CONTINUED)**

**I/O**

- 4. CYCLE STARTED, -----
- OPERATOR MUST REVIEW BAR STOCK LENGTH TO BE USED -----



TB031 (KEEP)

- 5. CHOOSE **KEEP** IF VALUE DISPLAYED IS CORRECT -----
- OR CHOOSE **CHANGE** TO "ENTER" NEW **VALUE** -----



TB032 (CHANGE)

CHANGE **VALUE** USING  
 NUMERICAL KEYPAD  
 AND **ENTER** KEY



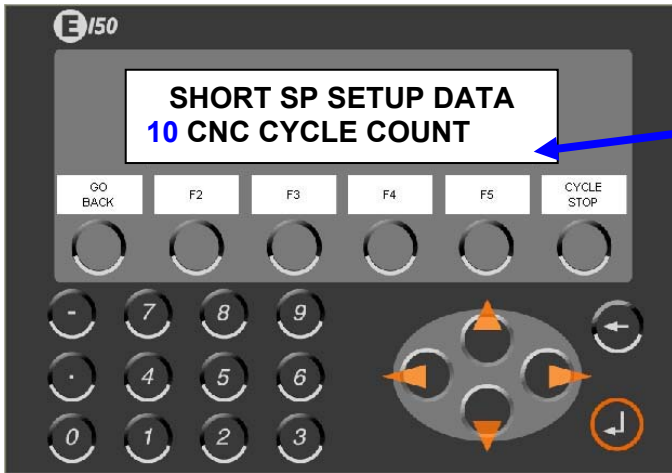
- CHOOSE **OK** WHEN DONE -----



**AUTO CYCLE (CONTINUED)**

**I/O**

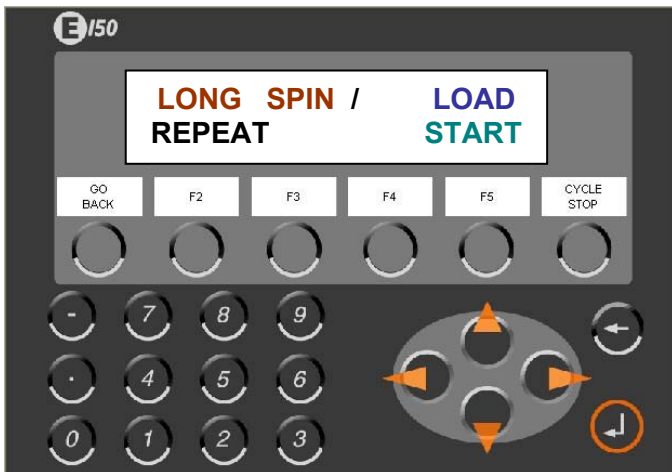
- 6. CYCLE STARTED, BAR STOCK LENGTH HAS BEEN VERIFIED -----
- **SHORT SPINDLE** IS AUTO SELECTED -----
- **NO LOAD** OR **LOAD** IS AUTO SELECTED -----
- A) OPERATOR SELECTS, **REPEAT** MODE (F2 TOGGLES **SINGLE** MODE) -----
- B) OPERATOR SETUP SP CYCLE DATA



SCROLL& SET DATA SP INDEX	RANGE
10 CNC CYCLE COUNT	(1-10)
6.0000" REV DISTANCE	(.0100-6.0000)
9.9 Sec DELAY REV	(0.1-9.9)
6.0000" POSN CNC 1	(0.1250-6.0000)
6.0000" POSN CNC 1	(0.1250-6.0000)
6.0000" POSN CNC 2	(0.1250-6.0000)
6.0000" POSN CNC 3	(0.1250-6.0000)
6.0000" POSN CNC 4	(0.1250-6.0000)
6.0000" POSN CNC 5	(0.1250-6.0000)
6.0000" POSN CNC 6	(0.1250-6.0000)
6.0000" POSN CNC 7	(0.1250-6.0000)
6.0000" POSN CNC 8	(0.1250-6.0000)
6.0000" POSN CNC 9	(0.1250-6.0000)
6.0000" POSN CNC 10	(0.1250-6.0000)
15% INDEX SPEED	(1-15)
100% LOAD BAR SPEED	(1-100)
5.0 Sec LOAD STOCK	(0.0-5.0)

TB055 (SHORT SPINDLE, SETUP)

- CYCLE STARTED, BAR STOCK LENGTH HAS BEEN VERIFIED -----
- **SHORT SPINDLE** OR **LONG SPINDLE** IS AUTO SELECTED -----
- **NO LOAD** OR **LOAD** IS AUTO SELECTED -----
- A) OPERATOR SELECTS, **REPEAT** MODE (F2 TOGGLES **SINGLE** MODE) -----



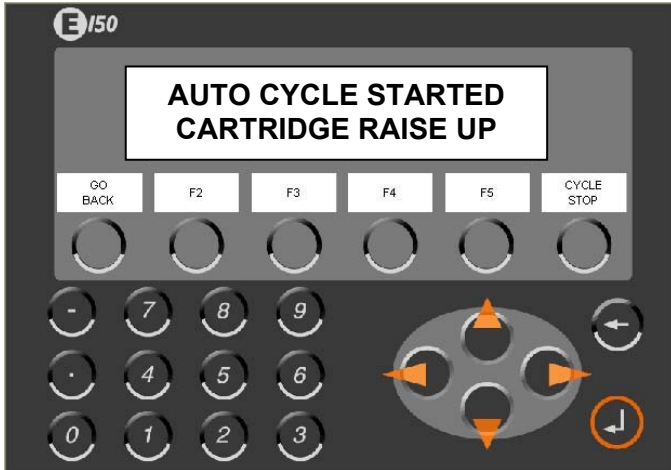
TB033 (LONG SPINDLE)

**BEGIN MECHANICAL OPERATIONS**

- 7. OPERATOR PUSHES E150 "**START**" (**MECHANICAL OPERATIONS**) -----
- A) CARTRIDGE CYLINDERS EXTEND (UP) (SOL1A) Y06 ON
- B) BAR LOAD CYLS RETRACT (DOWN), NEXT BAR STOCK READY. Y11 ON

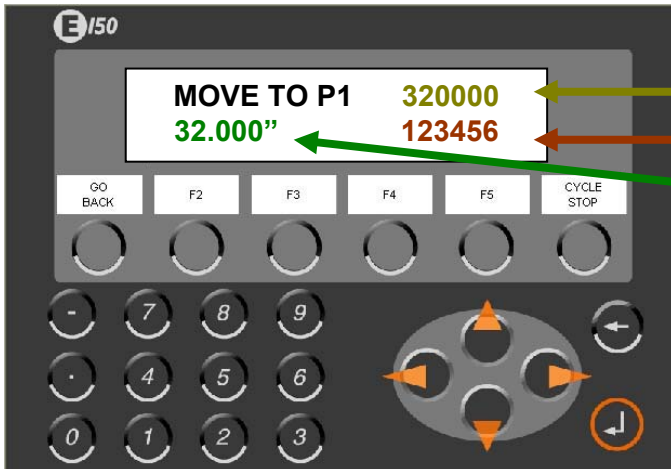
**AUTO CYCLE (CONTINUED)**

**I/O**



TB040 (CARTRIDGE UP)

- |     |  |                            |
|-----|--|----------------------------|
| 8.  | CARTRIDGE MOVING UP RELEASES DOWN REED SWITCH (RS1)<br>A) NO ACTION  | X07 OFF<br>-----           |
| 9.  | BAR LOAD CYLS RETRACT, MAKES BAR LOAD DETECT (PROX 2)<br>A) BAR IS LOADED (FAULT IF BAR NOT DETECTED)  | X6 ON/OFF<br>-----         |
| 10. | CARTRIDGE UP MAKES ADJUSTABLE UP PROX (PROX4)<br>A) CARTRIDGE UP (3-POSITION VALVE) SOLENOID OFF (SOL1A)<br>B) START DELAY INDEX TIMER (3 SEC)           | X14 ON<br>Y06 OFF<br>----- |
| 11. | DELAY INDEX TIMER TIMES OUT<br>A) – IF “NO LOAD” CYCLE, SEQUENCE SKIP TO <a href="#">P2</a> INDEX<br>– IF “LOAD” CYCLE, SERVO INDEX FWD TO CALCULATED P1 | -----<br>-----<br>-----    |



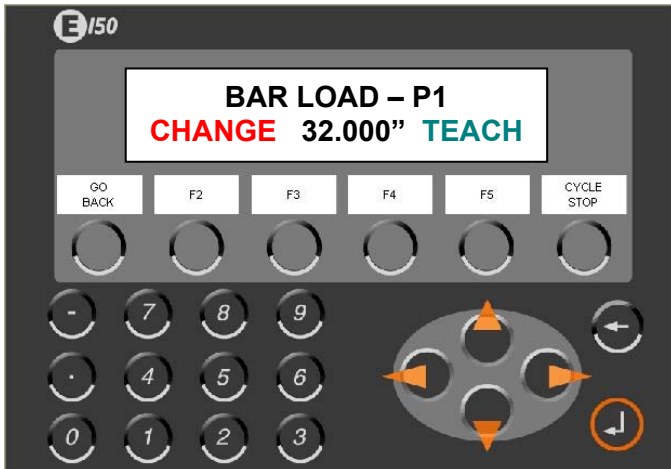
TARGET ENCODER COUNT
CURRENT ENCODER COUNT
CALCULATED P1 (DEFAULT)

TB042 (MOVING TO P1, LOAD CYCLE)

- |     |  |                |
|-----|--|----------------|
| 12. | SERVO AT P1 (LOAD CYCLE)<br>A) – IF P1 IS TAUGHT (FIRST-TIME ONLY), SKIP TO SERVO GO TO <a href="#">P0</a> | -----<br>----- |
| 13. | SERVO AT P1 & NOT TAUGHT, OPERATOR <b>CHANGE</b> OR <b>TEACH</b> P1  | -----          |

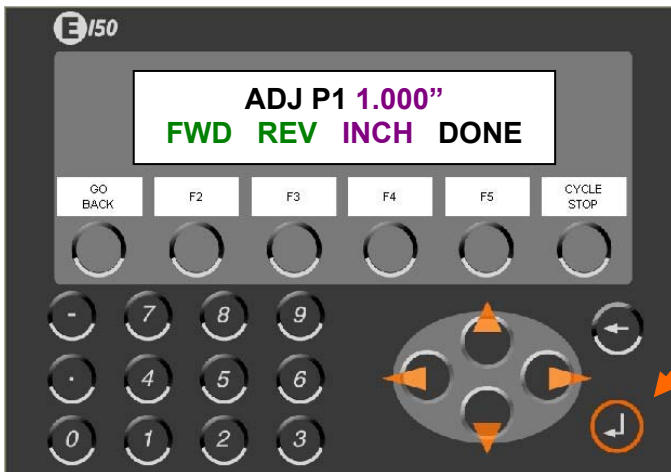
**AUTO CYCLE (CONTINUED)**

**I/O**



TB043 (VERIFY P1 OR P2)

- IF **TEACH**, SKIP TO ENTER INDEX DATA (NEXT STEP) -----
- IF **CHANGE**, ALLOW **JOG** OR **INCH** (FIXED) TO NEW P1 TO TEACH



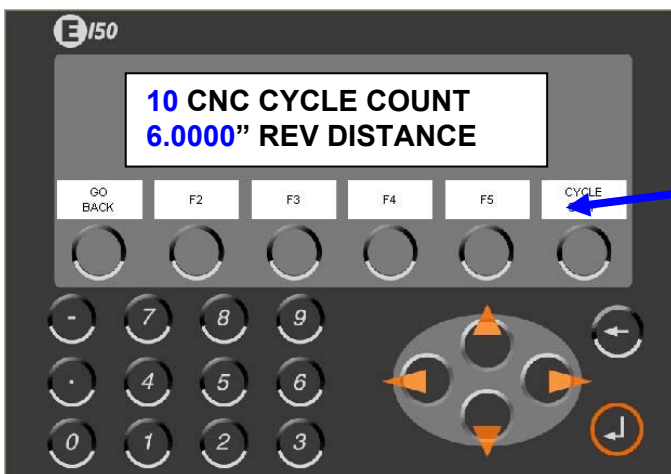
**CHANGE INCH VALUE (+/-1.000\"/>**



TB044 (JOG OR INCH NEW P1 or P2)

14. - IF INDEX DATA NOT ENTERED (SHORT SPINDLE STEP) -----

A) OPERATOR MUST ENTER INDEX DATA -----



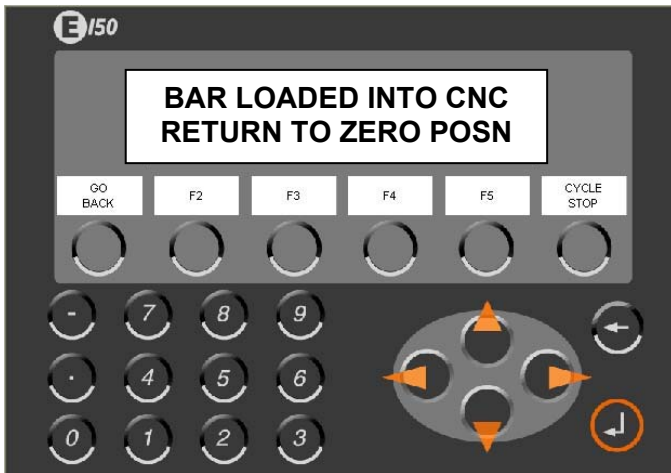
TB056 (LOAD INDEX DATA)

SCROLL& SET DATA SP INDEX	RANGE
10 CNC CYCLE COUNT	(1-10)
6.0000" REV DISTANCE	(.0100-6.0000)
9.9 Sec DELAY REV	(0.1-9.9)
6.0000" POSN CNC 1	(0.1250-6.0000)
6.0000" POSN CNC 1	(0.1250-6.0000)
6.0000" POSN CNC 2	(0.1250-6.0000)
6.0000" POSN CNC 3	(0.1250-6.0000)
6.0000" POSN CNC 4	(0.1250-6.0000)
6.0000" POSN CNC 5	(0.1250-6.0000)
6.0000" POSN CNC 6	(0.1250-6.0000)
6.0000" POSN CNC 7	(0.1250-6.0000)
6.0000" POSN CNC 8	(0.1250-6.0000)
6.0000" POSN CNC 9	(0.1250-6.0000)
6.0000" POSN CNC 10	(0.1250-6.0000)
15% INDEX SPEED	(1-15)
100% LOAD BAR SPEED	(1-100)
5.0 Sec LOAD STOCK	(0.0-5.0)

**AUTO CYCLE (CONTINUED)**

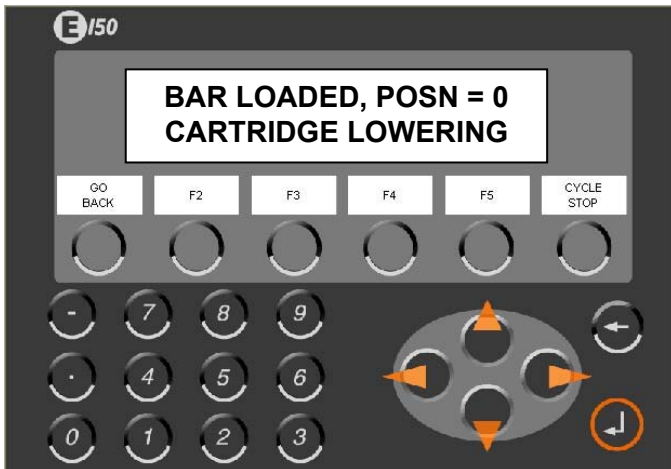
**I / O**

15. P1 POSITION, TEACH COMPLETE, AND INDEX DATA ENTERED -----  
 SERVO MOVES HOME TO P0 (ZERO POSITION; 0.000") -----



TB046 (SERVO GO TO P0)

16. SERVO AT P0 POSITION (HOME) -----  
 A) CARTRIDGE CYLINDERS RETRACT (DOWN) (SOL1B) Y07 ON



TB047 (CARTRIDGE DOWN)

17. CARTRIDGE MOVING DOWN RELEASES UP PROX (PROX4) X14 OFF  
 A) NO ACTION -----
18. CARTRIDGE DOWN MAKES REED SWITCH (RS1) X07 ON  
 A) CARTRIDGE DOWN (3-POSITION VALVE) SOLENOID OFF (SOL1B) Y07 OFF  
 B) ADJ. DELAY (AND THEN BAR LOAD PUSH CYLS EXTEND (UP) Y11 ON
19. SERVO INDEX FWD TO CALCULATED P2 -----

**AUTO CYCLE (CONTINUED)**

**I / O**

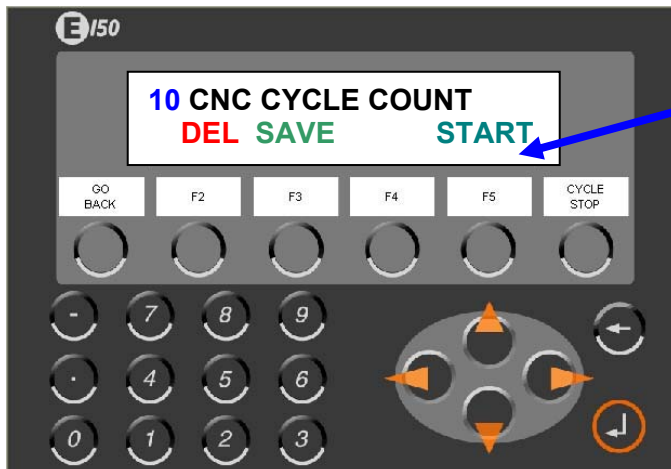
TB052 (MOVING TO P2, FOR FEED CYCLE)

- 20. SERVO AT P2 (READY TO FEED CYCLE) -----
  - A) – IF P2 IS TAUGHT (FIRST-TIME ONLY), SKIP TO SERVO [Index](#) CYCLE-----
- 21. SERVO AT P2 & NOT TAUGHT, OPERATOR **CHANGE** OR **TEACH** P2 -----

TB043 (VERIFY P1 OR P2)

- IF **TEACH**, SKIP TO SERVO [Index](#) CYCLE -----
- IF **CHANGE**, ALLOW **JOG** OR **INCH** (FIXED) TO NEW P1 TO TEACH

TB044 (JOG OR INCH NEW P1 or P2)

**AUTO CYCLE (CONTINUED)**

SCROLL & SET & SAVE DATA RECIPE	RANGE
10 CNC CYCLE COUNT	(1-10)
6.0000" REV DISTANCE	(.0100-6.0000)
9.9 Sec DELAY REV	(0.1-9.9)
6.0000" POSN CNC 1	(0.1250-6.0000)
6.0000" POSN CNC 2	(0.1250-6.0000)
6.0000" POSN CNC 3	(0.1250-6.0000)
6.0000" POSN CNC 4	(0.1250-6.0000)
6.0000" POSN CNC 5	(0.1250-6.0000)
6.0000" POSN CNC 6	(0.1250-6.0000)
6.0000" POSN CNC 7	(0.1250-6.0000)
6.0000" POSN CNC 8	(0.1250-6.0000)
6.0000" POSN CNC 9	(0.1250-6.0000)
6.0000" POSN CNC 10	(0.1250-6.0000)
15% INDEX SPEED	(1-15)
100% LOAD BAR SPEED	(1-100)
5.0 Sec LOAD STOCK	(0.0-5.0)

TB056 (RECIPE **SAVE**, THEN **"START"**)**INDEX CYCLE (CARTRIDGE DOWN)**

22. SERVO LAST POSITION IS P2, OPEN CNC COLLET (ENERGIZE 5CR) Y10 ON  
 A) CNC COLLET OPENED ENERGIZES 3CR (FEEDBACK) X13 ON
23. SERVO INDEX BAR STOCK FWD PRESET DISTANCE (FOR TOOLING) -----  
 A) INDEX COUNT (PRESET INDEX DATA) -----
24. SERVO INDEXING FWD, CHECK ADJ. LOWER CONTROL FEED (PROX3) X11 ON  
 A) – IF PROX MADE DURING FWD INDEX, END & SERVO GO TO [P0](#) -----  
 - IF PROX NOT MADE, PROCEED TO NEXT STEP -----
- INDEX CARTRIDGE UP (LONG SPINDLE) UPPER CONTROL FEED (PROX5) X15 ON*
25. SERVO INDEX FWD MOVE COMPLETE -----  
 A) – IF PRESET INDEX COUNT (1-10), RESET FOR FIRST INDEX -----  
 B) CLOSE CNC COLLET (DE-ENERGIZE 5CR) Y10 OFF  
 C) CNC COLLET CLOSED DE-ENERGIZES 3CR (FEEDBACK) X13 OFF  
 D) START ADJUSTABLE DELAY SERVO REV TIMER -----
26. SERVO DELAY REV TIMER TIMED OUT -----  
 A) SERVO REV 0.0100" OR PASSWORD PRESET DISTANCE -----  
 B) START CNC CYCLE (MOMENTARILY ENERGIZE 1CR) Y4 ON/OFF
27. SERVO INDEX REV MOVE COMPLETE -----  
 A) CYCLE WAITS FOR CNC DONE SIGNAL -----
28. CNC DONE SIGNAL (MOMENTARILY ENERGIZE 2CR) X12 ON  
 A) SERVO INDEX FWD TO MEET REAR BAR STOCK POSITION -----  
 B) INDEX CYCLE REPEATS [Index](#) -----



## SAFETIES & INTERLOCKS

### A) EMERGENCY STOP” PUSH TO STOP, TWIST TO RESET; (DETENT TYPE)

- IF DEPRESSED

1. CYCLE IS STOPPED (“PAUSED”), & DISABLED
2. - CARTRIDGE STOPS IN PLACE (3-POSITION ALL PORTS BLOCKED VALVE)
3. - BAR LOAD PUSH CYLINDERS CONTINUE DIRECTION OF TRAVEL & THEN STOPS
4. - DURING FWD OR REV INDEX, INDEX STOPS



TB007 (E-STOP OR F6 PAUSE)

- OPTIONS AFTER “PAUSE” (& E-STOP IS PULLED RESET)

1. **RUN**: ALLOWS CYCLE TO CONTINUE
2. **DIST**: ALLOWS ACCESS TO INDEX SETUP SCREEN
3. **ABORT**: ABORTS CYCLE, SENDS SERVO HOME, THEN CARTRIDGE LOWERS
4. **STOP**: CYCLE ONE TIME, THEN END CYCLE; SERVO HOME, CARTRIDGE LOWERS



TB006 (CYCLE WILL STOP)

### B) F6 IS GLOBAL “CYCLE STOP”. SCREEN DISPLAY ‘CYCLE STOP “PAUSE”’

- SAME FUNCTION AS E-STOP



## SAFETIES & INTERLOCKS

### A) “COMMON” CYCLE INTERLOCKS:

1. VALID HOME CYCLE COMPLETE
2. AIR PRESSURE ON (X04 ON)
3. NO SERVO ALARMS (X00 ON)
4. SERVO ON “SON” (ROTOR LOCKED) (Y02 ON)
5. CARTRIDGE CYL DOWN, MAKING DOWN REED SWITCH RS1 (X7 ON, X6 OFF)
6. ALL PROXIMITY SENSORS UNOBSTRUCTED (X06, X11, X14, & X15 ALL OFF)
7. EMERGENCY STOP PUSH BUTTON PULLED RESET

### B) SERVO FWD INTERLOCKS:

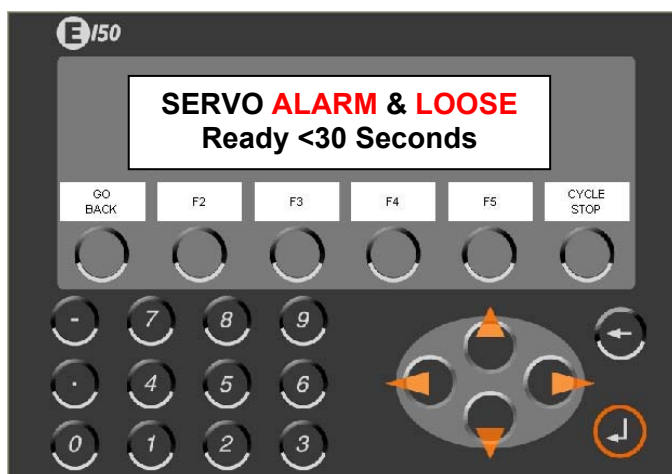
1. CNC COLLET IS OPEN
2. COMMON INTERLOCKS OK
3. FWD OVERTRAVEL LIMIT IS RELEASED (X5 ON)

### C) SERVO REV INTERLOCKS:

1. COMMON INTERLOCKS OK
2. REV OVERTRAVEL LIMIT IS RELEASED (X3 ON)

### D) SERVO ALARM AUTO RESET

1. IF SERVO ALARMS, AUTO RESET POWER VIA 4CR (Y05 OFF FOR 30 SECONDS)
2. DISPLAYS “**SERVO OK & LOCKED**” (Y05 ON & Y02 ON) WHEN POWER ON AGAIN



TB080 (SERVO ALARM AUTO RESET)

**SAFETIES & INTERLOCKS****E) CARTRIDGE UP FAULT**

- IF CARTIDGE RAISING UP AND ADJ. PROX NOT DETECTED

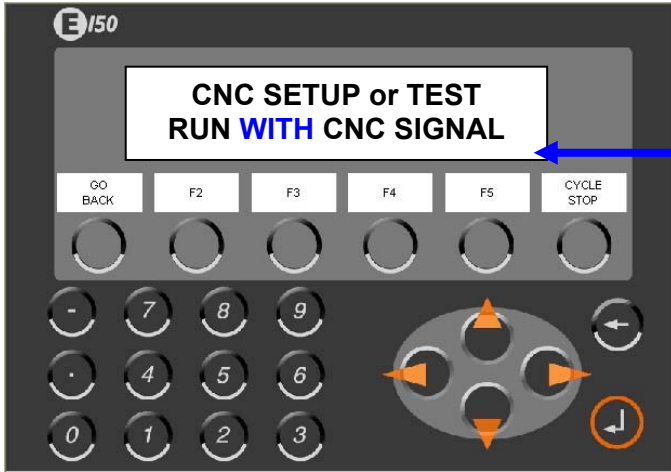


TB041 (CARTRIDGE UP FAULT)

- IF BAR LOAD FLAG, SECOND LINE DISPLAYS “REMOVE BAR & RETRY”

**CNC MODE: FROM MODE SELECT SCREEN**

**MODE CNC MAIN**



<u>SCROLL &amp; SET CNC DATA</u>	<u>RANGE</u>
<b>RUN W/O CNC SIGNAL</b> (Test No CNC Cable)	
<b>99 Min MAX C. CLOSE</b>	(2-99)
<b>99 Min MAX C. OPEN</b>	(2-99)
<b>99 Min MAX CNC TOOL</b>	(2-99)

TB013 (CNC SETUP or TEST)

**MANUAL MODE: FROM MODE SELECT SCREEN**

**MANUAL MAIN**



TB011 (MANUAL MAIN)

**HOME**



TB027 (MANUAL HOME)

**JOG**



TB020 (MANUAL JOG OR INCH)

**CHANGE INCH VALUE (+/-1.000\")  
USING NUMERICAL KEYPAD  
AND ENTER KEY**



- F4 TOGGLES SLOW OR FAST SPEED FOR FWD OR REV JOG

**CART**



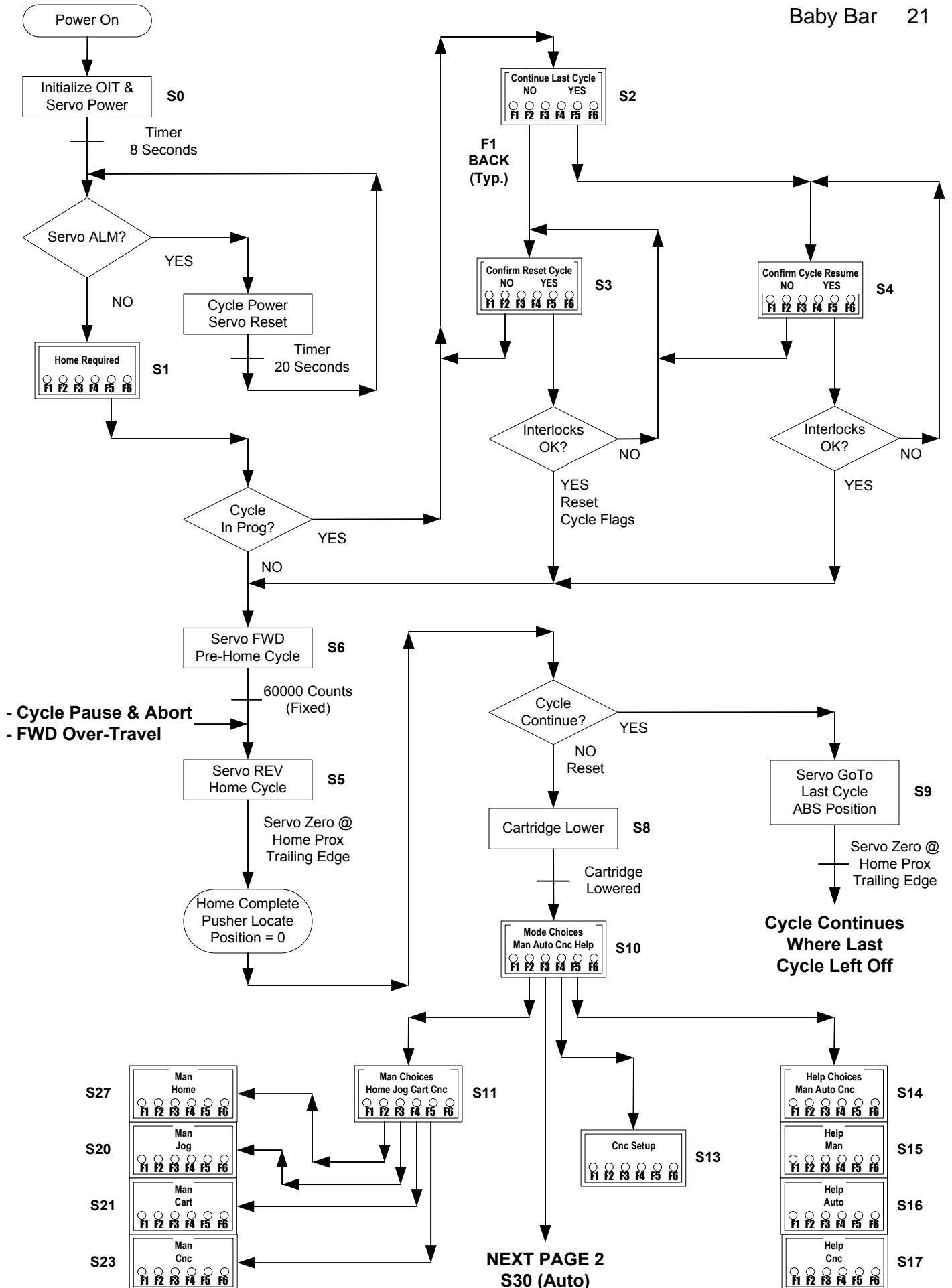
TB021 (MANUAL CARTRIDGE)

**CNC**



<u>SCROLL &amp; SET CNC DATA</u>	<u>RANGE</u>
RUN W/O CNC SIGNAL	(Test No CNC Cable)
99.9 Sec TEST DELAY	(Simulate Repeat)
OFF 1CR "START" CNC	(Test CNC Start; Y04)
2CR CNC DONE TOOLING	(BUSY; Read X12)
OFF 5CR COLLET OPEN	(Test C Open; Y10)
3CR COLLET IS OPENED	(CLOSE; Read X13)

TB023 (MANUAL CNC OPTIONS)

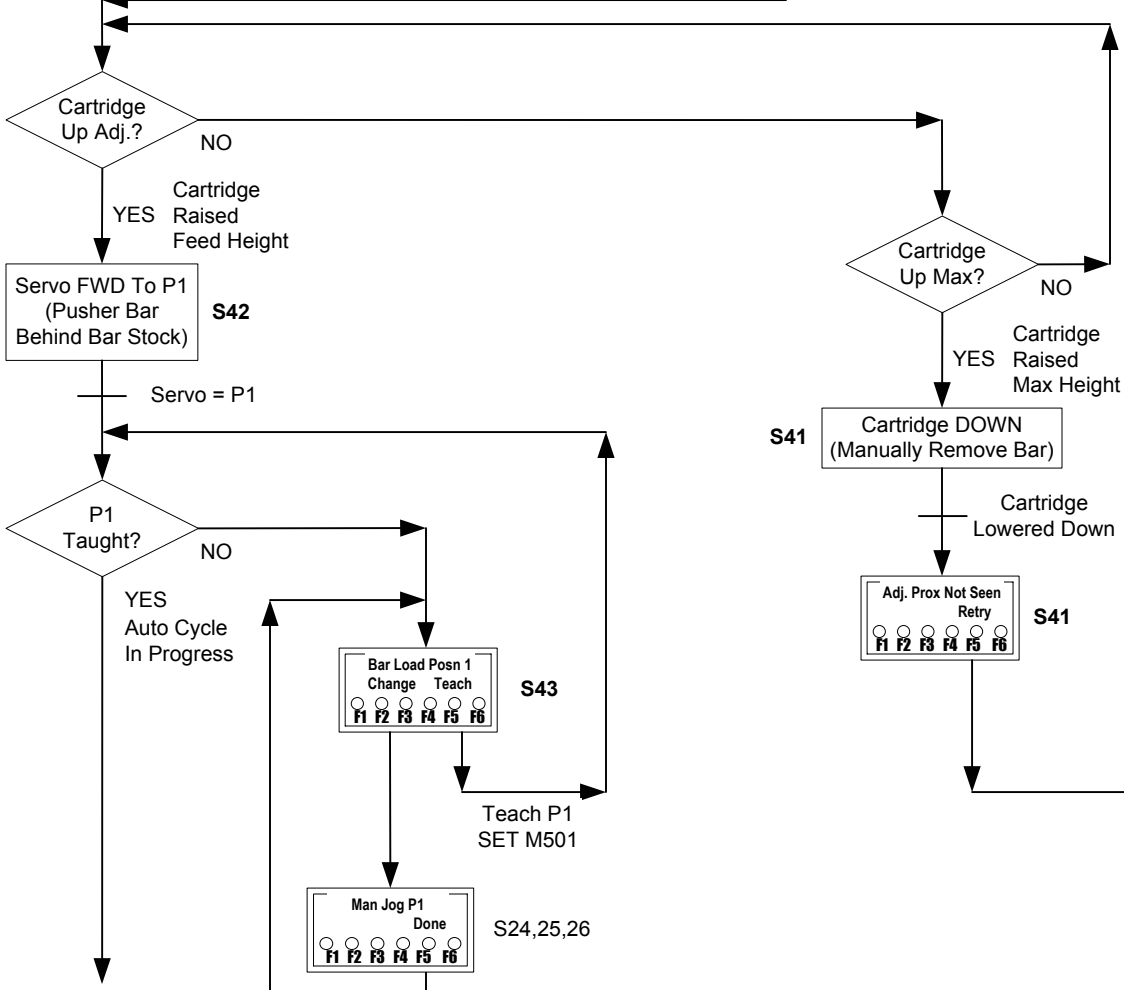
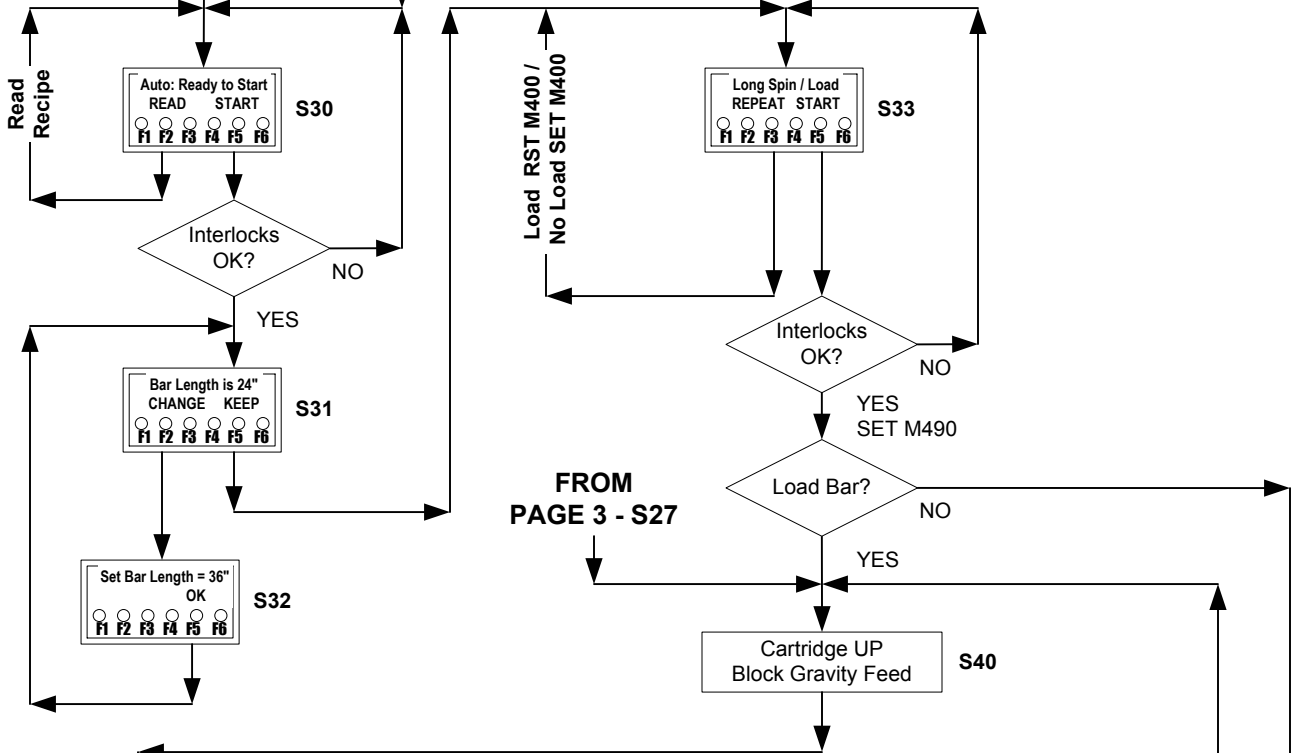


- Cycle Pause & Abort  
- FWD Over-Travel

Cycle Continues  
Where Last  
Cycle Left Off

NEXT PAGE 2  
S30 (Auto)

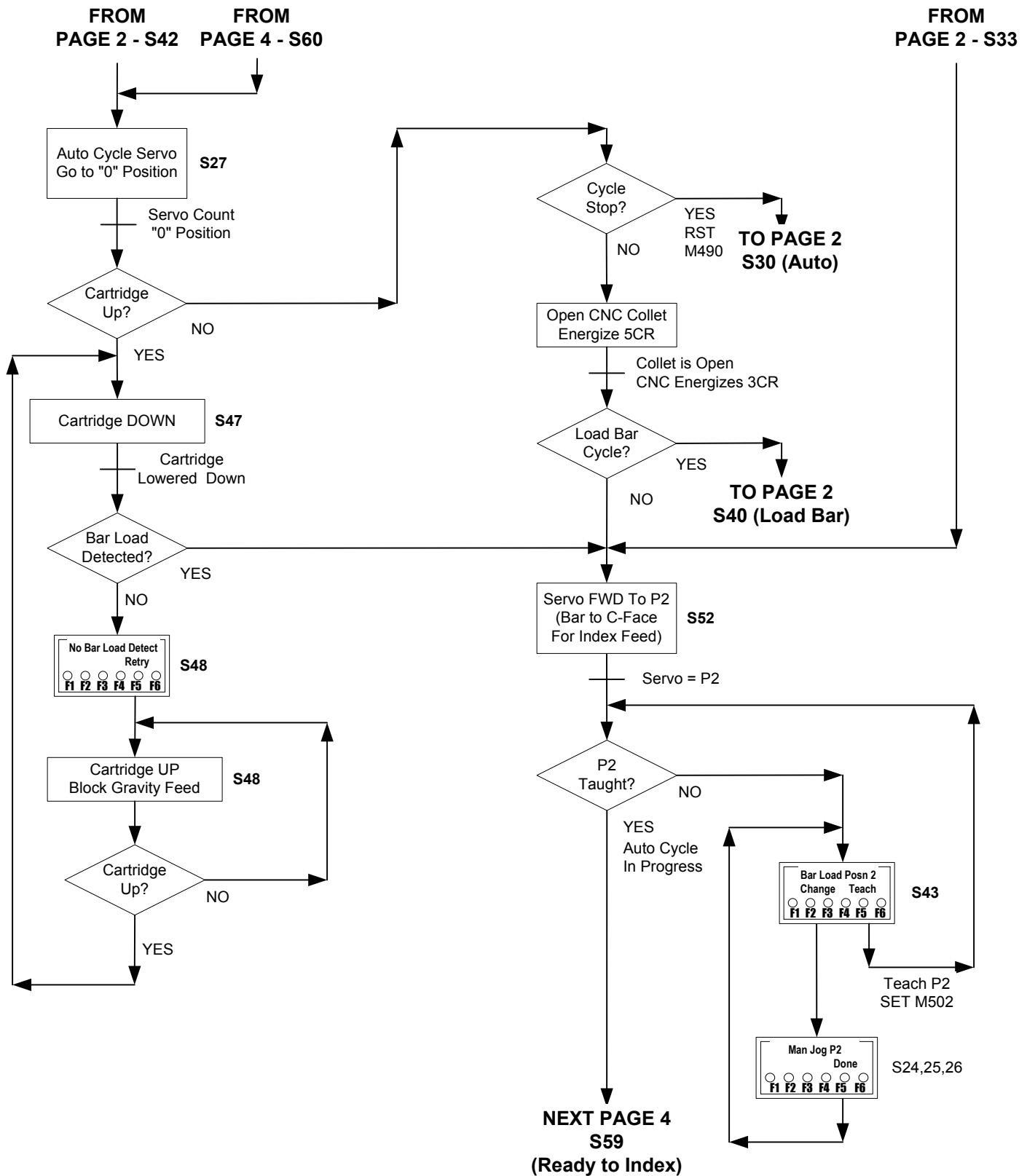
FROM PAGE 1 - S10      FROM PAGE 3 - S27

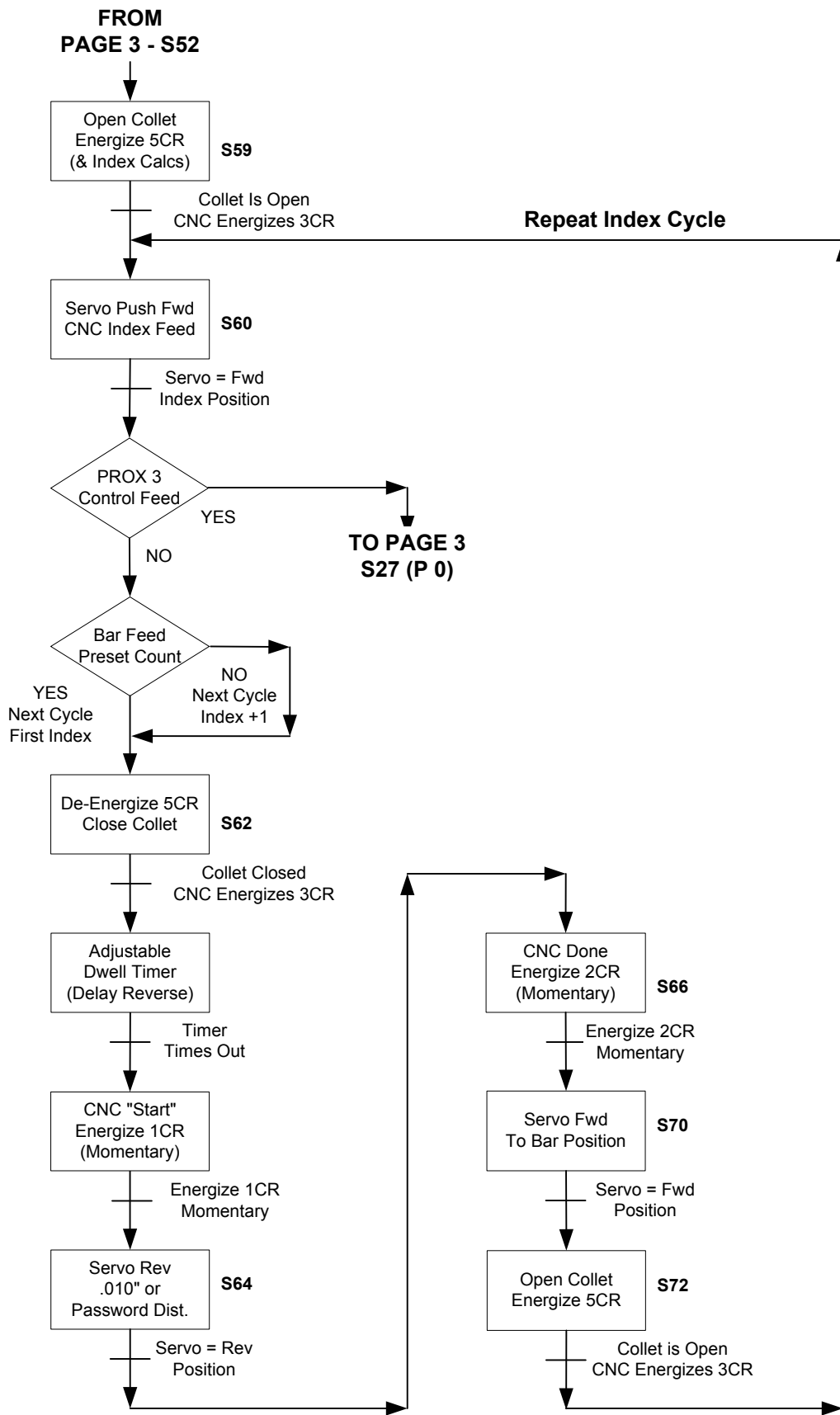


NEXT PAGE 3 S27 (P0)

NEXT PAGE 3 S52 (P2)







P0 = Home Position (Ball Screw Pusher Bar can Accept Max Bar Stock of 36")

P1 LOAD Cycle (Up) = (BarLen - ScrewMax) + (C-FaceDist - 1")

P1 NO LOAD (Down) = P1 Up (calculated) - PbarLen

Note: C-Face is the P1 Target, and default is less one inch. Operator may JOG FWD & Teach (No way to JOG Bar Stock Reverse)

SHORT SPINDLE Cycle: If PbarLen >= P1 - BarLen (Program Calculated)

In other words, when the Pusher Bar (Fixed Length) is equal or greater than the Teach P1 position, minus the Bar Stock Length

Note: CNC Setup should be equal to the distance

LOAD Cycle: If BarLen >= PbarDiff (ScrewMax - PbarLen), (Program Calculated), AND BarLen is greater than 8"

In other words, If the Bar Stock length is greater or equal to the Maximum Feed Distance, AND 8" or greater,

Then it CAN NOT Feed far enough to clear the cartridge mechanism when raised & lowered for Next gravity feed of New Bar Stock.

Note: A LOAD Cycle refers to preparing the new bar stock Up & Into C-Face for CNC Index Feeding

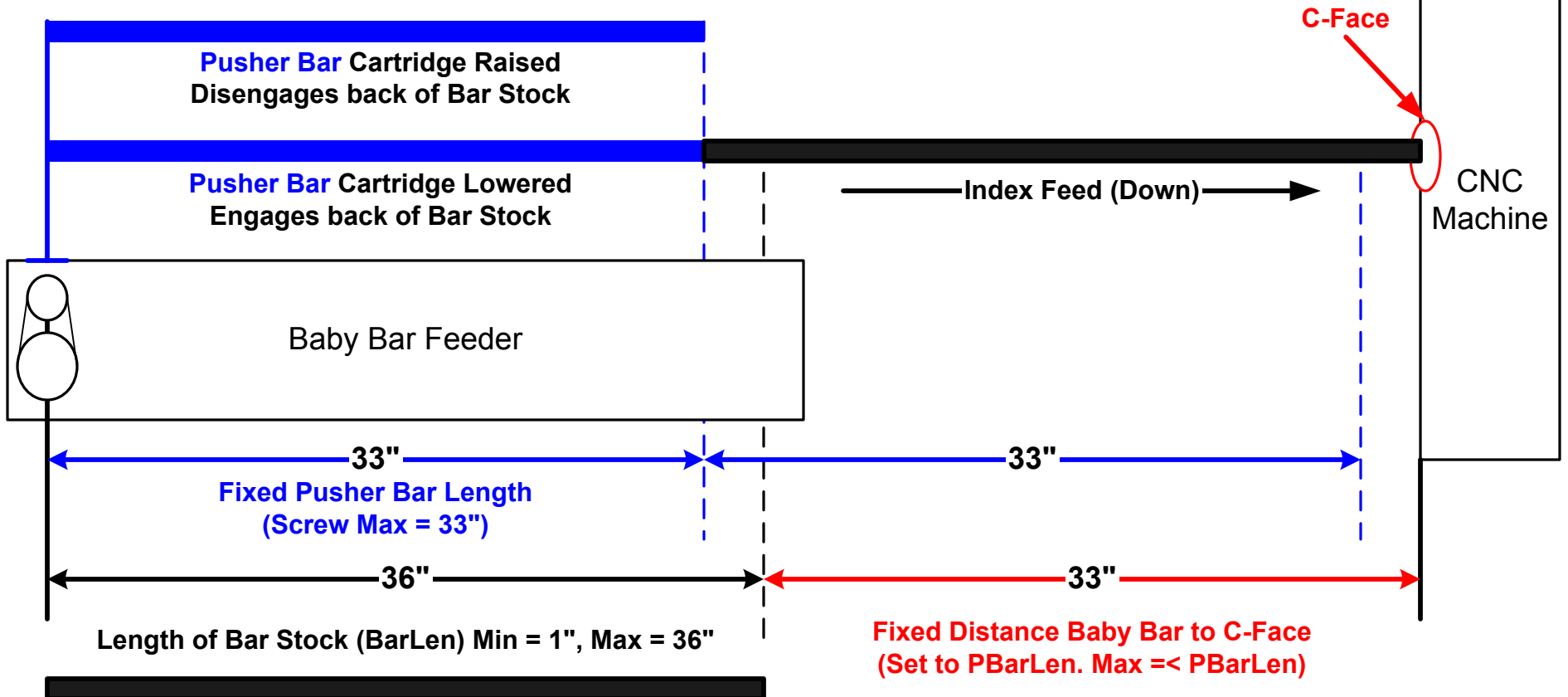
A NO LOAD Cycle refers to allowing a CNC Index Feed immediately following gravity feed of New Bar Stock

Note: Bar Stock Length is calculated from exit side of Baby Bar Feeder

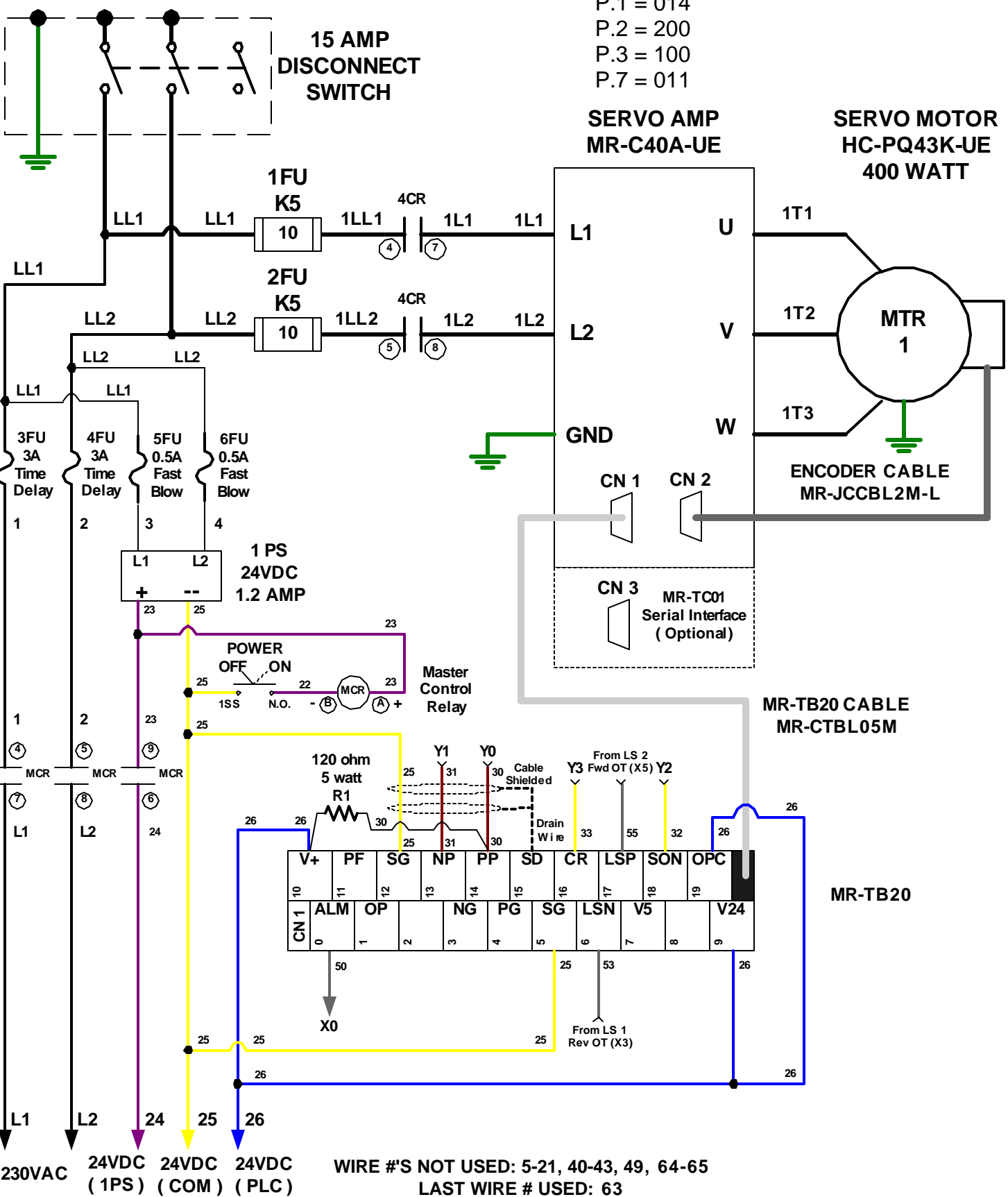
Note: PbarDiff = (ScrewMax - PbarLen)

{ScrewMax & PbarLen Should be Equal, the ScrewMax is Fixed, but a shorter PbarLen May be used}

EX: If PbarLen = 20", Then (33" ScrewMax) - 20" = 13". Thus If BarLen >= 13", Then it would need to be a LOAD Cycle }



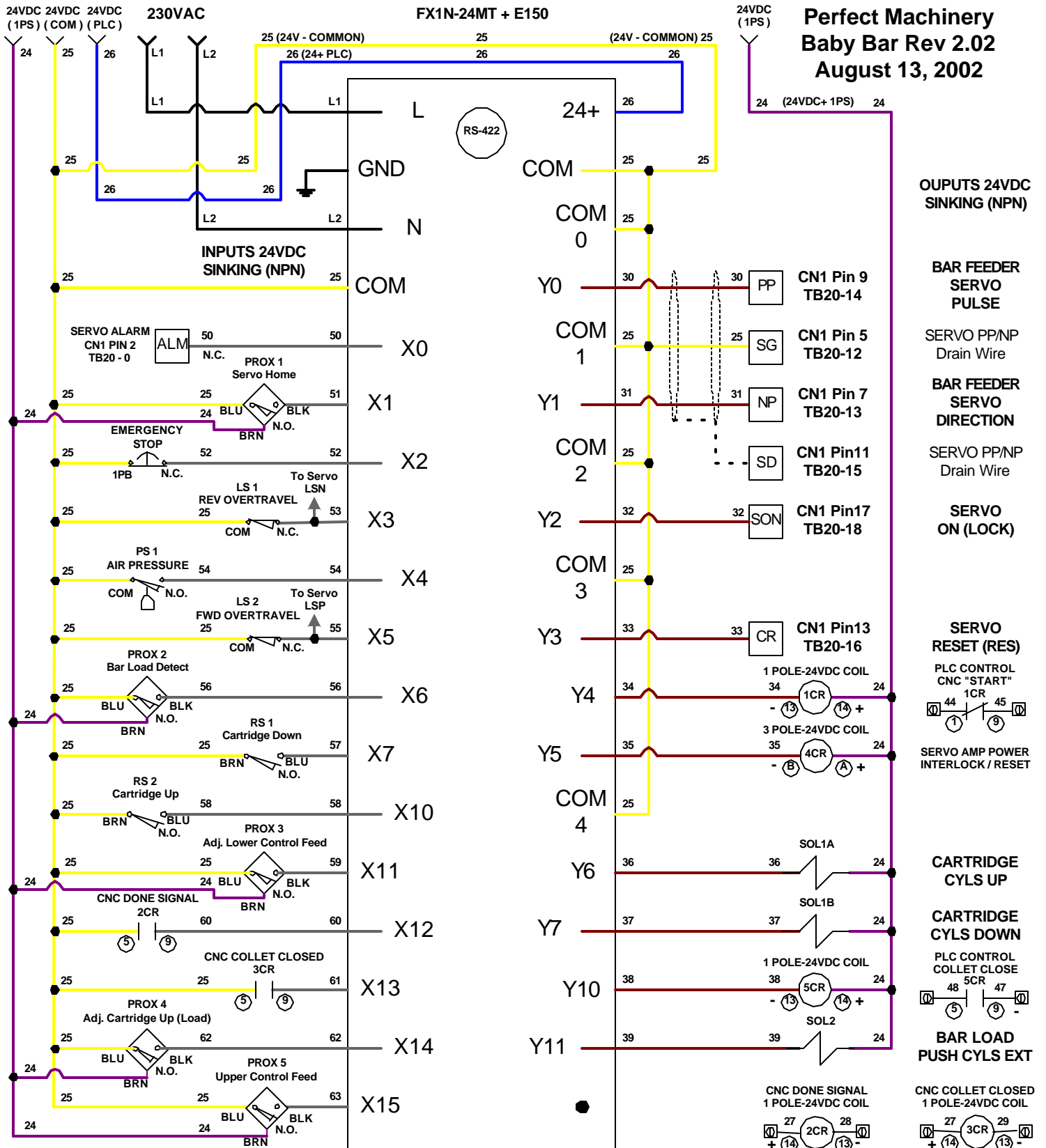
**230VAC LINE  
SINGLE PHASE  
15 AMP SERVICE  
GND LL1 LL2**



P.1 = 014  
P.2 = 200  
P.3 = 100  
P.7 = 011

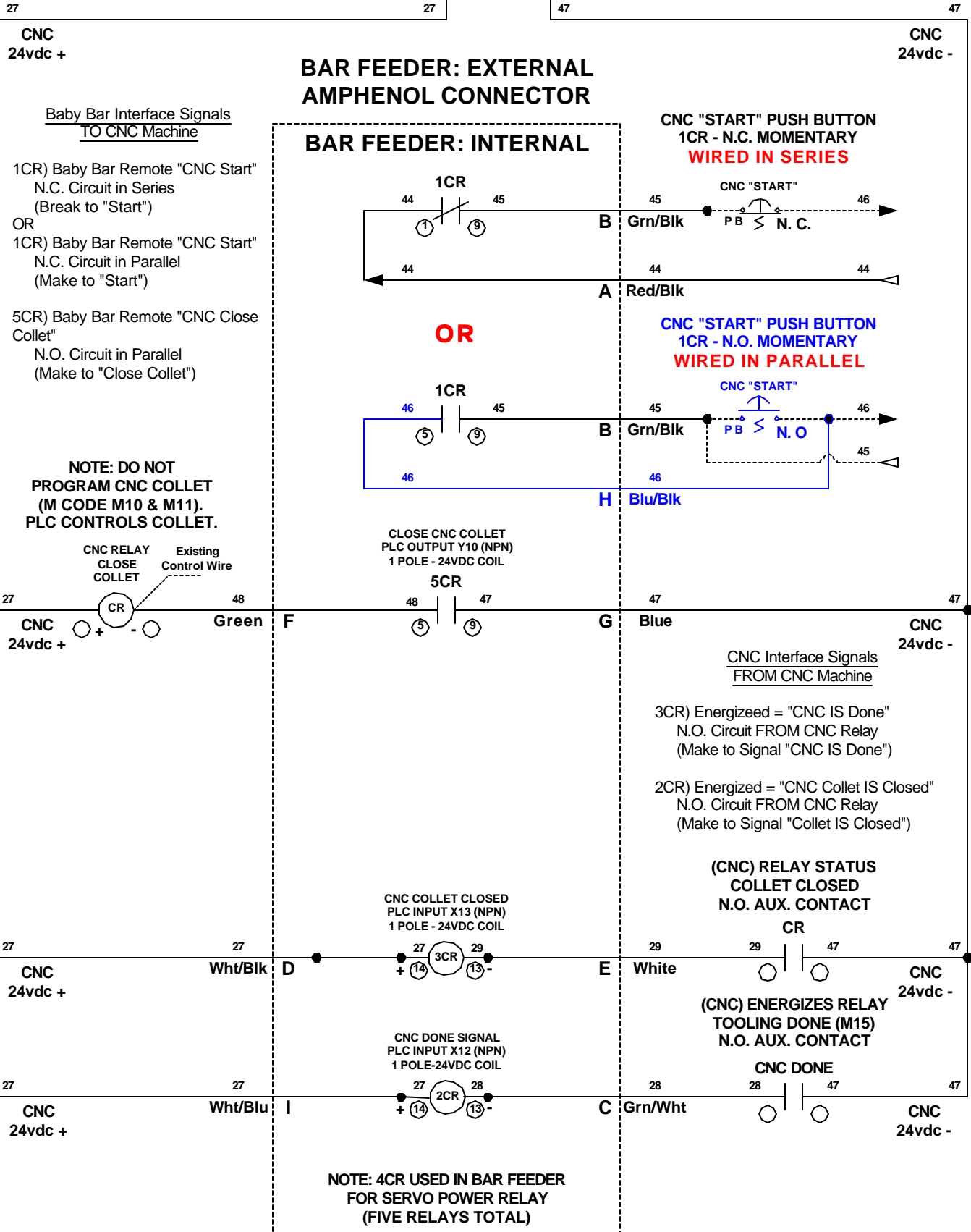
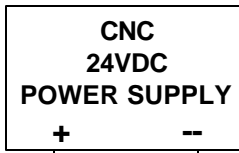
230VAC  
24VDC (1PS)  
24VDC (COM)  
24VDC (PLC)

WIRE #'S NOT USED: 5-21, 40-43, 49, 64-65  
LAST WIRE # USED: 63



WIRE #'S NOT USED: 5-21, 40-43, 49, 64-65  
 LAST WIRE # USED: 63

Sinking Control Shown (NPN)





## Stack Your Bar—feeds 1" to 3" diameter bars.

**1** The PA-300S Auto Load table allows you to Stack up to 24 - one inch diameter bars - three feet long. Longer tables are available, you can feed pieces over 1" as an option.



**EASY ALIGNMENT:**  
Bar stock can be adjusted to align Height and Distance to machining process.

## Program the Bar Feed Length

**2** The easy to use Programmable Logic Controller (PLC) allows you to program the Bar Feed, Length. This frees up a tooling position so there is no need for a Bar Puller or Bar Feed Stop. Simply input the length of bar to be fed (in inch or metric) and the feeder will automatically advance the stock that length. Save up to 100 Job Programs in the system.



**SWISS type optional.**



# 3. Our Servo Feed System

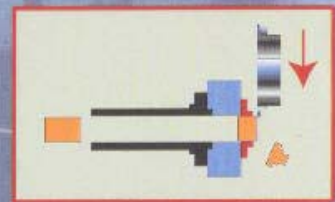
The Stock is fed using a direct mount Servo Motor, coupled to a precision Ground Ball-screw. The Servo Motor includes an Optical Encoder. The combination of the Servo Motor, Encoder and Precision Ball-screw Insure Precision Feed Lengths.



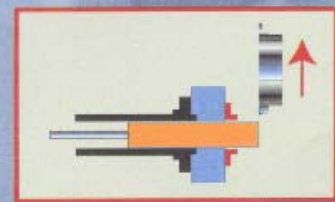
Controller location removable to fit any application.

# 4. Auto Reload

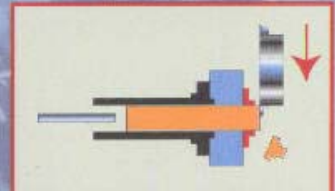
When you write your CNC Program bar feed commands are added to send a signal to the feeder. Each time the feeder receives the signal the bar will be advanced the exact length you programmed.



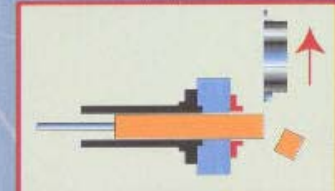
While the last part is machined the loader is preparing the new bar.



Chuck opens, the bar is fed into machining position without a turret stop.



The chuck closes, the first part is being machined.



Chuck opens, the new bar ejects the remnant as it moves to the programmed position. No turret stop needed



**PA-300S**  
**SPECIFICATIONS**

**Electrical:**

120 Volts AC  
24 Volts DC

**Weight:**

575 lb.

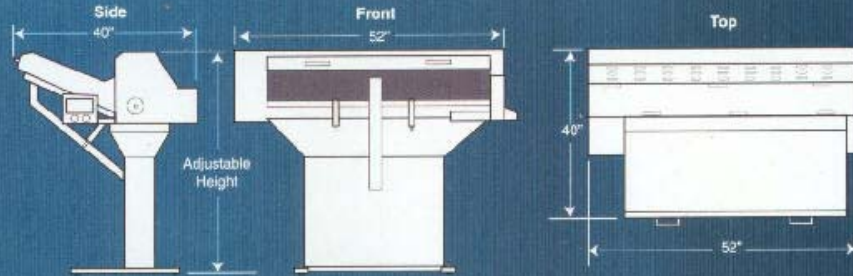
**Mechanical:**

Air pressure  
needed: 45 PSI

**Electronics:**

*Every Perfect Bar feed system uses the latest designs in electronic interface. This cuts down on the amount of electronic components used and increases the reliability of our Bar Feed systems.*

**Floor Space:**



*Manufacturing specs. subject to change without notice. Patent Pending.*

**Perfect Bar Feed • PA-300S**

**Manufactured by:**

**PERFECT MACHINERY**

5241 Lincoln Avenue, #B-2  
Cypress, CA 90630

TEL: 714-827-8811

FAX: 714-827-8822

Call Free: 877-661-8811

E-Mail: [pmachinery@aol.com](mailto:pmachinery@aol.com)

Web Site: [www.perfectmachinery.com](http://www.perfectmachinery.com)

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