a division of Pro Mach

OPERATING MANUAL VERSION 3

MODEL 1600

PRESSURE SENSITIVE LABELER

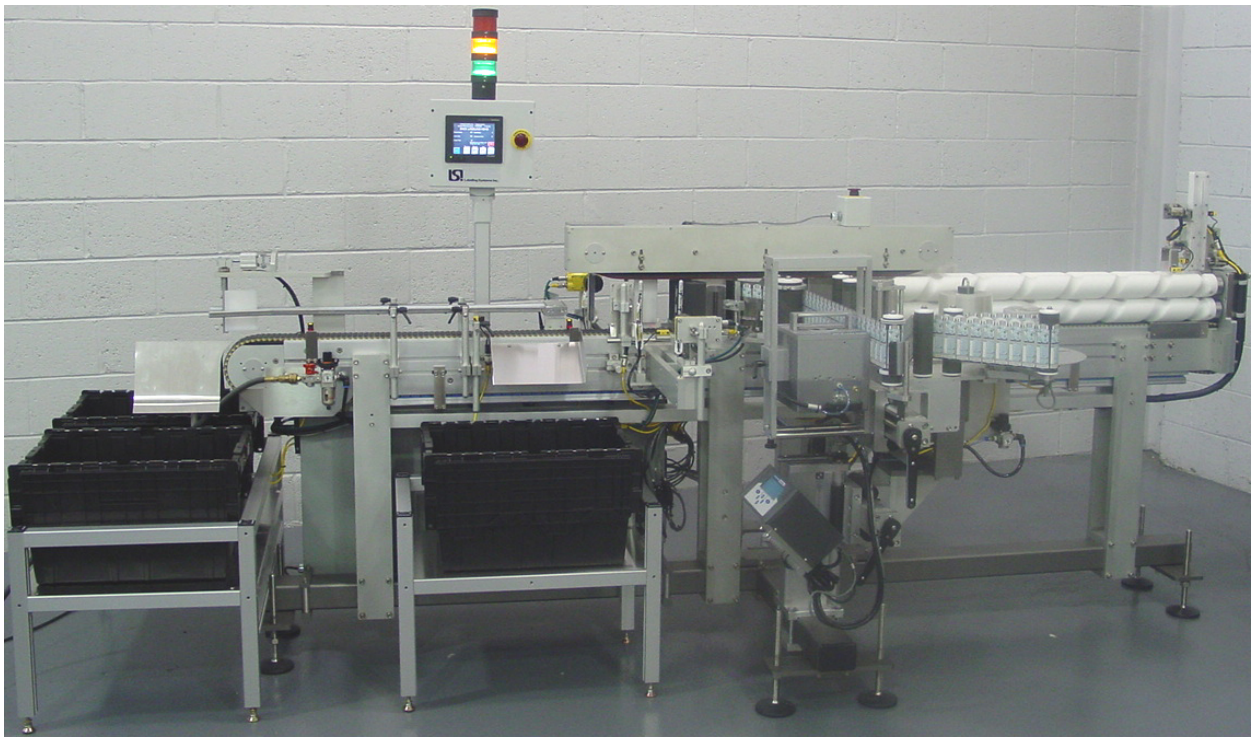
END USER: SORTIMAT TECHNOLOGY
SERIAL NUMBER: 14-0554
MANUFACTURED: JANUARY 2008
REVISED: JUNE 2008
VERSION 4: October 2016

PLEASE HAVE MODEL NUMBER AND SERIAL NUMBER AVAILABLE WHEN CALLING FOR PARTS OR SERVICE

LABELING SYSTEMS INC
32 SPRUCE STREET
OAKLAND, NJ
201-405-0767

Thank you for purchasing an LSI Labeling System. Under proper operating conditions, this labeling system will provide many years of trouble free performance. This manual has been prepared to assist with the set-up and maintenance of the labeling system. It is written for production line and maintenance personnel. LSI equipment is manufactured to the strictest standards and is thoroughly tested before being released into the field. Occasionally, a problem may arise in the field which is not covered in this manual. Remember, we are only a phone call away.

Please have model number and serial number available when calling for parts or service.



WARNING !

Machinery in this manual may be pictured without guards or covers.
This is done only for purposes of illustration clarity.
Never operate any machine without all guards and covers in place.

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Section A: System Data Sheet

Labeler Specifications

System Model No.: **1600**
Serial Number: **14-0554**
Head Serial No's: 40-0334R and 40-0335L
Application Rate: 60 products per minute
Label Size: **1.218"**(F) x **4.25**" (W)
Main Input Air: 60 psi

Labeling Heads

Head Model No.:	**40.10**
Applicator Type:	010 Wipe on
Product Sensor:	Banner SM312CV
Motor:	Stepper
Electrical:	115 VAC / 60 Hz

Fuse Designations:

Power:	10 Amp
Motor	2 Amp
Power Supply	2 Amp

Pneumatic Requirements:

Recommended Settings 60 psi

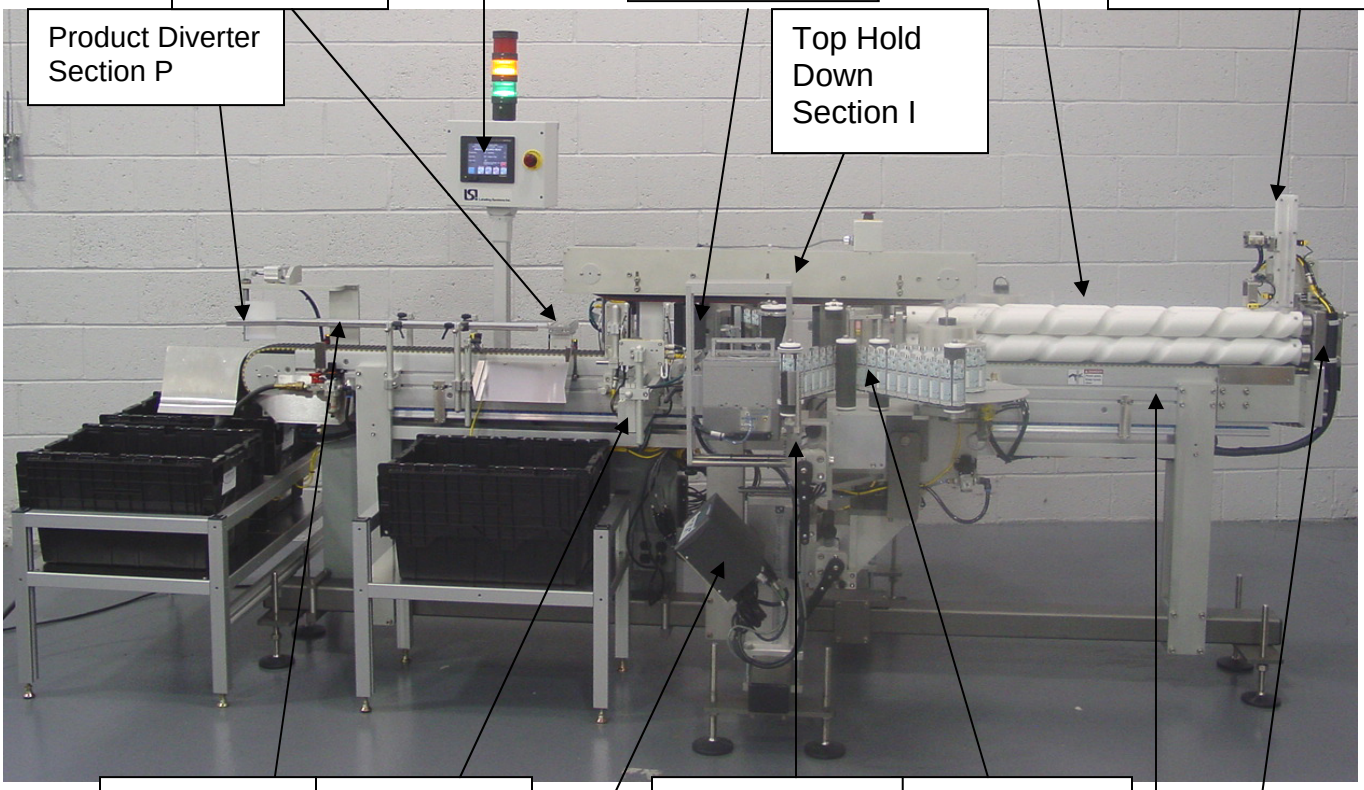
Factory Default Settings:

Head Serial No.	**40-0334**	**40-0335**
Printer Time	200	N/A
Shutdown Time	10	15
Feed Delay Time	0	0
Product Delay	253	238
Label Stop	590	590
Aux Pulses/Inch	10842	10842

Fuse Designations:

Main Power	15 amp
Power Supply	5 amp
Timing Screw	5 amp
Conveyor Drive	5 amp
Top Hold Down	5 amp

PLEASE NOTE: THE CONVEYOR BELT HAS CHANGED DUE TO MODIFICATIONS REQUIRED ON THE SYSTEM
SEE SECTION G1 CONVEYOR FOR ACTUAL PICTURE OF CURRENT CONVEYOR BELT.



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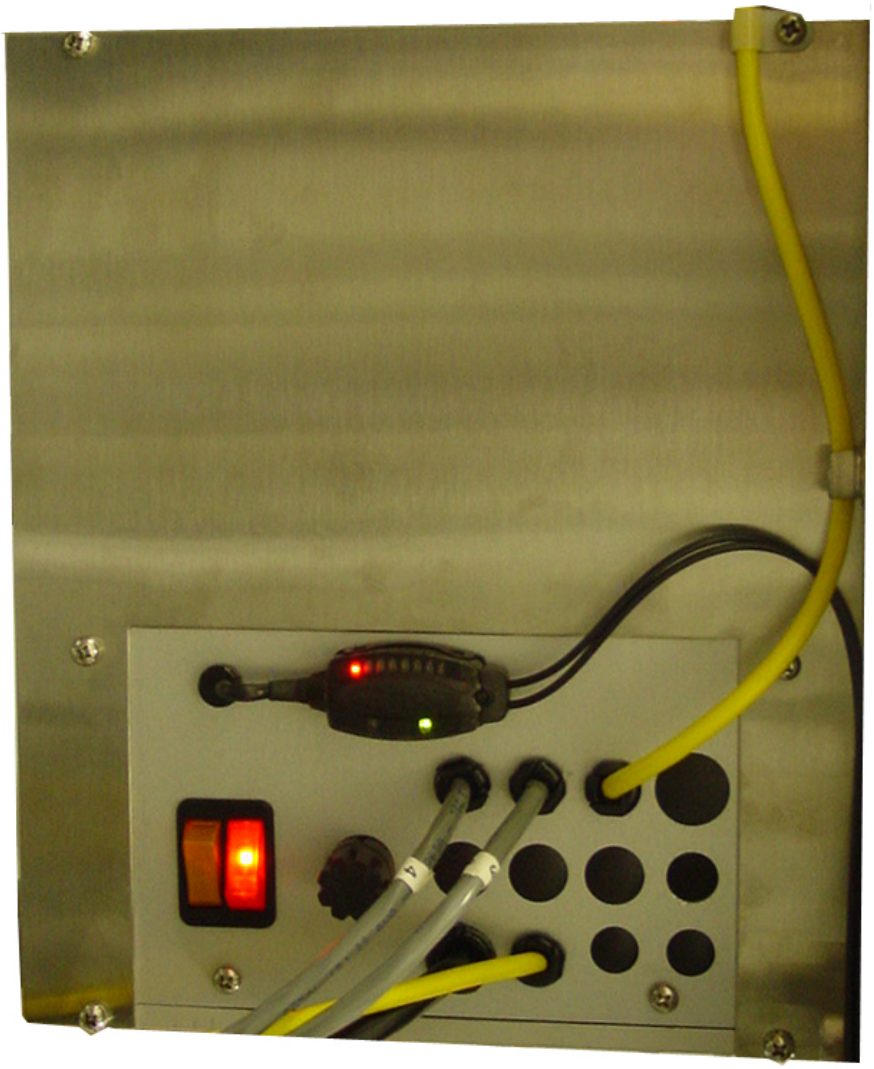
Labeling Head Controls

The front panel of the Series 40 provides access to all user adjustable labeling head functions. Front panel controls include:

- Power Switches
- Label Sensor Interface
- Labeler Fuse



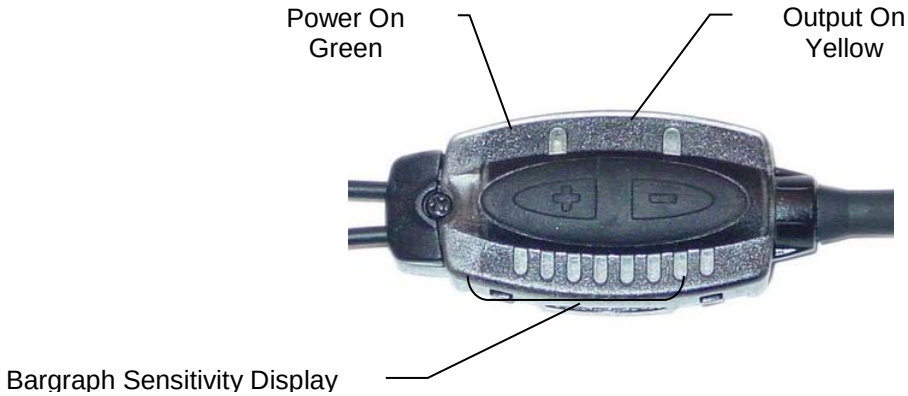
Front Panel of the Series 40 Labeler

Power Switches
The front panel incorporates two power switches with indicator lights.

Main Power Switch	Controls main power to the head, including the DC power supply, control package, and stepper motor drive controller. A red led illuminates to indicate that the main power is on.
Auxiliary Power Switch	Controls power to optional auxiliary devices including the applicator vacuum fan, power rewind motor and printer. An amber LED illuminates to indicate that the auxiliary power is on.

Label Sensor Interface

The body of the high performance fiber optic label sensor is mounted on the front panel of the labeler. The Sensor Interface includes 10 LEDs and 2 pushbuttons allowing the user to monitor and manually control all label sensor functions. There are two sensors used for the interface. The sensors are located on the web path and the tip of the peeler bar.



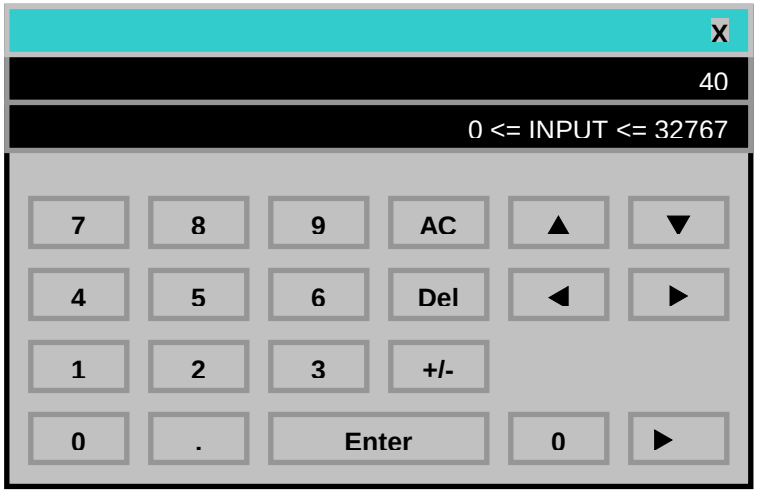
Fiber Optic Label Sensor Interface

Operator Interface

The Series 40 includes an Operator Interface with a bright LCD touch screen display. The Operator Interface on this machine is located on the Main Control Box. All performance statistics and user adjustments are accessed through the Operator Interface. The Operator Interface menu is divided into 8 screens.

Changing Parameters

To change Parameters select white box of the parameter
Enter Parameter change using keep pad below and Press ENTER.
Press **"X"** to close screen and return to previous screen.
Touch **Select Parameters** screen to update Head Parameters.



Navigation Guide

There are 6 security levels defined in this system (including the default) and are task-specific.

User Name	Description
Default	The operator has access to run the machine. They can load recipes, modify the running recipe data, clear alarms, and generally run the machine.
4	The technician has access to everything the operator does plus the ability to rename and save recipes, modify settings, and handle machine setup and maintenance.

Screen security is handled on the object level, so each object on the screen can have its own set of permissions. The three sets of access for any given object (button, etc.) are:

Access	Description
X	Not visible. This is used for objects that are not available to the current user.
R	Read-only. This is used for most display objects and for values that cannot be modified by the current user.
R/W	Read-write. This allows the current user full access to the object meaning they can operate the pushbutton or modify the value.

Select Product Screen

THIS IS INITIAL SCREEN WHICH WILL APPEAR WHEN SYSTEM IS TURNED ON.

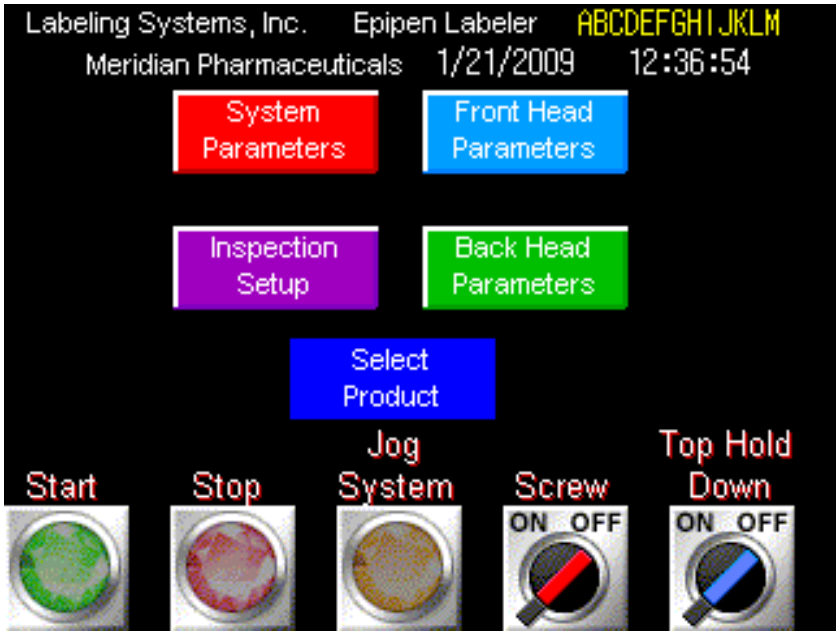
Touch Button Functions

This is the screen that appears when the labeler finishes its boot process.

Object	Description	Default	4	Min Entry	Max Entry
US	Select and load the US recipe	R/W	R/W	N/A	N/A
Canada	Select and load the Canada recipe	R/W	R/W	N/A	N/A
Other	Select and load the Other recipe	R/W	R/W	N/A	N/A
Other 2	Select and load the Other 2 recipe	R/W	R/W	N/A	N/A
No Label	Select and load the no label recipe	X	R/W	N/A	N/A
Enter Password	Enter the password to select No Label recipe	R/W	R/W	N/A	N/A

Main Screen

This is the main operation screen for the labeler. Unless noted below alarm messages are not touch buttons.



Object	Description	Default	4	Min Entry	Max Entry
System Parameters	Opens the System Parameters screen	R/W	R/W	N/A	N/A
Front Head Parameters	Opens the Front Head Parameters screen	R/W	R/W	N/A	N/A
Inspection Setup	Opens the Inspection Setup screen	R/W	R/W	N/A	N/A
Back Head Parameters	Opens the Back Head Parameters screen	R/W	R/W	N/A	N/A
Select Product	Opens the Product Selection screen	R/W	R/W	N/A	N/A
Start	Start the machine	R/W	R/W	N/A	N/A
Stop	Stop the machine	R/W	R/W	N/A	N/A
Jog System	Jog the machine	R/W	R/W	N/A	N/A
Screw	Turn the infeed screw on/off.	R/W	R/W	N/A	N/A
Top Hold Down	Turn the top hold down on/off	R/W	R/W	N/A	N/A
Low Label Front Head	Appears when front head has a low label condition. Touch to reset.	R/W	R/W	N/A	N/A
Low Label Back Head	Appears when back head has a low label condition. Touch to reset	R/W	R/W	N/A	N/A

System Parameters Screen

System Speed- This is the speed of the conveyor. **This setting should not be changed!**

Reject Time – time reject cylinder stays extended

Rejected Products – number of products discarded due to failing inspection

Consecutive Rejects Before Shutdown – number of products rejected by inspection station without interruption before stopping conveyor

 # Products in Each Bin – Maximum number of products in each bin. Bin is FULL when the maximum number is reached.

Products in Bin 1 – number of products in Bin 1 location

Products in Bin 2 – number of products in Bin 2 location

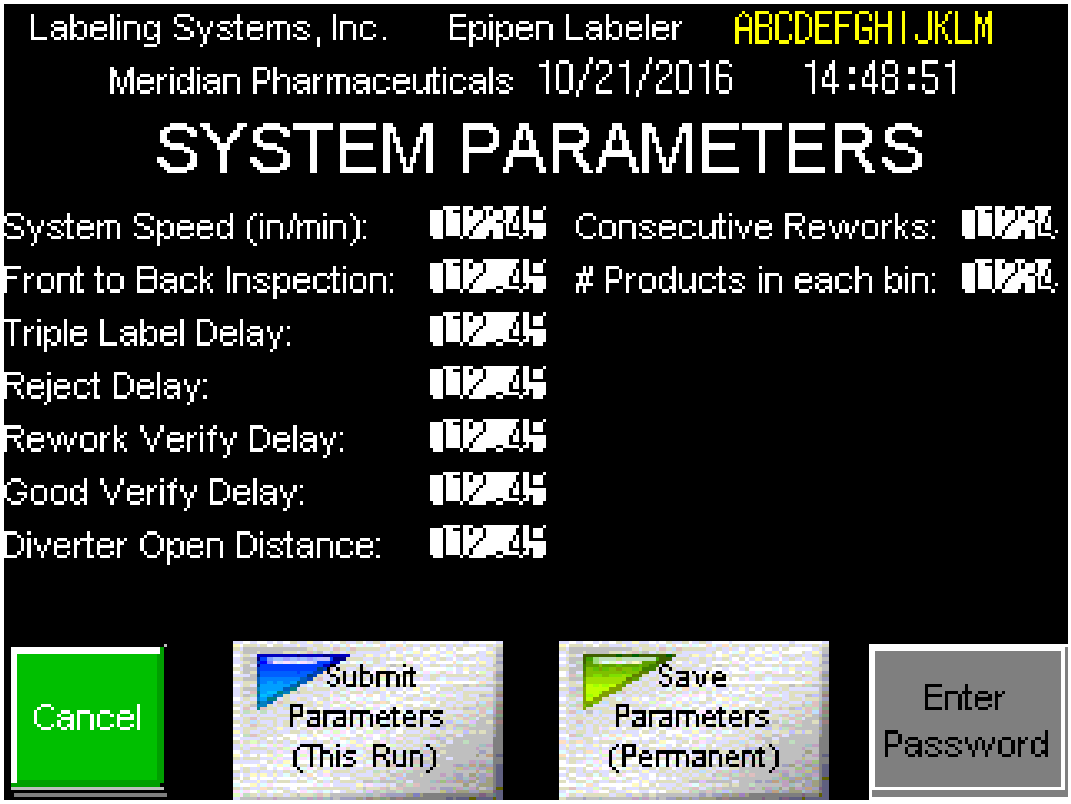
Total Labeled Products-number of products labeled

Products per Minute- the current label dispense rate based on the number of labels detected by the Label Sensor

Reset Counters	Used to go to Reset Counters Screen
Main	Used to go to Main Screen
Edit	Used to go to System Parameters Edit Screen

System Parameters Edit Screen

This screen allows the user to modify the system parameters.



Touch Button Functions

Object	Description	Default	4	Min Entry	Max Entry
System Speed (in/min)	Enter the system speed in in/min.	R/W	R/W	10	535
Front to Back Inspection	Distance in inches from Back Inspection Sensor to Front Inspection Sensor	R/W	R/W	0.01	36.00
Triple Label Delay	Distance in inches from Back Inspection Sensor to Triple Label Camera trigger location	R/W	R/W	0.01	36.00
Reject Delay	Distance in inches from Back Inspection Sensor to reject trigger location	R/W	R/W	0.01	36.00
Rework Verify Delay	Distance in inches from Back Inspection Sensor to rework location (the point where the product falls into the rework bin)	R/W	R/W	0.01	36.00
Good Verify Delay	Distance in inches from Back Inspection Sensor to Conveyor Verify Sensor	R/W	R/W	0.01	36.00
Diverter Open Distance	Distance in inches the diverter must stay open to allow a good product to pass.	R/W	R/W	0.01	36.00

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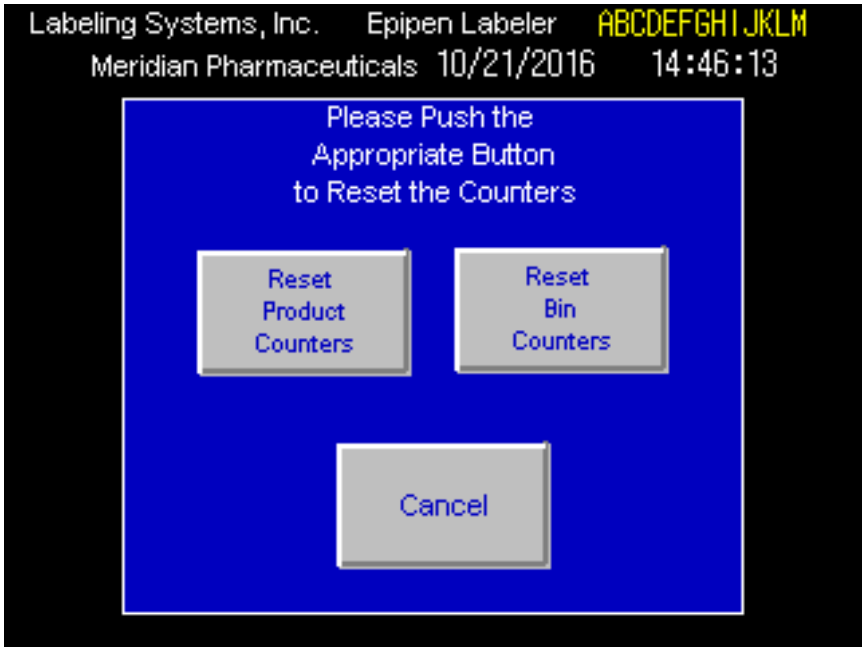
System Parameters Edit Screen

Object	Description	Default	4	Min Entry	Max Entry
Consecutive Reworks	Number of consecutive rework products before the machine faults	R/W	R/W	0	32767
# Products in each bin	Number of products in each bin	R/W	R/W	0	32767
Cancel	Return to the previous screen and discard all changes	R/W	R/W	N/A	N/A
Submit Parameters (This Run)	Submit parameters for this run only (don't save to recipe).	R	R/W	N/A	N/A
Submit Parameters (Permanent)	Submit parameters permanently (save to the recipe)	R	R/W	N/A	N/A
Enter Password	Enter password to allow operation of submit parameters buttons	R/W	R/W	N/A	N/A

Reset Counters Screen

This screen allows the counters to be reset.



Touch Button Functions

Object	Description	Default	4	Min Entry	Max Entry
Reset Product Counters	Reset the product counters	R/W	R/W	N/A	N/A
Reset Bin Counters	Reset the product count for each bin	R/W	R/W	N/A	N/A
Cancel	Return to previous screen	R/W	R/W	N/A	N/A

Front Head Parameter Screen #1 (Display):

This screen displays the system parameters. All parameter values are read-only for all users.

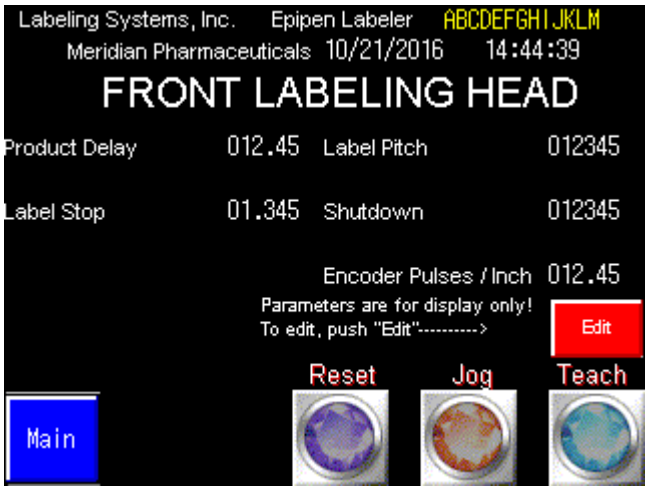
Product Delay – the time delay between when the product input trigger turns on to when the labeling cycle begins

Feed Delay – the time delay between the end of the applicator dwell and when the label should be dispensed.

Label Stop – the distance in pulses from the label sensor to the tip of the peeler bar.

Shutdown Time – The time (in 1/100ths of a second) before shutdown is activated. The timer will start when the label begins dispensing. To clear the error, hit the RST button, and then push the BACK button.

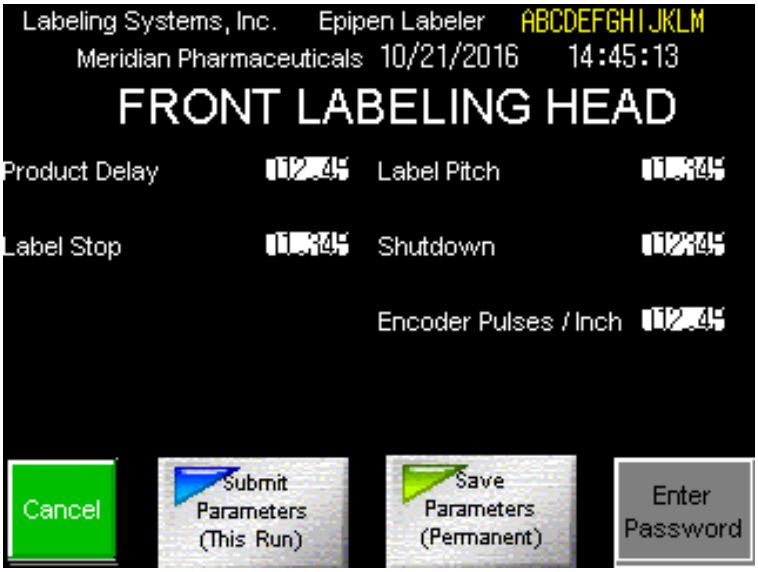
Encoder Pulses/Inch—controls speed ratio between labeling head and conveyor



Object	Description	Default	4	Min Entry	Max Entry
Main	Return to System Screen	R/W	R/W	N/A	N/A
Reset	Reset front head alarms	R/W	R/W	N/A	N/A
Jog	Jog a single label on front head	R/W	R/W	N/A	N/A
Teach	Teach label sensor on front head	R/W	R/W	N/A	N/A
Edit	Open the Front Head Parameter Edit Screen	R/W	R/W	N/A	N/A

Front Head Parameter Screen #2 (Edit):

This screen allows the user to modify the front head parameters.



Touch Button Functions

Object	Description	Default	4	Min Entry	Max Entry
Product Delay	Distance in inches from Front head sensor to start of label dispense	R/W	R/W	0.01	36.00
Label Pitch	Distance in inches from front of one label on the web to the front of the next label on the web	R/W	R/W	0.001	12.000
Label Stop	Distance in inches from label sensor trigger position to label stop position.	R/W	R/W	0.001	12.000
Shutdown	Time in seconds allowed for label to dispense before causing a fault.	R/W	R/W	0.1	3276.7
Encoder Pulses/Inch	Encoder input scale in pulses/in	R/W	R/W	0.01	327.67
Cancel	Return to the previous screen and discard all changes	R/W	R/W	N/A	N/A
Submit Parameters (This Run)	Submit parameters for this run only (don't save to recipe).	R	R/W	N/A	N/A
Submit Parameters (Permanent)	Submit parameters permanently (save to the recipe)	R	R/W	N/A	N/A
Enter Password	Enter password to allow operation of submit parameters buttons	R/W	R/W	N/A	N/A

Back Head Parameter Screen #1 (Display):

This screen displays the Front Labeling Head Parameters, Product Delay, Feed Delay, Label Stop, Shutdown Time, Printer Time and Encoder Pulses/Inch.

Product Delay – the time delay between when the product input trigger turns on to when the labeling cycle begins

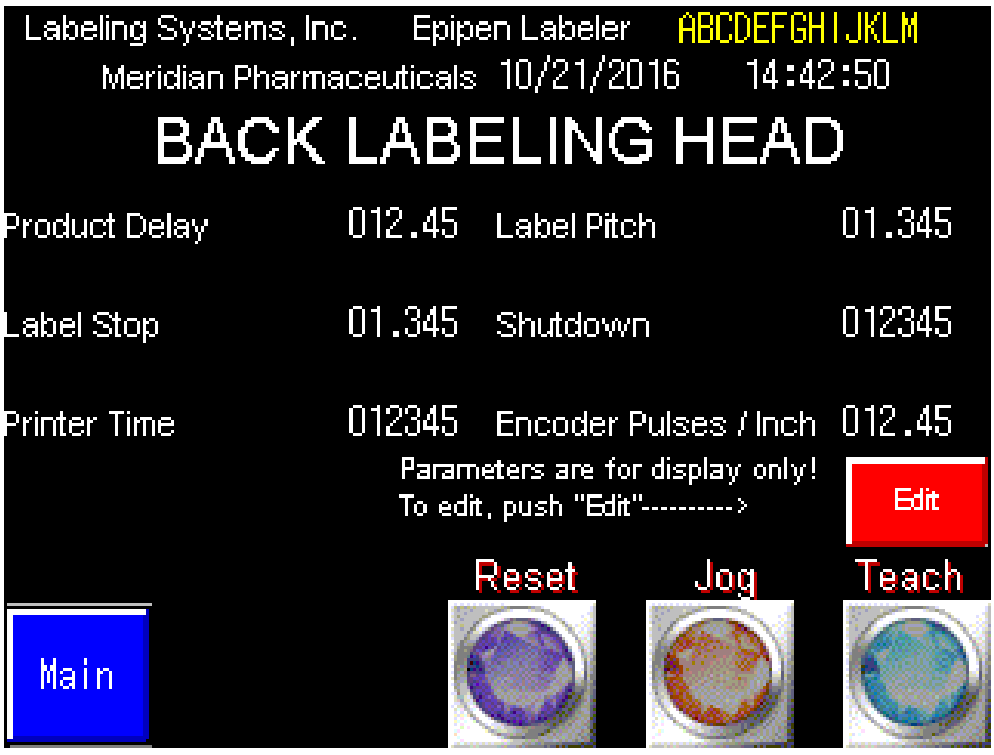
Feed Delay – the time delay between the end of the applicator dwell and when the label should be dispensed.

Label Stop – the distance in pulses from the label sensor to the tip of the peeler bar.

Shutdown Time – The time (in 1/100ths of a second) before shutdown is activated. The timer will start when the label begins dispensing. To clear the error, hit the RST button, and then push the BACK button.

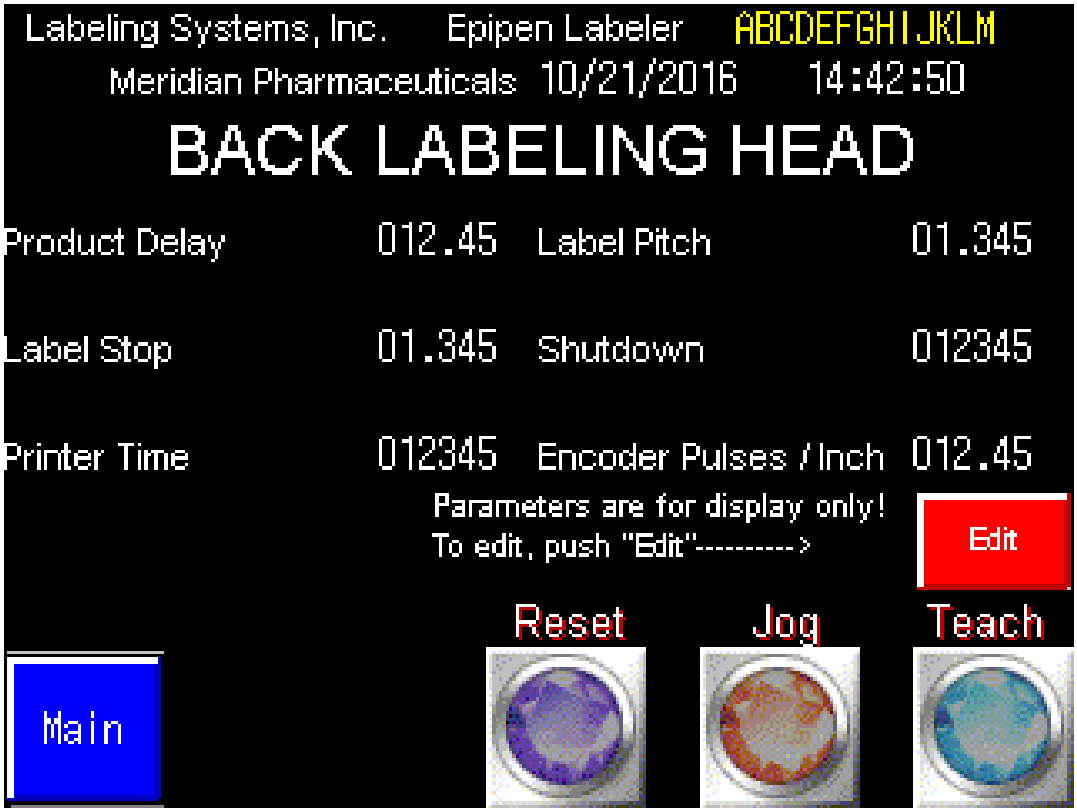
Printer Time – The dwell time for the printer such as hot stamp. This time will be activated once the label motion is stopped.

Encoder Pulses/Inch—controls speed ratio between labeling head and conveyor



Back Head Parameter Screen #1 (Display):

This screen displays the back head parameters. All parameter values are read-only for all users.



Object	Description	Default	4	Min Entry	Max Entry
Main	Return to System Screen	R/W	R/W	N/A	N/A
Reset	Reset front back alarms	R/W	R/W	N/A	N/A
Jog	Jog a single label on back head	R/W	R/W	N/A	N/A
Teach	Teach label sensor on back head	R/W	R/W	N/A	N/A
Edit	Open the Back Head Parameter Edit Screen	R/W	R/W	N/A	N/A

Back Head Parameter Screen #2 (Edit):

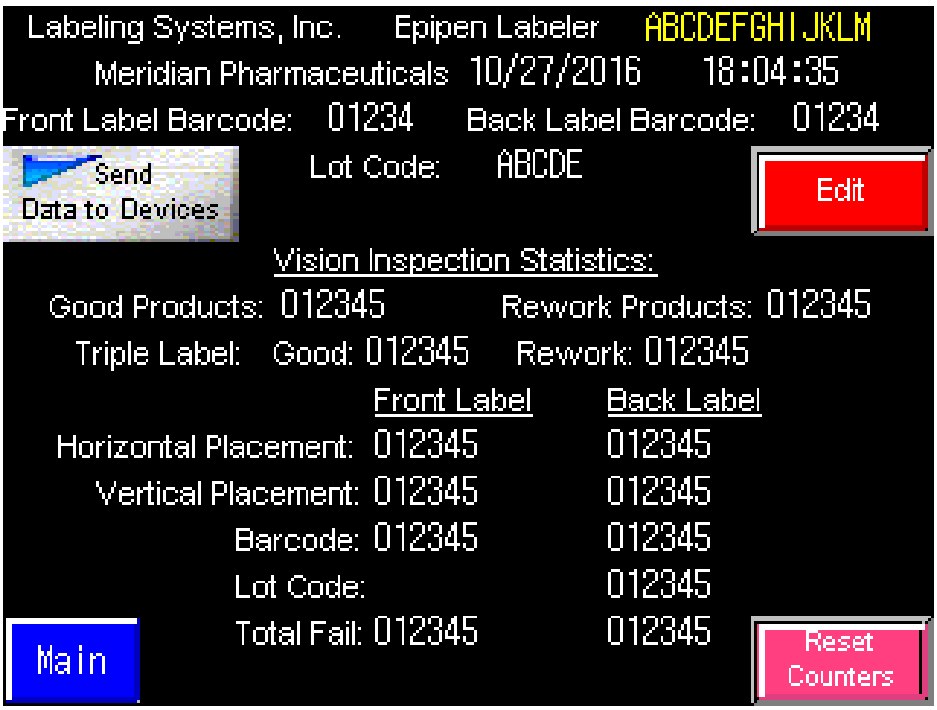
Touch Button Functions

Object	Description	Default	4	Min Entry	Max Entry
Product Delay	Distance in inches from Back head sensor to start of label dispense	R/W	R/W	0.01	36.00
Label Pitch	Distance in inches from front of one label on the web to the front of the next label on the web	R/W	R/W	0.001	12.000
Label Stop	Distance in inches from label sensor trigger position to label stop position.	R/W	R/W	0.001	12.000
Shutdown	Time in seconds allowed for label to dispense before causing a fault.	R/W	R/W	0.1	3276.7
Printer Time	Time in ms allowed for print cycle	R/W	R/W	0	32767
Encoder Pulses/Inch	Encoder input scale in pulses/in	R/W	R/W	0.01	327.67
Cancel	Return to the previous screen and discard all changes	R/W	R/W	N/A	N/A
Submit Parameters (This Run)	Submit parameters for this run only (don't save to recipe).	R	R/W	N/A	N/A
Submit Parameters (Permanent)	Submit parameters permanently (save to the recipe)	R	R/W	N/A	N/A
Enter Password	Enter password to allow operation of submit parameters buttons	R/W	R/W	N/A	N/A

Inspection (Vision) Setup Screen:

This screen displays Vision Inspection Statistics (Good Products + Bad Products). Bad products will be removed from the conveyor by the Conveyor Rejecter.

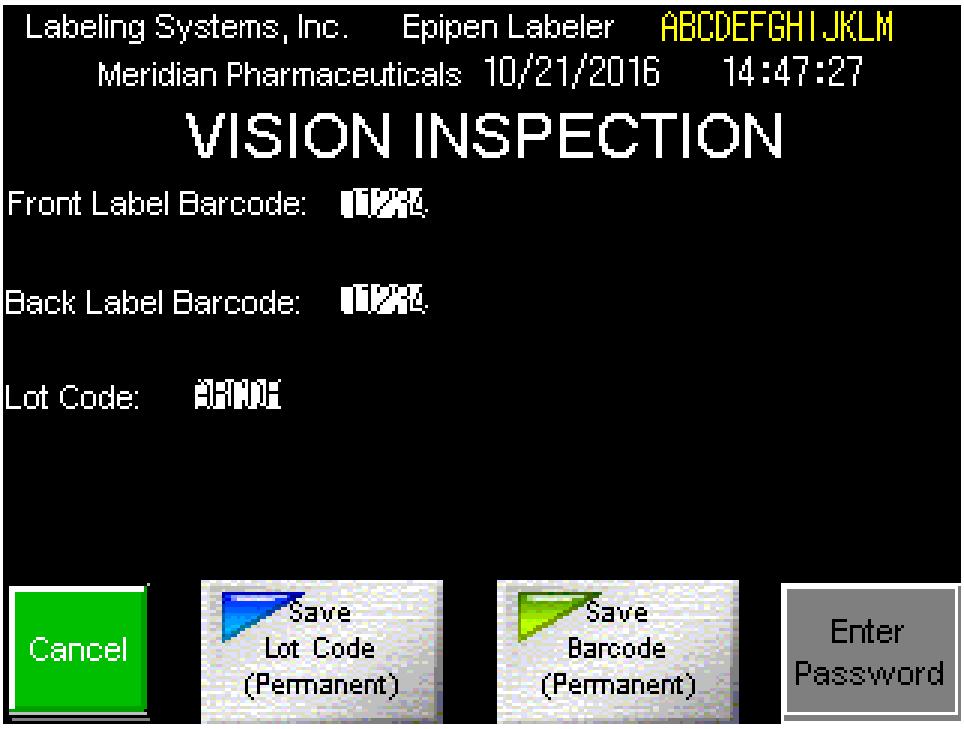
To stop the inspection of products, turn off the Vision Bypass by hitting button on this screen.



Touch Button Functions

Object	Description	Default	4	Min Entry	Max Entry
Send Data to Devices	Send barcodes & lot code to cameras and printer	R/W	R/W	N/A	N/A
Edit	Open the Vision Parameter Edit Screen	R/W	R/W	N/A	N/A
Main	Return to System Screen	R/W	R/W	N/A	N/A
Reset Counters	Reset Vision Inspection Statistics	R/W	R/W	N/A	N/A

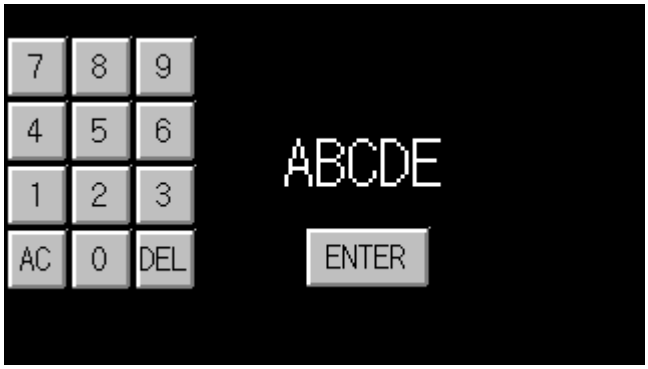
Inspection (Vision) Screen #2 (Edit):



Object	Description	Default	4	Min Entry	Max Entry
Front Label Barcode	Enter Front Label Barcode	R/W	R/W	1000	32767
Back Label Barcode	Enter Back Label Barcode	R/W	R/W	1000	32767
Lot Code	Enter Lot Code	R/W	R/W	N/A	N/A
Cancel	Return to the previous screen and discard all changes	R/W	R/W	N/A	N/A
Submit Parameters (This Run)	Submit parameters for this run only (don't save to recipe).	R	R/W	N/A	N/A
Submit Parameters (Permanent)	Submit parameters permanently (save to the recipe)	R	R/W	N/A	N/A
Enter Password	Enter password to allow operation of submit parameters buttons	R/W	R/W	N/A	N/A

Numeric Entry Screen

This is the numeric entry keypad. All items are operable by all users.

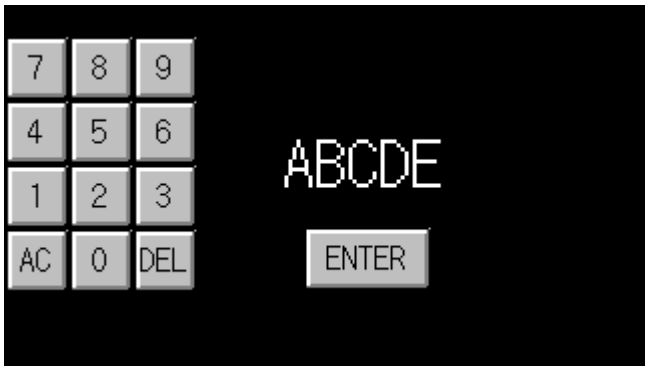


ASCII Entry Screen

This is the ASCII entry keypad. All items are operable by all users.

Lot Code Input Screen:

Screen where lot code is entered



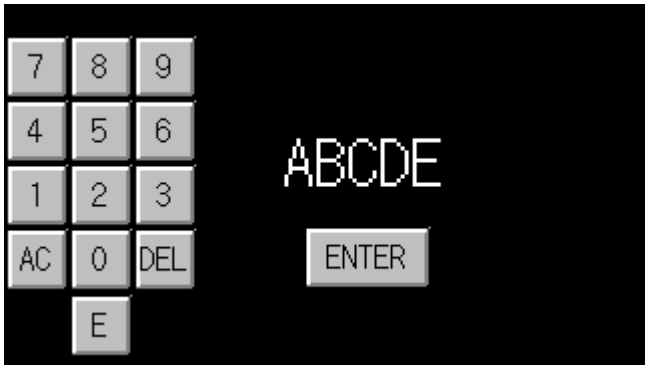
Engineering Lot Code Screen:

This appears in engineering mode only with Security level 3 or Higher.
This will appear on Vision Edit Inspection Screen

Entering code will bring you to Lot Code Input Engineering Screen.

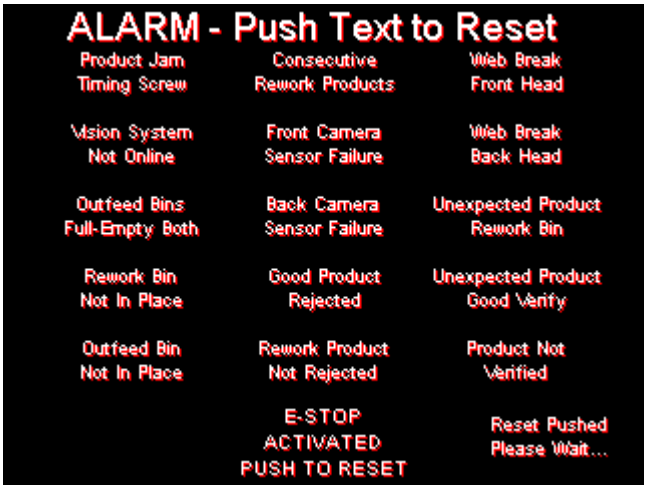
Lot Code Input Engineering Screen:

Screen where Engineering lot code is entered.



Alarm Screen:

This window will appear when an alarm is active.
Touch the alarm to reset it – all alarms are operable by all users.



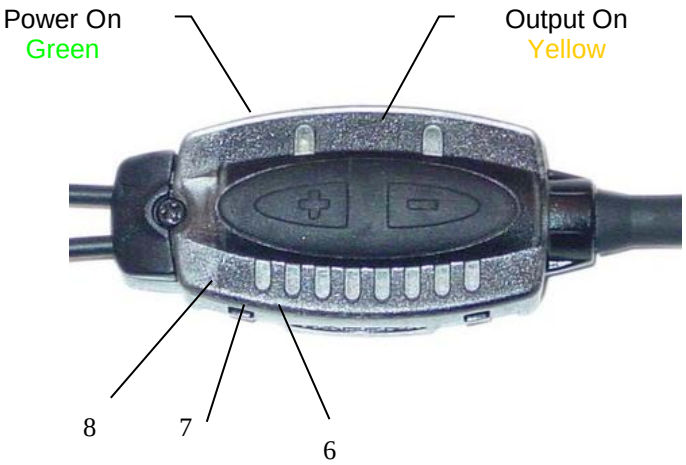
Waiting Screen:

This screen appears once a recipe is selected.
There are no user operable items on this screen.

Label Sensor

Leading/Trailing Edge Trigger
Set-up mode is used to change label sensor output response for:

- Light or Dark Operate
- 30 Millisecond Off Delay



The status LEDs (6, 7 and 8), active only during Set-up mode, indicate the output response configuration. Four combinations are possible:

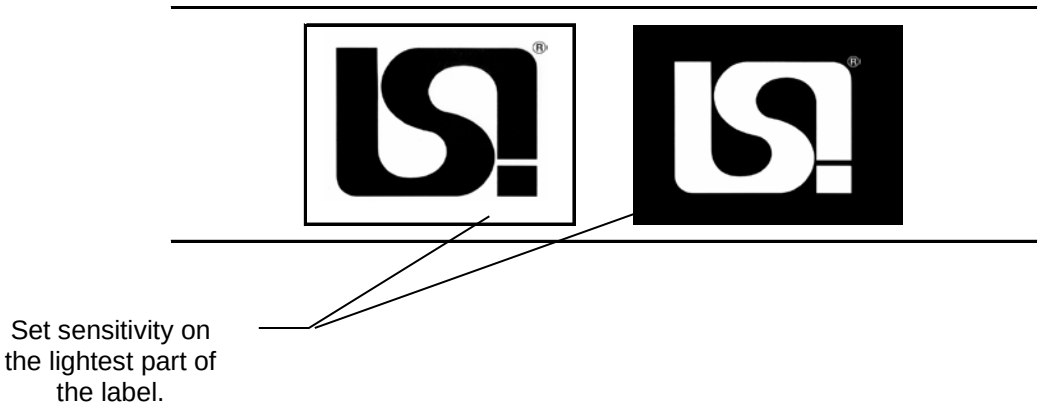
Trigger	Sensor Mode	Delay	Status LED		
			6	7	8
Trailing Edge	Light Operate	No Delay	Off	Off	**On**
Leading Edge	Dark Operate	No Delay	Off	**On**	Off
Not Used	Dark Operate	30ms Delay	On	On	Off
Not Used	Light Operate	30ms Delay	On	Off	On

To access set-up mode, press and hold both **+** and **–** buttons until the green power indicator turns off. Press either **+** or **–** to toggle through the four possible settings. Press and hold both **+** and **–** until the green power LED turns back on.

If Set-up mode is interrupted and remains inactive for 60 seconds, the sensor returns to run mode with the most recent settings (i.e. exits and saves current selection).

Manually Adjusting Label Sensor Sensitivity
Press **+** or **–** on the label sensor to increase or decrease label sensor sensitivity. The lighted bargraph LEDs will move to reflect the increase or decrease.

Adjust sensitivity so the sensor "sees through" the web but not through the label. Sensitivity should be set on the lightest (least opaque) portion of the label.



After manual adjustment, press **JOG** to ensure that label sensitivity has been set properly.

Auto-Teach Label Sensor Sensitivity
The standard label sensor package includes an Auto-Teach feature, which automatically adjusts sensor sensitivity.

To Auto-Teach the label sensor, thread the labeler and press **RST**, then press **(TEACH)**. The Teach light on the Operator Interface will illuminate indicating that the labeler is in teach mode and the labeler will continuously dispense labels at 200 inches per minute for five seconds During this time, the power LED on the label sensor will turn off and LEDs 6 and 7 will alternately flash, indicating that the teach sequence is active. At the end of 5 seconds, the web stops, and the Teach LED on the operator display extinguishes. LED 3 on the label sensor will turn on briefly to indicate that the Teach has been accepted. The green power LED on the label sensor will illuminate to indicate that Auto-Teach is complete.

Press **JOG** to ensure that label sensitivity has been set properly.

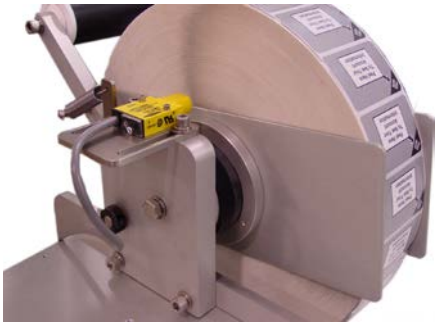
In the event of an Auto-Teach failure, LEDs 1, 3, 5 and 7 will flash alternately and the label sensor will return to run mode without changing settings. In this case, the label sensor sensitivity must be manually set as described above.

Low Label/Web Break Alarms (optional)

The ***Series 40*** Alarm Package option detects and annunciates the status of the label unwind reel and the label web. Sensors on the labeling head detect and alarm the following states:

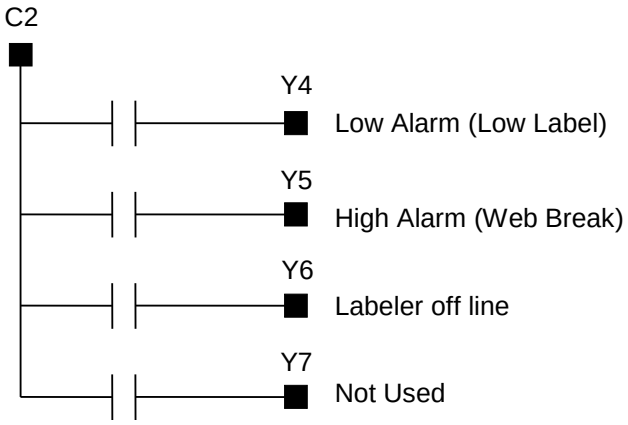
- Low Label
- Label Out/Web Break

A photo-eye located on the unwind assembly monitors the unwind reel and detects a Low Label condition.



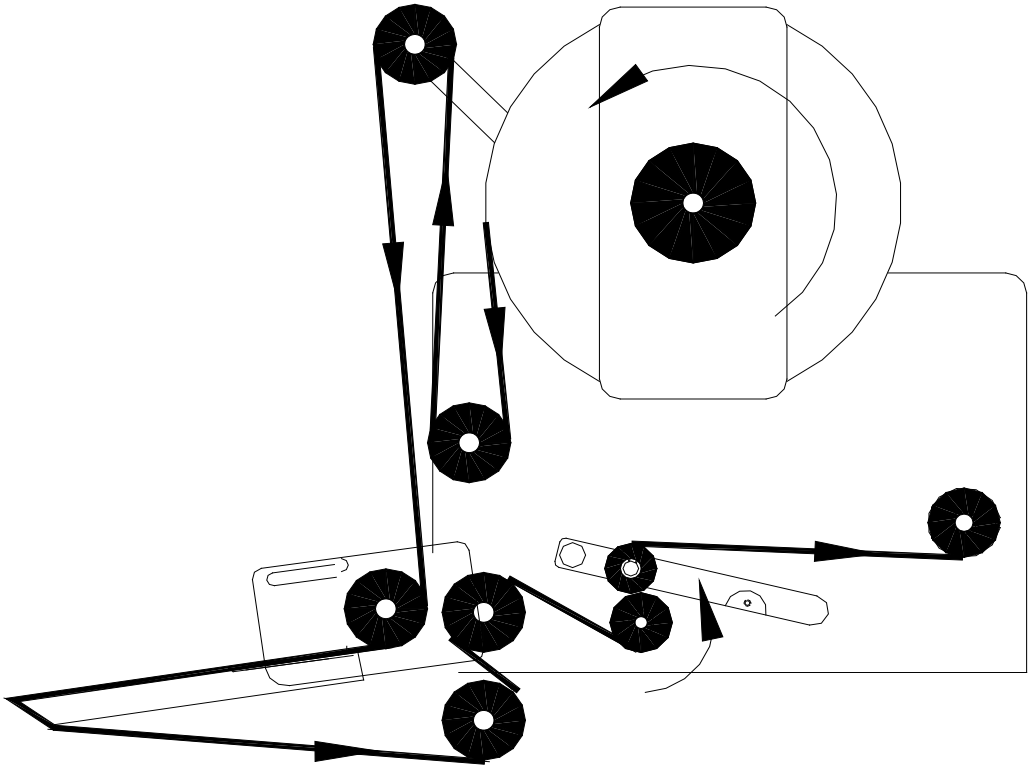
A convergent beam photoeye detects the presence of the web on the web drive roller. Absence of web on the drive roller indicates a Label Out/Web Break condition.

Two dry contact, digital outputs are available to communicate alarm conditions to outside devices. These outputs are located on the PLC I/O expansion module. Output Y4 turns on to indicate Low Alarm. Output Y5 turns on to indicate High Alarm. The program to control these outputs is included in the base ***Series 40*** control program. No custom programming is required. Dry contacts are rated for 2 Amps at 250 Volts AC or 30 Volts DC.

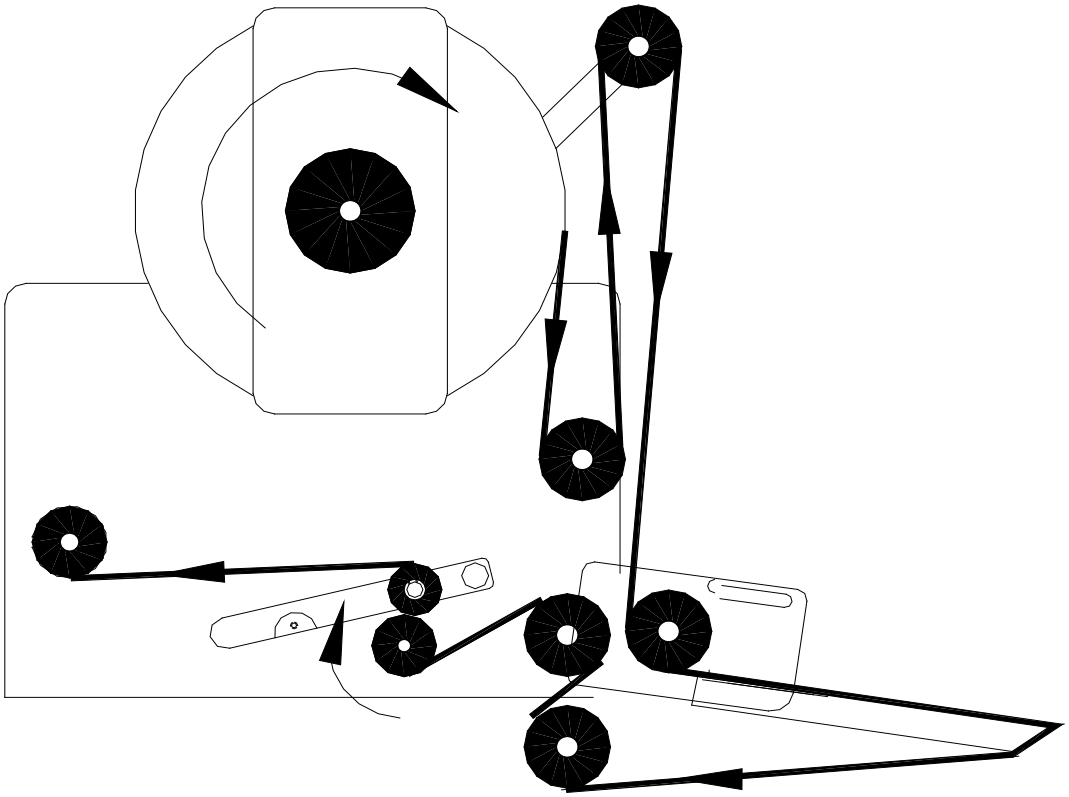


Threading the Machine

Model 40 Left Hand (12” Unwind / Single Roller Dancer / Slaved Rewind) shown.

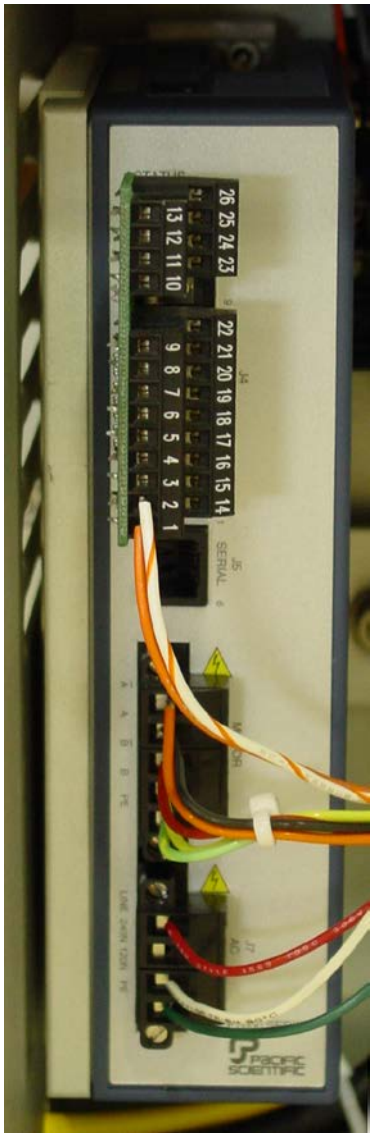


Model 40 Right Hand (12” Unwind / Single Roller Dancer / Slaved Rewind) shown



This Series 40 utilizes a P70360 Pacific Scientific High Performance MicroStepping Drive to control the stepper motor.

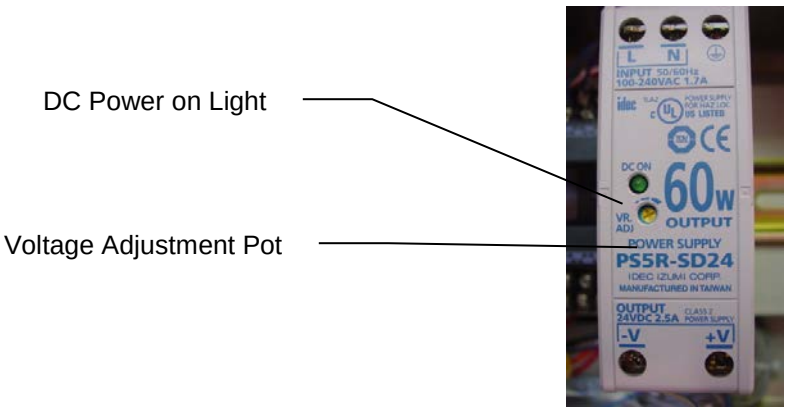
Please refer to P70360 Pacific Scientific High Performance MicroStepping Drive Reference Guide for additional information.



P70360 Pacific Scientific High Performance MicroStepping Drive

DC Power Supply

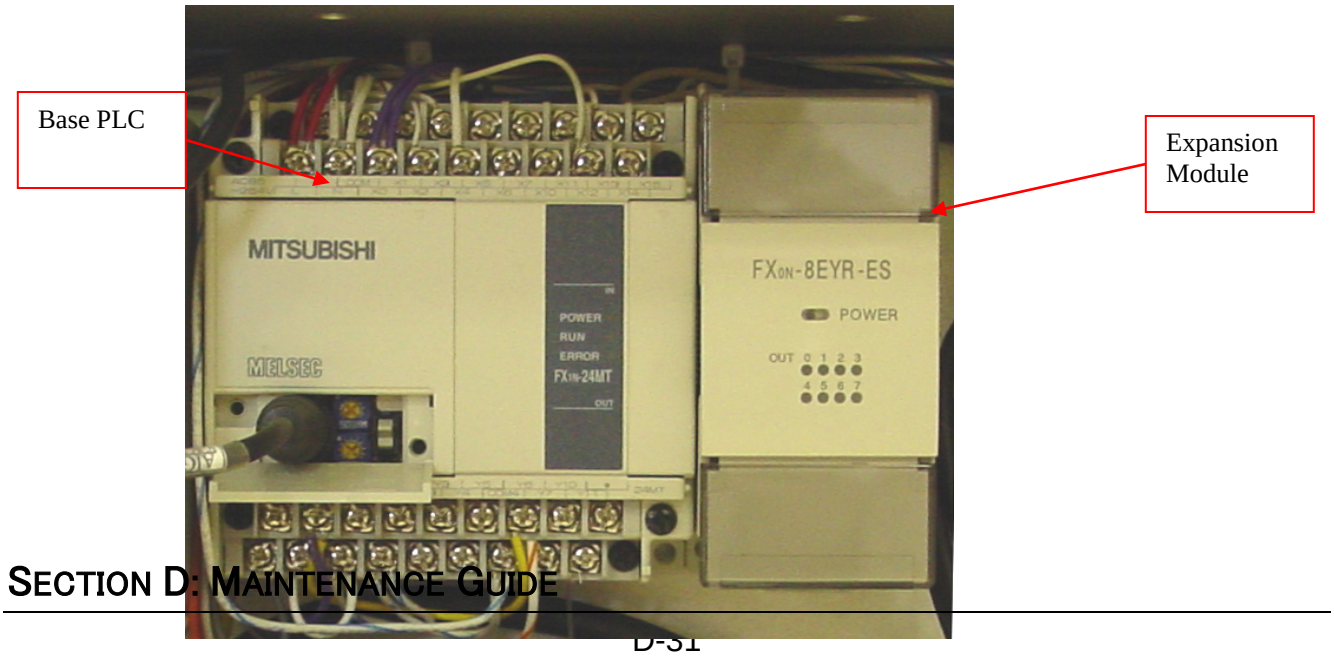
The Series 40 utilizes a 24 volt DC power supply to power the PLC and various I/O devices. The power supply incorporates a green pilot light on the front face. The pilot light illuminates to indicate that DC power is available.



The front panel of the power supply includes a potentiometer to allow adjustment of the power supply's output voltage. Output voltage is set to 24 volts at the factory. No user adjustment should be required.

PLC

The Series 40 utilizes a PLC for logical control of the labeling sequence and to manage the operator interface. If the Low Label/Web Break Alarm Package is selected or the Applicator 2 Output is required, an I/O expansion module with 8 additional Outputs can be added. The Base PLC includes an Input Voltage Selector Switch, located on the left side of the case. This switch must be set to 24V Input.



Input Specifications

Maximum Input Rating	26.4 VDC
Input Voltage	24VDC, 5.3mA
Minimum On Voltage	19V
Minimum Off Current	2mA

Base Module Output Specifications

Rated Load	30 VDC, 0.3A
Peak Load Current	1.0A
Maximum Off Voltage	30VDC
Leakage Current in Off State	100μA or Less
Residual Voltage in On State	0.8V or Less

Expansion Module Output Specifications

Output Type	Relay
Rated Load	250VAC/30VDC
Rated Output Current	2A/Point, 4A Common
On Resistance	150mΩ or Less
Residual Voltage in On State	0.8V or Less

Note: Electrical Section may vary for LSI Systems. Consult Electrical section in systems manual for correct schematics and diagrams.

PLC I/O

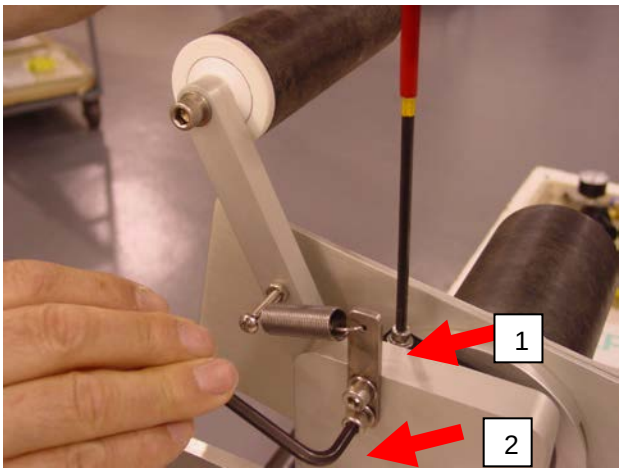
Input designation	Model 40	Output designation	Model 40
X0	Pulse Loop-Back	Y0	Pulse Output
X1	Encoder 1	Y1	Printer Output
X2	Label Sensor	Y3	Applicator 1
X3	Product Sensor	Y4	Printer
X4	Encoder 2	Y5	Air Assist
X12	Low Label	Y6	Pulse Stop
X13	Web Break	Y7	Vacuum
		Y11	Auto Teach
		Y24	Low Label Alarm Contact
		Y25	Web Break
		-Y26	System Ready
		-	

**Note - Expansion Module is only used when Alarm Package is purchased*

Mechanical Adjustments

All Series 40 labelers come complete from the factory and are adjusted to meet the operational specifications of the original application. The components described below may need occasional adjustment to ensure optimal performance.

BEFORE PERFORMING ANY ADJUSTMENTS, ENSURE THAT THE MACHINE IS DISCONNECTED FROM BOTH ELECTRICAL POWER AND COMPRESSED AIR.

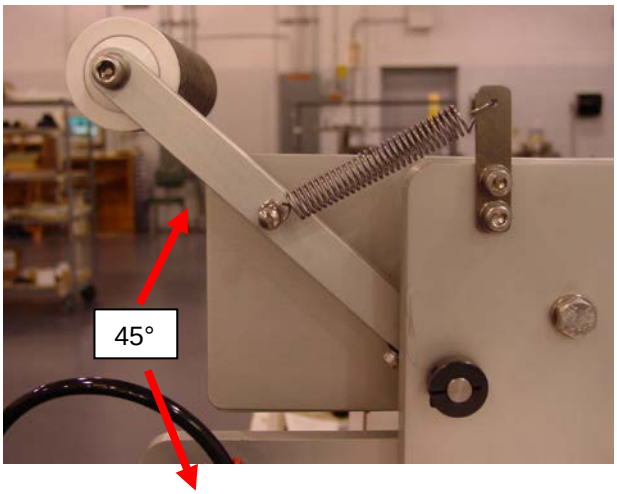


Adjusting the Unwind Brake Belt

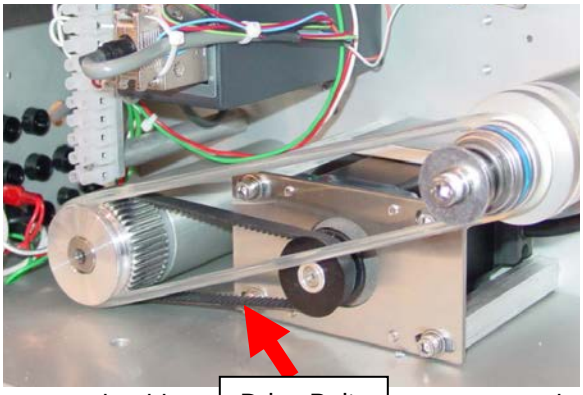
The unwind brake stops the unwind roll from free wheeling. Unwind brake tension is controlled by the position of the dancer arm. When properly adjusted, the dancer are should rest with the brake fully engaged, at approximately 45° from horizontal. Pulling down on the dancer arm will release the brake.

To adjust the unwind brake:

1. Loosen socket head cap screw “1” using an Allen wrench until the brake belt mount turns freely.
2. Using a second Allen wrench inserted into screw “2”, turn the brake belt mount until the dancer arm rests at approximately 45°.
3. Tighten screw “1”.



When properly set, the tension arm should be at approximately a 45° angle from the edge of the main plate when in a resting position.

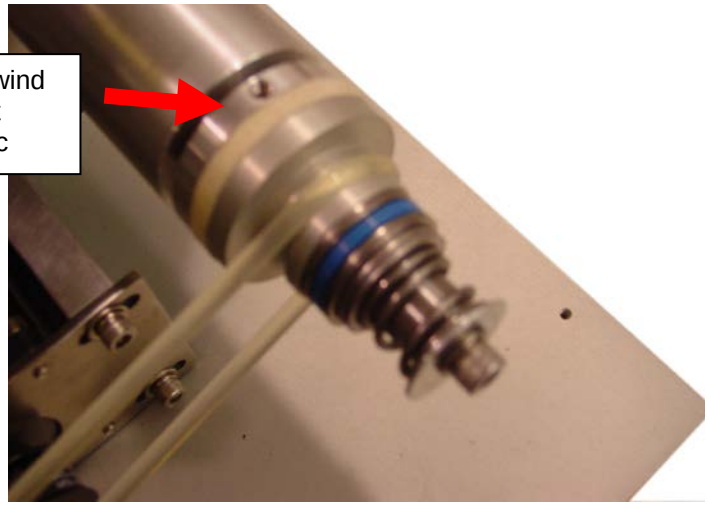


Adjusting the Drive Belt

To adjust web drive belt tension:

1. Loosen the 4 mounting screws, that attached the motor mounting plate to the stand offs.
2. After confirming that belt teeth are properly engaged in the pulley grooves, adjust motor position to set belt tension and retighten mounting screws.
3. When the belt is properly tensioned, light pressure in the center of the span between the 2 pulleys should produce approximately 1/8" of belt movement.

Setting Rewind Tension



Rewind tension on the standard Series 40 slaved rewind assembly is set at the factory using shims. Field adjustment should never be required.

Over time, rewind tension may decrease due to wear or contamination of the felt rewind clutch disk or wear or contamination of the rewind drive belt.

To replace the felt rewind clutch disc.
1. Remove the socket head cap screw at the end of the shaft.
2. Remove the washer, shims, spring, thrust bearing and clutch plate/drive sheave from the rewind shaft.
3. Remove old felt disc and replace with a new felt disc. New disc must by clean and dry and free of oil.
4. Replace the clutch plate / drive sheave, thrust bearing, spring and shims in the reverse order from the way they were removed.
5. Install screw and washer and tighten.

Note: Add **1 drop** of oil to the felt disc to help prevent squeaking. This will also help the disc from drying out. Add oil to disc once every 6 months.

To replace the rewind drive belt:

1. Remove the old rewind drive belt. The drive belt is very elastic and can be removed by hand without tools.
2. Clean the sheaves to remove any oil or contamination.
3. Install a new rewind drive belt.

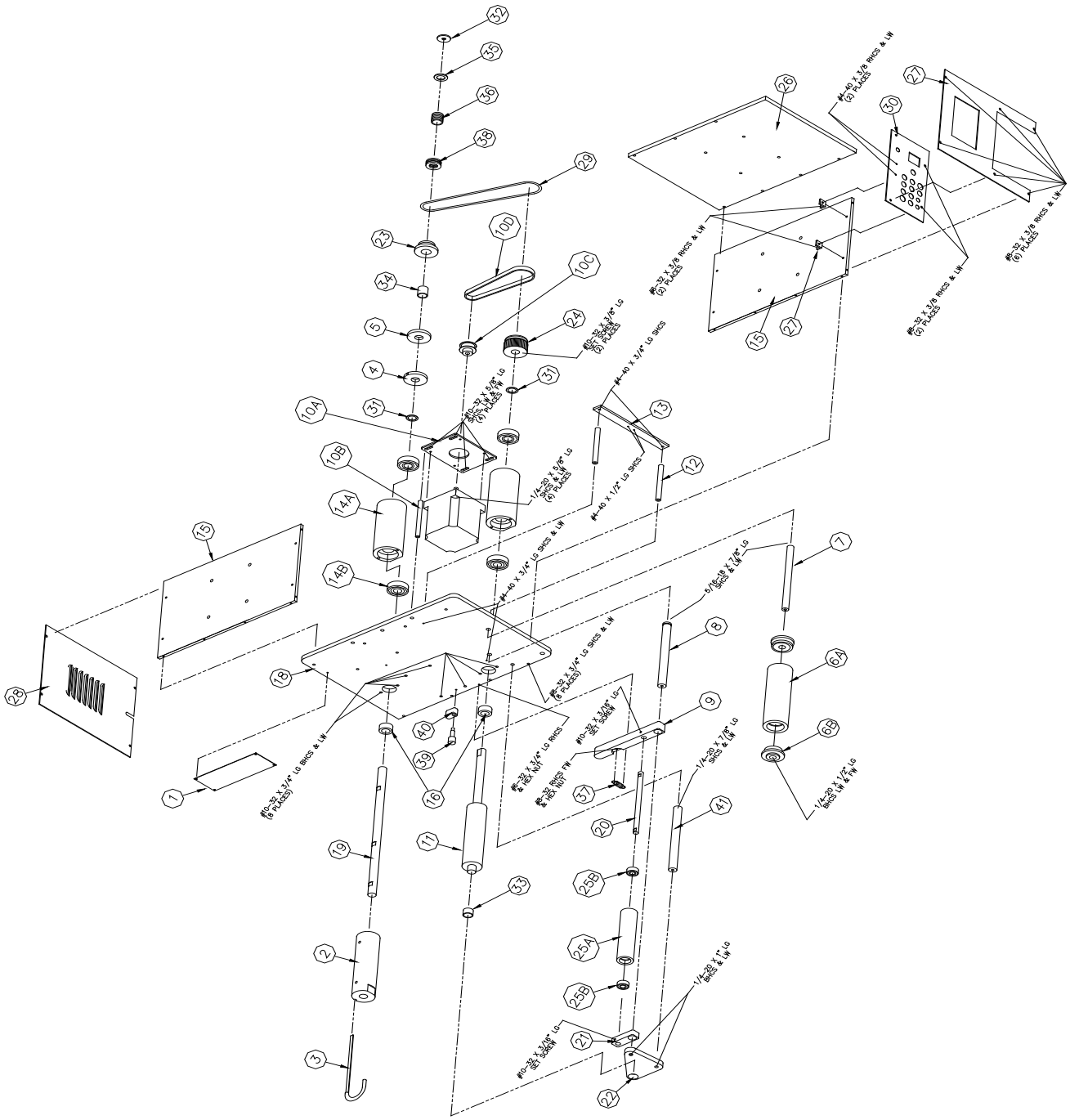
Adjusting Rewind Tension (Powered Rewind)
Rewind tension on the optional powered rewind assembly may require periodic adjustment as the clutch wears.

Rewind tension is adjusted by tightening (more rewind tension) or loosening (less rewind tension) the split collar, located at the end of the rewind drive shaft.

The collar is adjusted at the factory to be approximately 1/32” from the end of the shaft.

To adjust rewind tension:

1. Rotate the rewind roller until the locking screw for the split color is visible through the slot in the rewind roller.
2. Loosen the screw until the collar can be rotated.
3. Screwing the collar in (clockwise) increases tension. Screwing the collar out (counterclockwise) decreases tension.



41-0021LS LABELER, BASE,41, LEFT HAND, WITH SENSOR

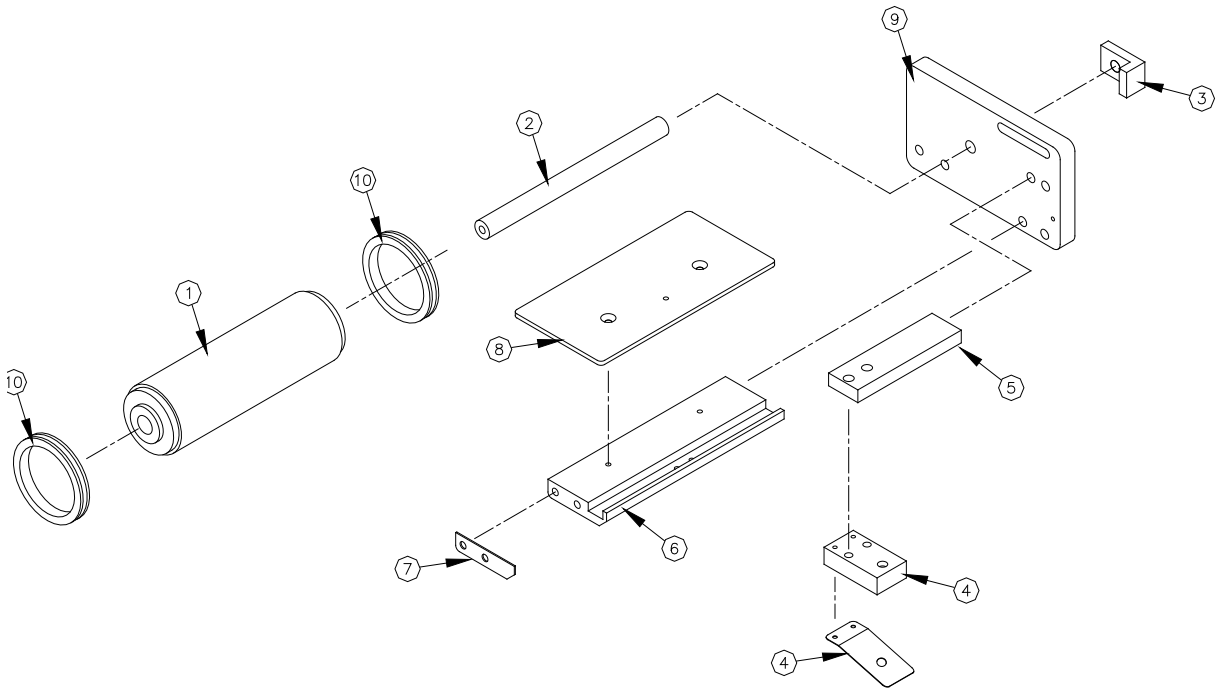
SECTION D: MACHINE PARTS IDENTIFICATION

Labeling Systems Inc.
a division of Pro Mach

ID #	Qty	Description
1	1	L.S.I. NAME PLATE PRE-STAMPED
2	1	REWIND HUB MODIFIED
3	1	CANDY CANE,1000
4	1	REWIND BACK UP HUB
5	1	FELT DISC
6A	1	ROLLER, LONG
6B	2	BALL BEARING, ROLLER END
7	1	ROLLER SHAFT - LONG
8	1	ROLLER ARM PIVOT SHAFT
9	1	ROLLER ARM
10A	1	MOTOR MOUNT
10B	1	MOTOR MOUNT ROD
10C	1	PULLEY 3mm, MODIFICATION
10D	1	BELT 9mm WIDE
11	1	DRIVE ROLLER ASS'Y
12	2	SPACER, T.B.
13	1	MOUNT, T.B.
14A	1	SUPPORT, SHAFT
14B	2	BALL BEARING 5/8 ID 1 3/8 OD
15	2	PLATE, BOTTOM AND TOP
16	1	SPACER
18	1	PLATE, MAIN
19	1	REWIND ASSY. 7”
20	1	SHAFT, NIP ROLLER
21	1	ROLLER SUPPORT

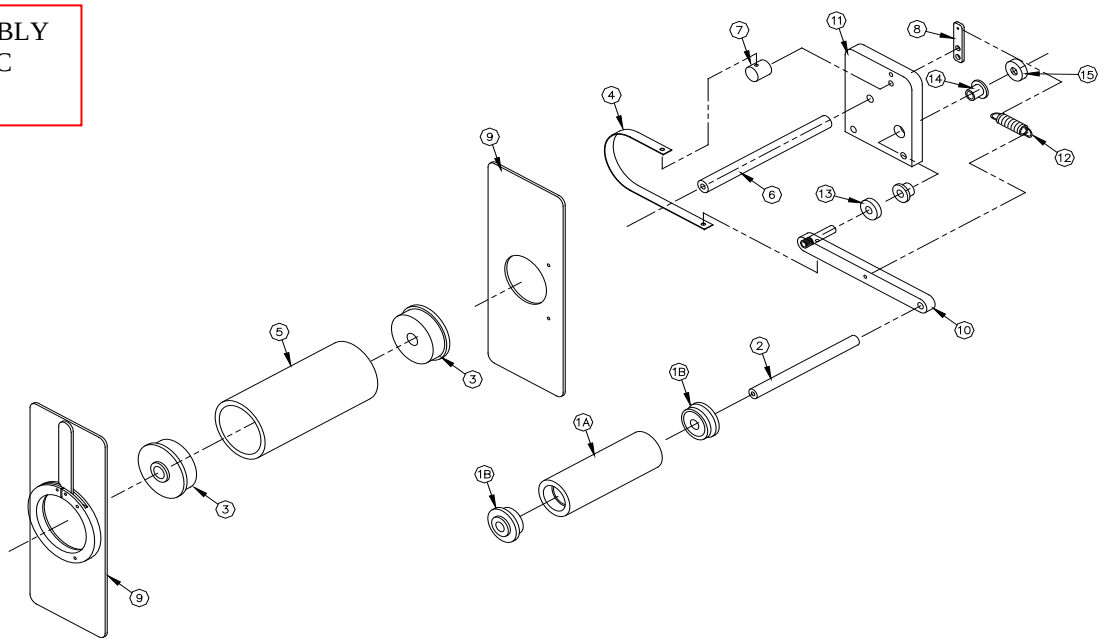
ID #	Qty	Description
22	1	DRIVE ROLLER SUPPORT
23	1	PULLEY, REWIND, 1.172 P.D.
24	1	PULLEY, 28 TEETH
25A	1	ROLLER, NIP
25B	2	BALL BEARING 3/8 ID 7/8 OD
26	1	PLATE, SIDE
27	2	MOUNT, COVER
28	1	COVER, REAR
29	1	BELT, ROUND 3/16 DIA, ENDLESS
30	1	STRAIN RELIEF MOUNTING PLATE
31	2	WASHER
32	1	FLAT WASHER
33	1	PLAIN BUSHING
34	1	PLAIN BUSHING
35	4	BEARING
36	2	SHIM BUSHING
37	1	COMPRESSION SPRING
38	1	EXTENSION SPRING
39	2	BALL BEARING
40	1	THRUST BEARING
41	1	ROLLER ARM PIVOT SHAFT
42	1	CAM WITH SHOULDER BOLT
	1	KEY
	1	SUB.-ASSY. ELECTRIC
	1	SHAFT SUPPORT
	1	SPRING HOLDER
	1	SENSOR, AMPLIFIER
	1	DISCONNECT CABLE FOR SENSOR

PEELER BAR ASSY.
LH, 30/40 WITH SENSOR 41-0350LS

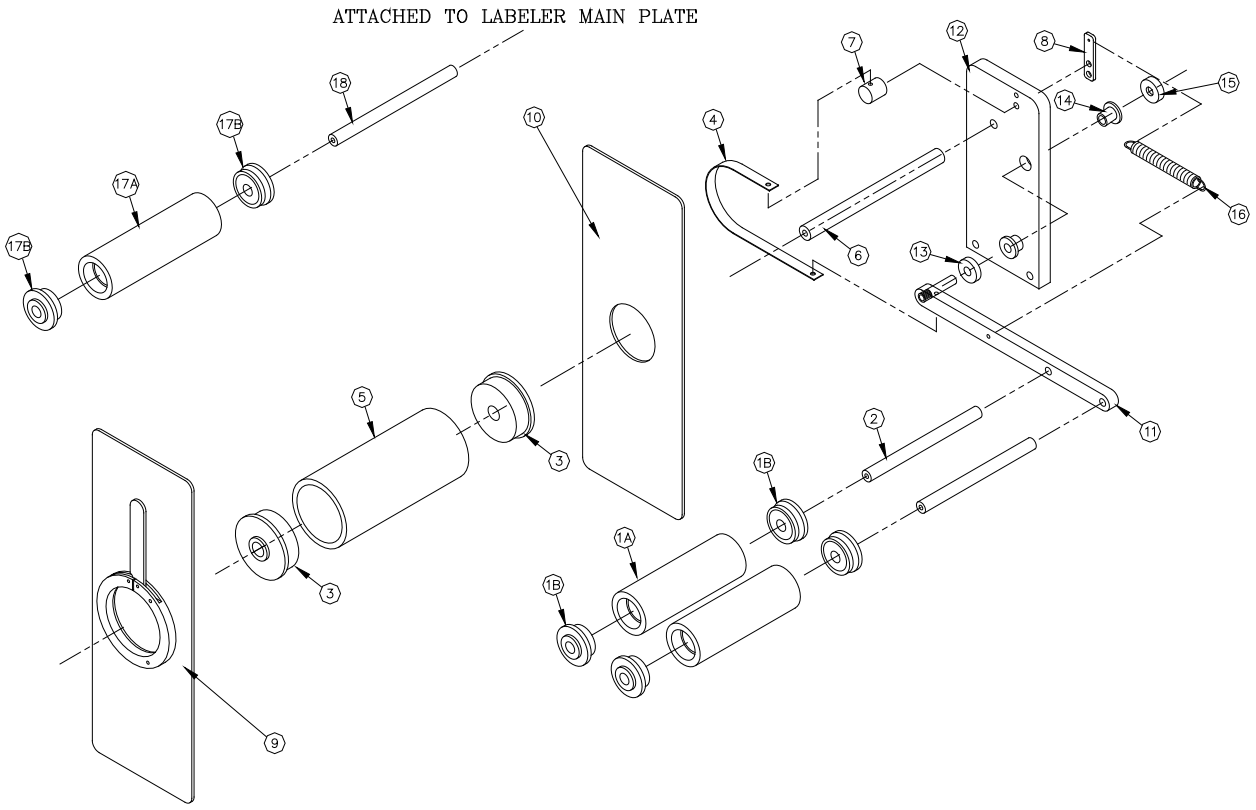


ITEM	QTY	DESCRIPTION
1	1	ROLLER ASSEMBLY
2	1	ROLLER SHAFT
3	1	CLAMP
4	1	FIBER SENSOR MOUNT
5	1	SUPPORT, PHOTOCELL
6	1	PEELER BAR
7	1	COVER
8	1	PEELER BAR PLATE
9	1	PEELER BAR SUPPORT
10	2	SPRING COLLAR
	1	AUTO TEACH AMPLIFIER
	1	PLASTIC FIBER
	1	PLASTIC FIBER

UNWIND ASSEMBLY
LH, 30/40,12” DISC
41-0210



ITEM	QTY	DESCRIPTION
1A	1	ROLLER SHORT
1B	2	BALL BEARING, ROLLER END
2	1	ROLLER SHAFT – SHORT
3	2	ROLLER END
4	1	BRAKE END
5	2	UNWIND CORE
6	1	UNWIND ROLLER
7	1	MOUNT BRAKE BAND
8	1	MOUNT EXTENSION SPRING
9	1	UNWIND DISC ASSEMBLY WITH LOCK
10	1	TENSION ARM ASSEMBLY
11	1	PLATE UNWIND MOUNTING
12	1	EXTENSION SPRING
13	1	FLAT WASHER
14	2	FLANGE BUSHING
15	1	COLLAR CLAMP



UNWIND ASSEMBLY,L.H.
40, 16” DUAL DISK
41-0022L

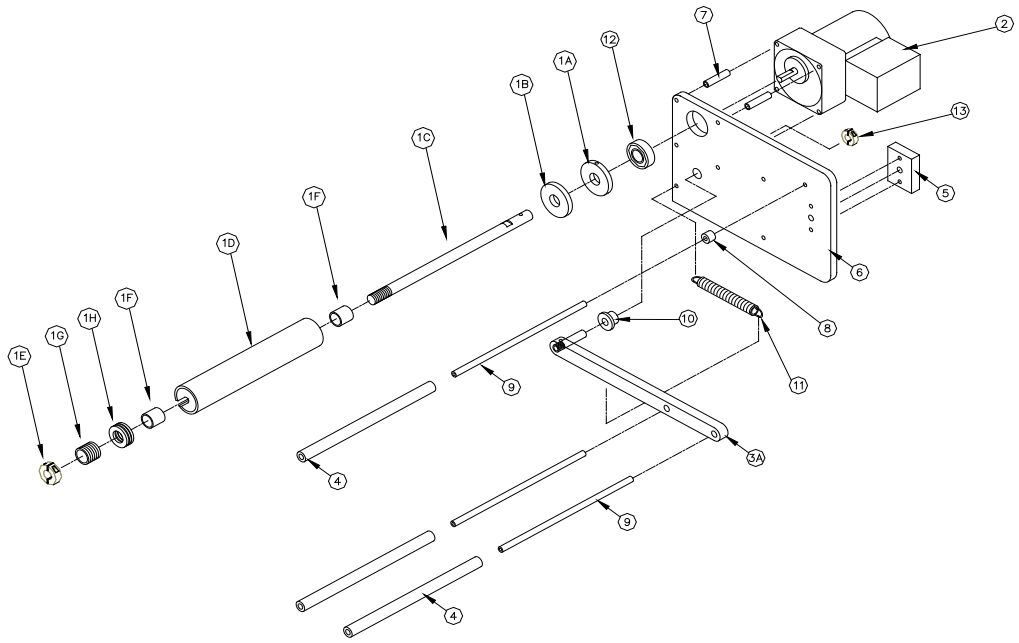
Unwind Assembly 16”

1ITEM	QTY	DESCRIPTION
1A	2	ROLLER – SHORT
1B	4	BALL BEARING, ROLLER END
2	2	ROLLER SHAFT
3	2	ROLLER END
4	1	BRAKE BAND
5	1	UNWIND CORE
6	1	UNWIND ROLLER
7	1	MOUNT BRAKE BAND
8	1	MOUNT EXTENSION SPRING
9	1	LET OFF DISK ASSY., 16”
10	1	LET OFF DISK ASSY., 16”,CLAMP TYPE
11	1	TENSION ARM ASSEMBLY,DUAL
12	1	PLATE UNWIND MOUNTING
13	1	FLAT WASHER
14	2	FLANGE BUSHING
15	1	COLLAR CLAMP
16	1	EXTENSION SPRING
17A	1	ROLLER – LONG
17B	2	BALL BEARING, ROLLER END
18	1	ROLLER SHAFT-LONG

ITEM	QTY	DESCRIPTION
1A	1	REWIND BACK UP HUB
1B	1	FELT DISC
1C	1	SHAFT, POWER REWIND
1D	1	ROLLER, REWIND SUB-ASSY
1E	1	COLLAR, THREADED MODIFIED
1F	1	THRUST BEARING 5/8 ID
1G	1	SPRING COMP .845 x .081 x ¾
1H	1	CANDY CANE
2	1	GEARMOTOR SUB-ASSEMBLY,MODEL 41
3A	1	TENSION ARM ASSEMBLY
4	3	TENSION ROLLER
5	1	NUT PLATE,MODEL 41
6	1	MOUNT PLATE, 41 POWER REWIND,RH
7	4	MOTOR MOUNT ROD
8	1	SPACER
9	3	SPACER SHAFT
	1	BUSHING,FLANGE
	1	SPRING, EXT. .438 X .037 X 3
	1	BALL BEARING 5/8 ID
	1	COLLAR CLAMP 3/8 ID
	1	MOTOR MOUNT PLATE
	1	STRAIN RELIEF BUSHING
	2FT.	CABLE,18/4, 300V,PVC

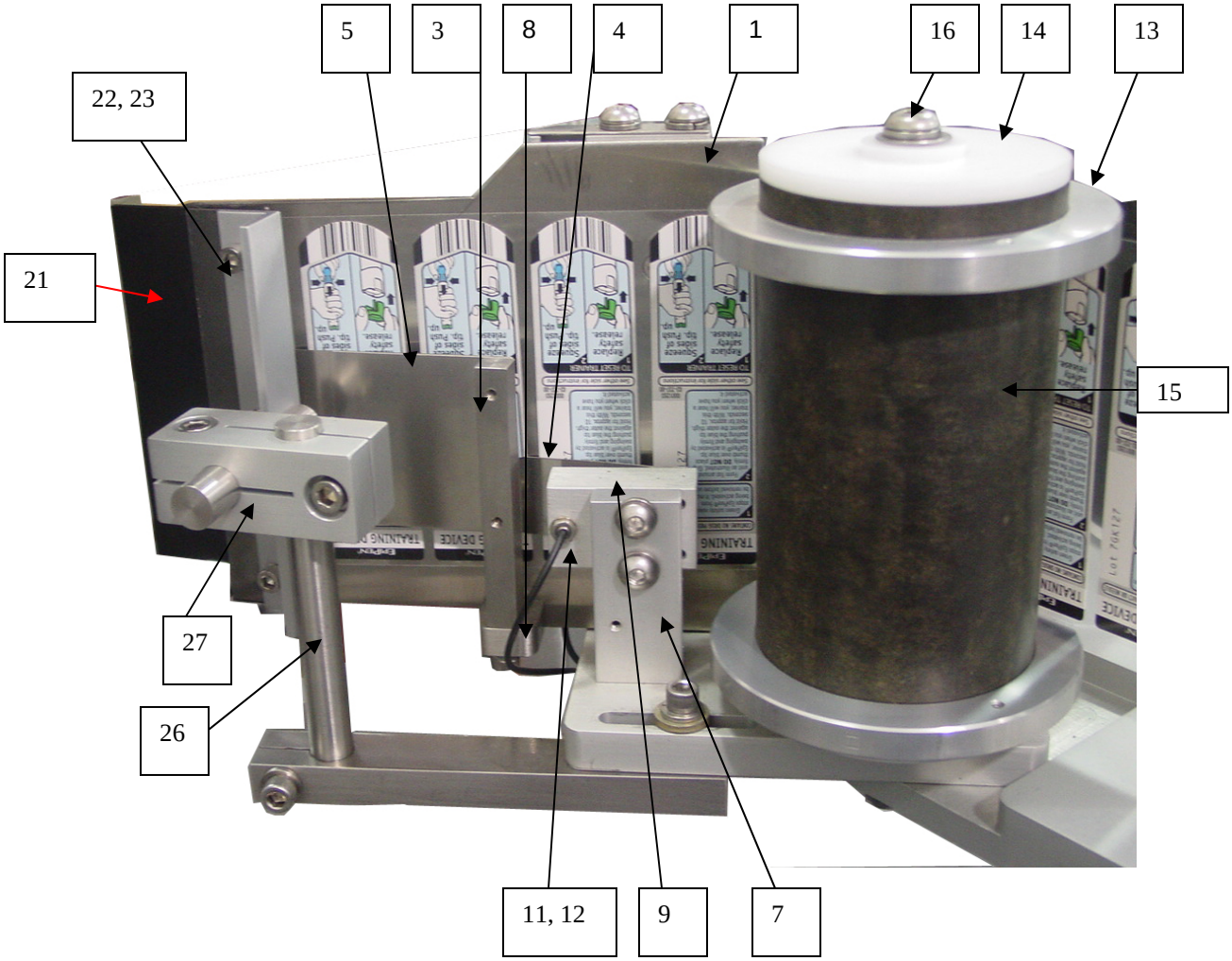
SECTION D: MACHINE PARTS IDENTIFICATION

Power Rewind Assembly



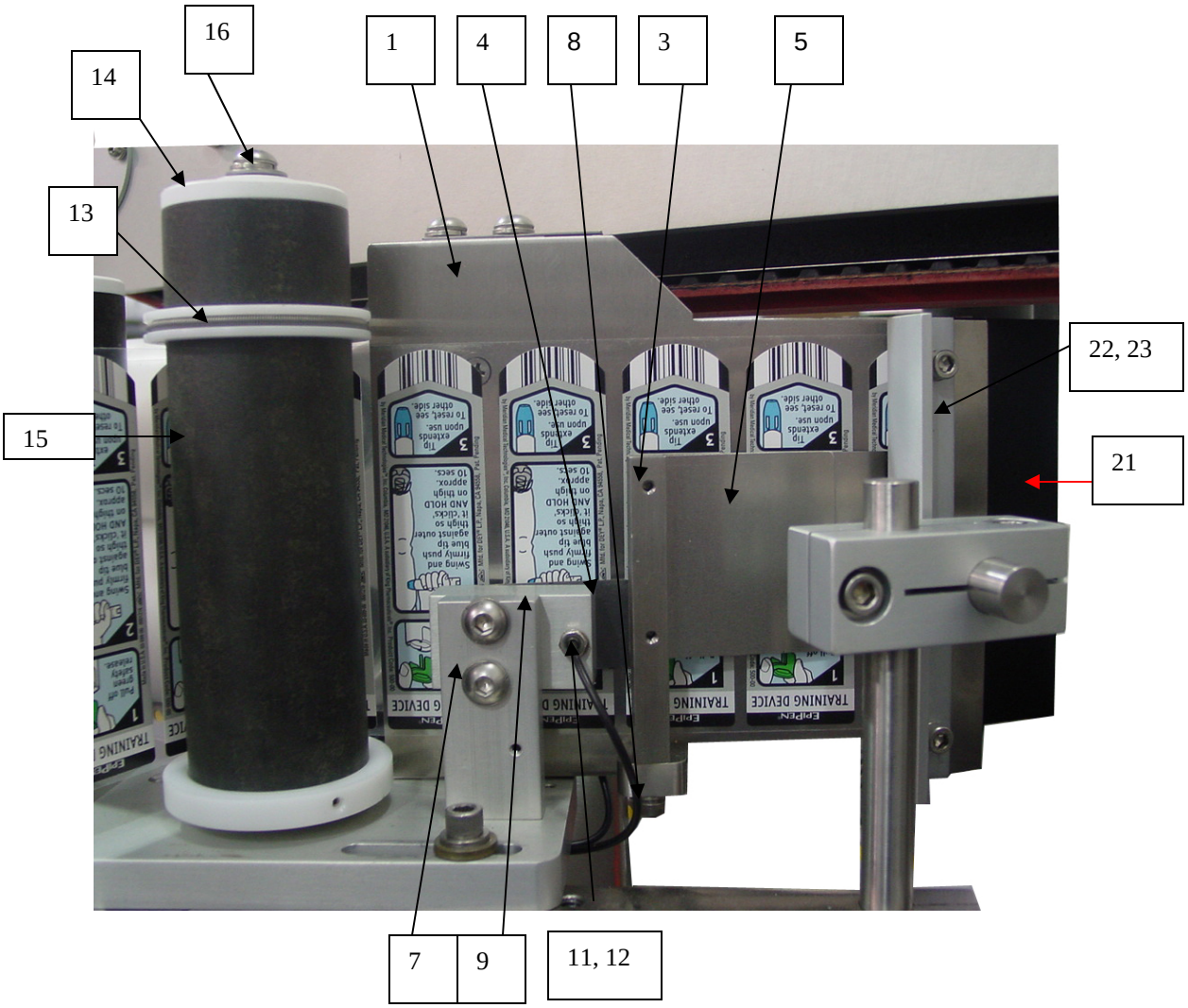
The labeling heads each have a Model 10 Wipe-on applicator with a squeegee.

Applicator on Labeling Head Serial #40-0334 (includes Markem Printer)



ITEM	QTY	DESCRIPTION
1	1	PEELER BAR
2	1	MOUNT SPRING HOLDER
3	1	SPRING HOLDER
4	1	SPRING, 2.25L , 2.18 W
5	1	SPRING, 3.75L , 2.18 W
6	1	SUPPORT PEELER BAR MODIFIED
7	1	SUPPORT PHOTCELL MODIFIED
8	1	ROT. ARM CLAMP
9	1	FIBER SENSOR MOUNT
10	1	COVER
11	1	FIBER
12	1	FIBER
13	2	LET OFF CLAMP
14	2	ROLLER END 3”
15	1	DANCER ROLLER 3”
16	1	SHAFT DANCER ROLLER
17	1	PLATE, PEELER BAR MODIFIED
19	1	BRUSH HOLDER BRACKET
20	1	ROD, BRUSH HOLDER (2 HOLES)
21	1	SQUEEGEE 4 ½”W
22	1	SQUEEGEE CLAMP
23	1	SQUEEGEE MOUNT
24	1	NUT PLATE, SQUEEGEE MOUNT
25	1	SPRING, SQUEEGEE
26	1	ROD
27	1	UNIVERSAL MOUNT BLOCK LH

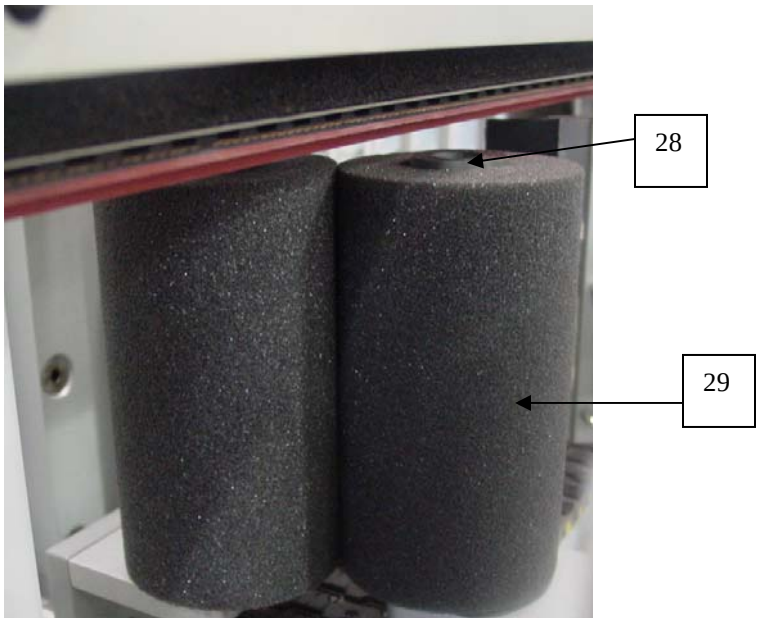
Applicator on Labeling Head Serial #40-0335 (NO Printer)



SECTION D2: APPLICATOR

ITEM	QTY	DESCRIPTION
1	1	PEELER BAR
2	1	MOUNT SPRING HOLDER
3	1	SPRING HOLDER
4	1	SPRING, 2.25L , 2.18 W
5	1	SPRING, 3.75L , 2.18 W
6	1	SUPPORT PEELER BAR MODIFIED
7	1	SUPPORT PHOTCELL MODIFIED
8	1	ROT. ARM CLAMP
9	1	FIBER SENSOR MOUNT
10	1	COVER
11	1	FIBER
12	1	FIBER
13	2	LET OFF CLAMP
14	2	ROLLER END ”
15	1	DANCER ROLLER”
16	1	SHAFT DANCER ROLLER
17	1	PLATE, PEELER BAR MODIFIED
19	1	BRUSH HOLDER BRACKET
20	1	ROD, BRUSH HOLDER (2 HOLES)
21	1	SQUEEGEE 4 ½”W
22	1	SQUEEGEE CLAMP
23	1	SQUEEGEE MOUNT
24	1	NUT PLATE, SQUEEGEE MOUNT
25	1	SPRING, SQUEEGEE
26	1	ROD
27	1	UNIVERSAL MOUNT BLOCK LH

After the labelers apply both labels to the product, rollers will wipe down, the product to ensure the labels are attached.



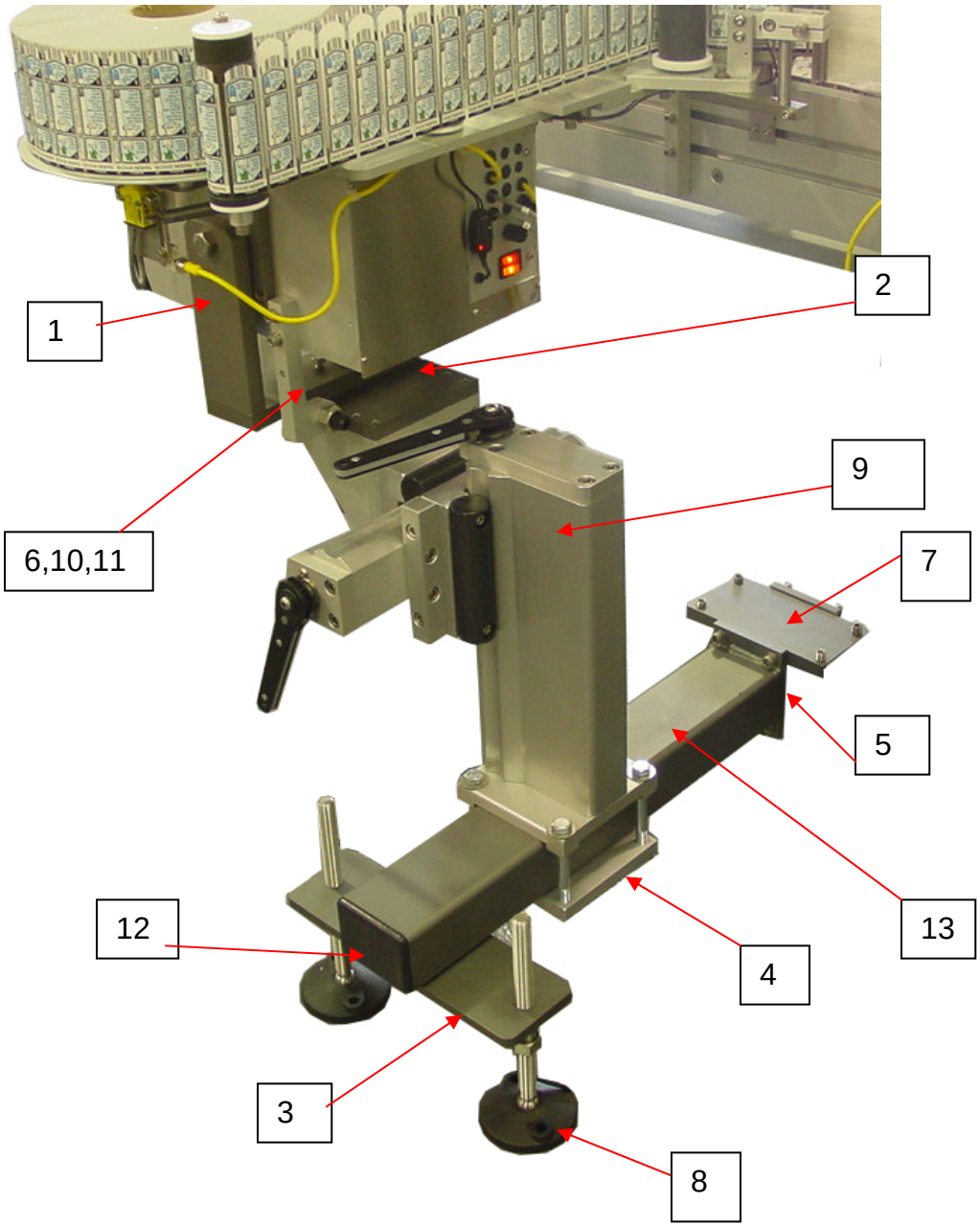
ITEM	QTY	DESCRIPTION
28	2	AXLE ROLLER
29	2	ROLLER

To ensure the labels are on properly and without error, the products will be inspected by the Vision System (see Section E).

Labeling Systems Inc.
a division of Pro Mach

Section D6: LABELER Mount

Parts Call out



Section D6: LABELER Mount

Description and Bill of Materials

Item	Qty	DESCRIPTION
1	1	Yoke Assy. 41 Head,Short Arm
2	1	Yoke Mount Assy.
3	1	Caster & Leveling Pad Mount
4	1	Plate, Frame Support Spacer
5	2	Base Flange, 4” Wide
6	1	Skew Adjustment Bracket
7	1	Jack Plate
8	2	Leveling Pad
9	2	X-Y Table
10	1	Swivel Pad 5/8-11 X 3” Long
11	2	Block Skew Adjust
12	1	End Cap
13	1	Frame Weldment

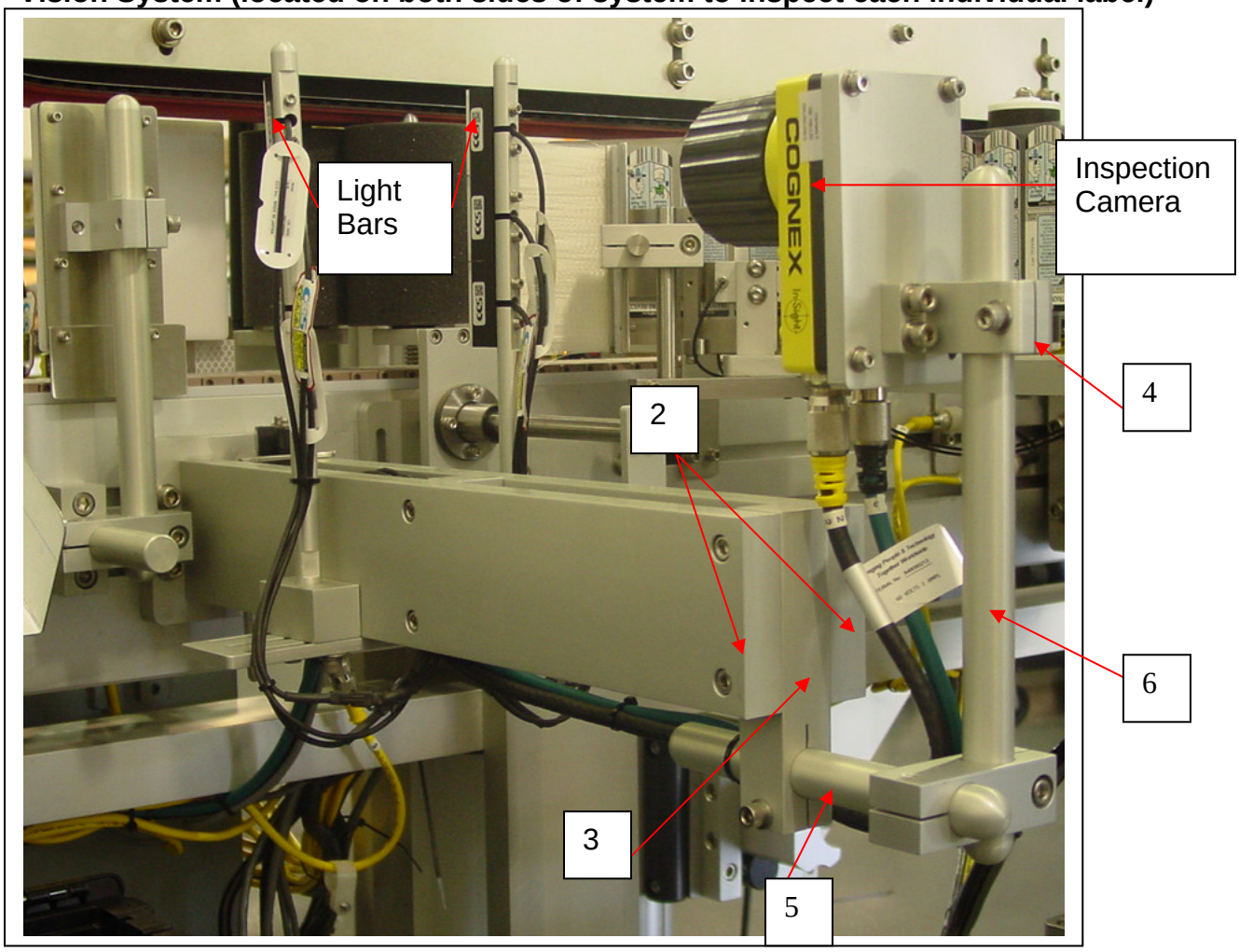
Section E: Vision System

Inspection Station

The Vision System Inspection Station examines each product to ensure the label is properly attached and the information on the label is clearly identifiable. The product travels down the conveyor to the product bin after passing through the Inspection Station.

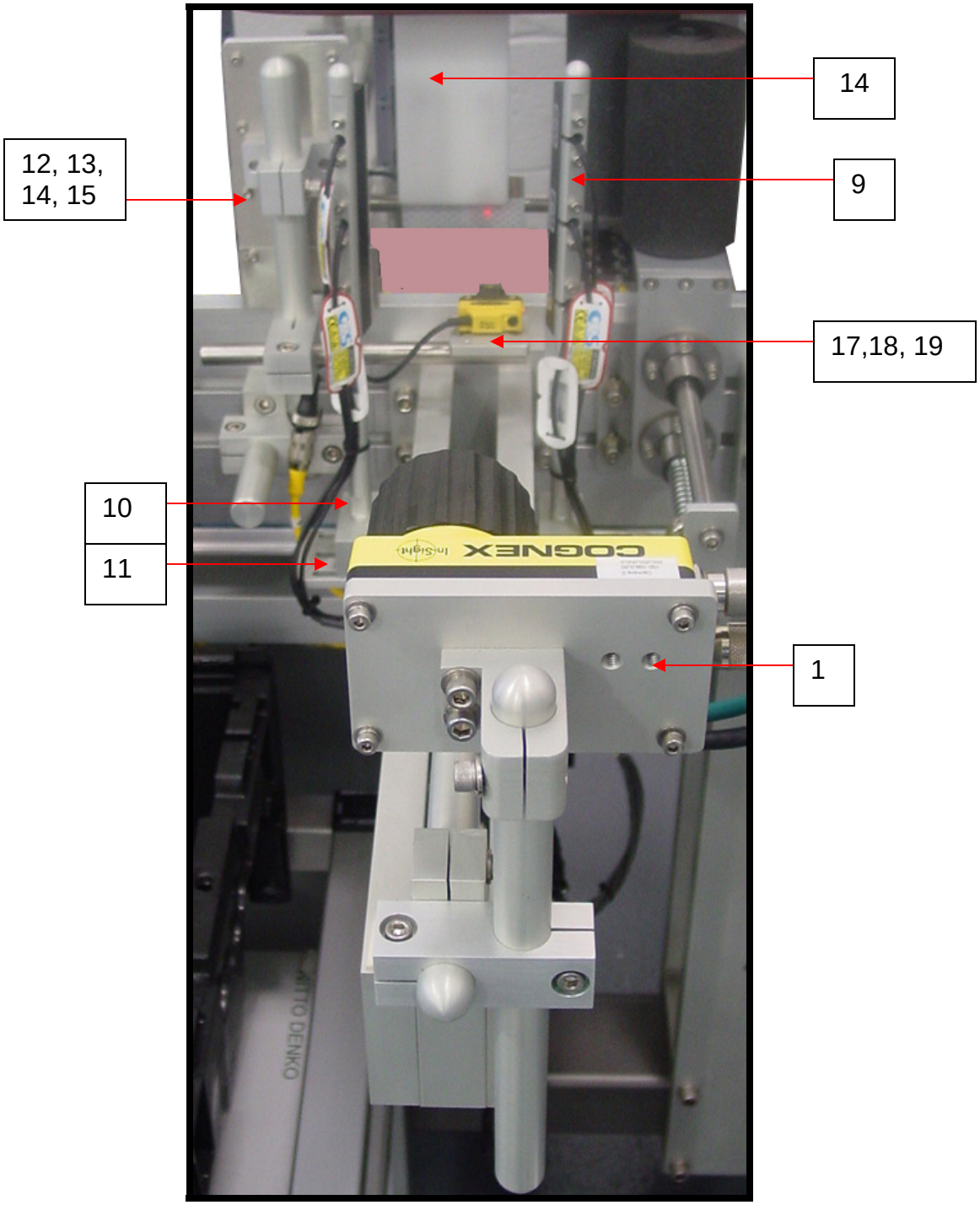
In the event, the Vision System Inspection Station examines the product and the label is not properly attached and/or the information on the label is not clearly identifiable, the product will be removed from the conveyor by the Conveyor Rejection Station (Section G2).

Vision System (located on both sides of system to inspect each individual label)



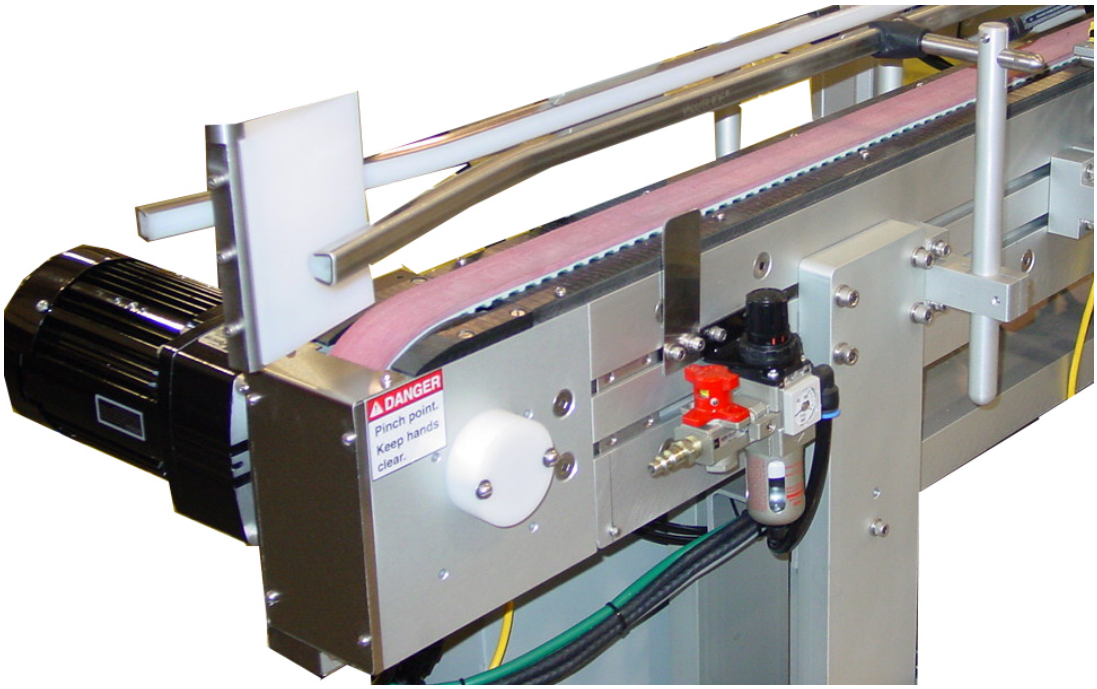
Section E: Vision System

Parts Call out

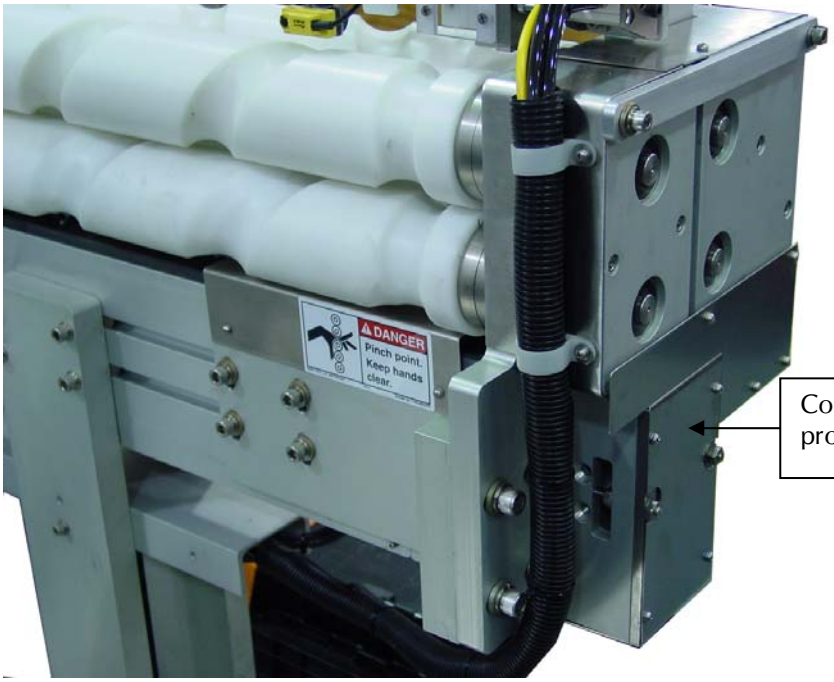


Number	Qty	Description
1	1	Mounting Plate, Vision Camera
2	2	Mounting Beam, Vision Camera
3	1	Mounting Plate, Camera Post
4	1	Mounting Bracket, Camera
5	1	Post, Horizontal - Camera
6	2	Post, Vertical - Camera
7	1	Spacer, Beam
8	1	Mounting Plate, Camera
9	2	Mounting Bracket, Light Bar
10	2	Mounting Post, Light Bar
11	1	Base Mount ¾" Shaft
12	1	Post, Horizontal – Reflector
13	1	Mounting Plate – Reflector
14		Reflector
15	2	Universal Mounting Block LH
16	1	Banner Mount
17	1	Sensor Mounting Rod
18	1	Sensor Mounting Bracket
19	1	Universal Mounting Block LH

OUTFEED END

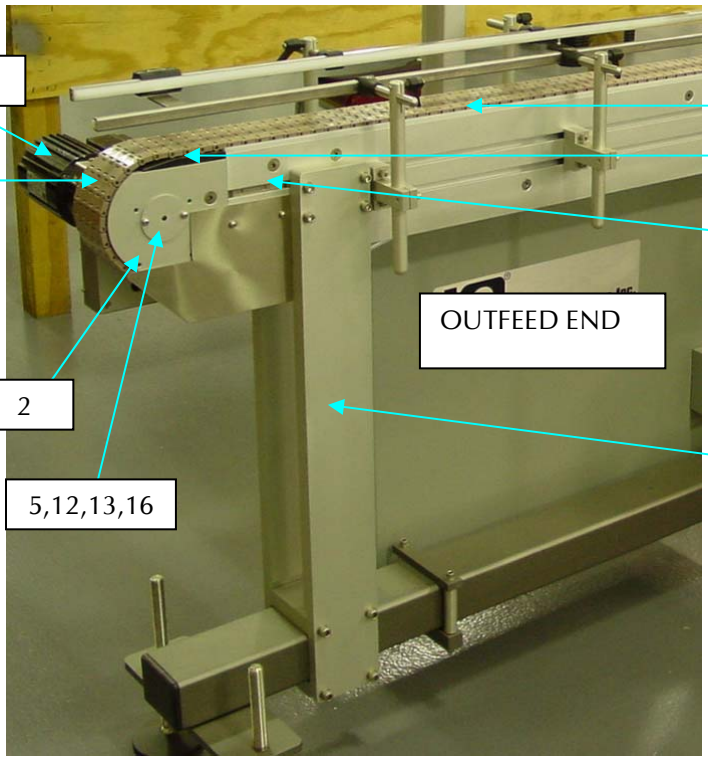


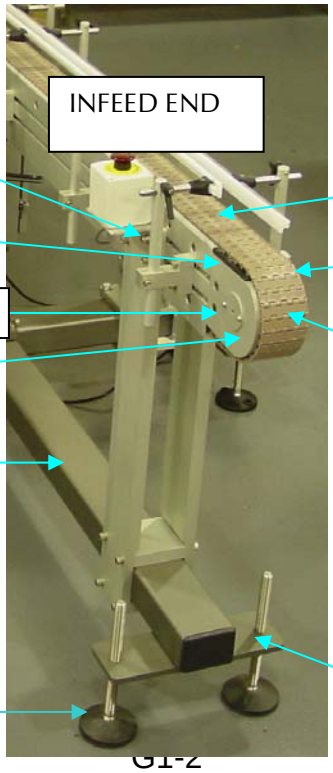
INFEED END



Section G1: Conveyor

The pictures are shown without any System Assemblies attached or Guards mounted to better illustrate the parts and their locations.





Number	Quantity	Description
1	2	Conveyor Plate
2	2	End Plate (outfeed)
3	2	End Plate (infeed)
4	11	Spacer, Conveyor
5	1	Drive Shaft
6	1	Idler Shaft
7	2	Strip, End
8	2	Strip, End
9	4	Clamp Plate (inside)
10	8	Nut Block
11	1	Key 1/8" THK X ¼" W
12	3	Bearing Cap
13	1	*Ball Bearing, .625 ID 1.575 OD
14	1	Motor, Junction Box
15	1	Collar Shaft
16	1	*Ball Bearing, .625 ID 1.5748OD
17	1	Gear Motor, 1/6 HP Invert. AC
18	18 FT	J-Leg Wear Strip
19	18 FT	Wear Strip
20	1	Sprocket
21	22 FT	Chain Rubber Belt
22	1	Motor, Spacer
23	1	End Cap
25	4	Nut Block
26	1	Tube Base
27	2	Support, 3” Wide Conveyor
28	2	Plate Frame Support Spacer
29	2	Caster and leveling pad mount
30	4	Leveling Pad

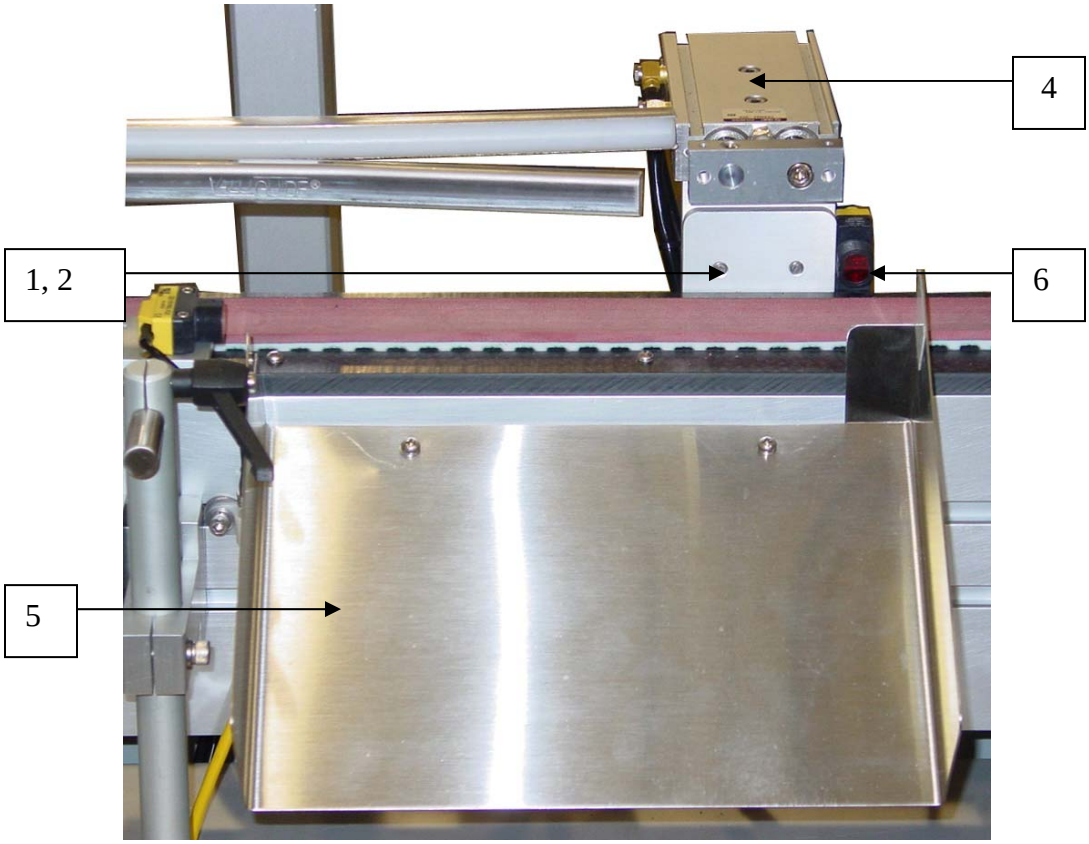
The Conveyor Rejection System removes product from the conveyor if the product is mislabeled, not label or the label is rejected by the vision system.

Conveyor Rejection Station

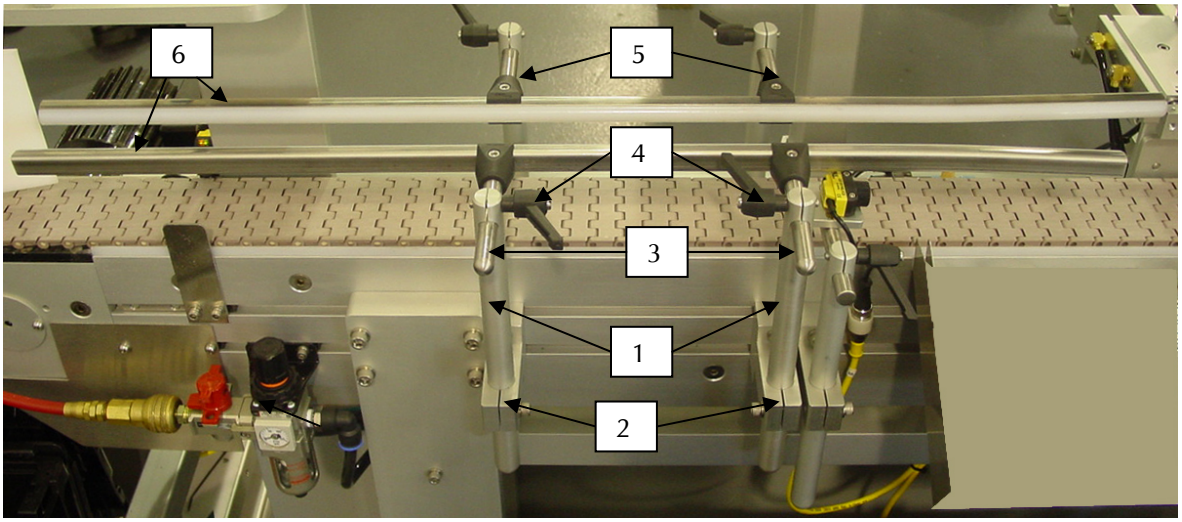
Rejection mechanism

The reject mechanism shall consist of the following items.

1. One air slide cylinder to push the cases from the moving friction belt conveyor into a bin for rejected products.
2. Banner photoeyes to sense the rejected products.



Number	Qty	Description
1	1	Mounting Plate, Reject
2	1	Mounting Bracket, Reject
3	1	Plate, Chute Support
4	1	Air Slide 20MM x 50mm
5	1	Chute
6	1	Retroreflective LSI std/QD PI

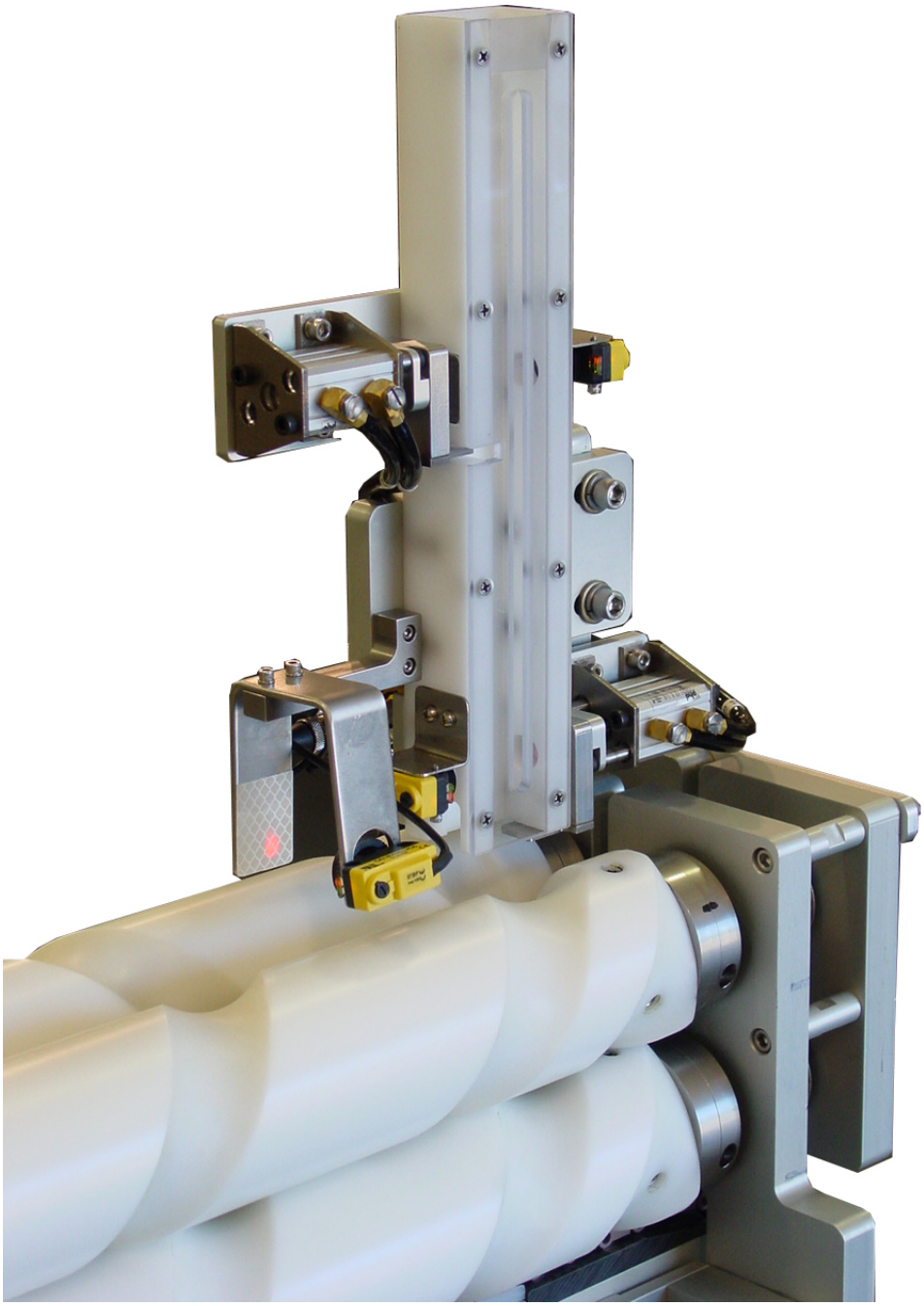


NOTE: CONVEYOR CHAIN MODIFIED (ACTUAL CONVEYOR CHAIN NOT SHOWN IN THIS PICTURE. SEE SECTION G1 FOR EXACT BELT.)

ITEM	QUANTITY	DESCRIPTION
1	5	UNIVERSAL PHOTO CELL MOUNTING
2	4	BANNER MOUNT 2 ½"L
3	4	GUIDE SUPPORT SHORT
4	4	HANDLE ADJ ¼-20 X .79
5	6	ROD END CONV RAIL HOLDER
6		GUIDE RAIL ROUNDTOP

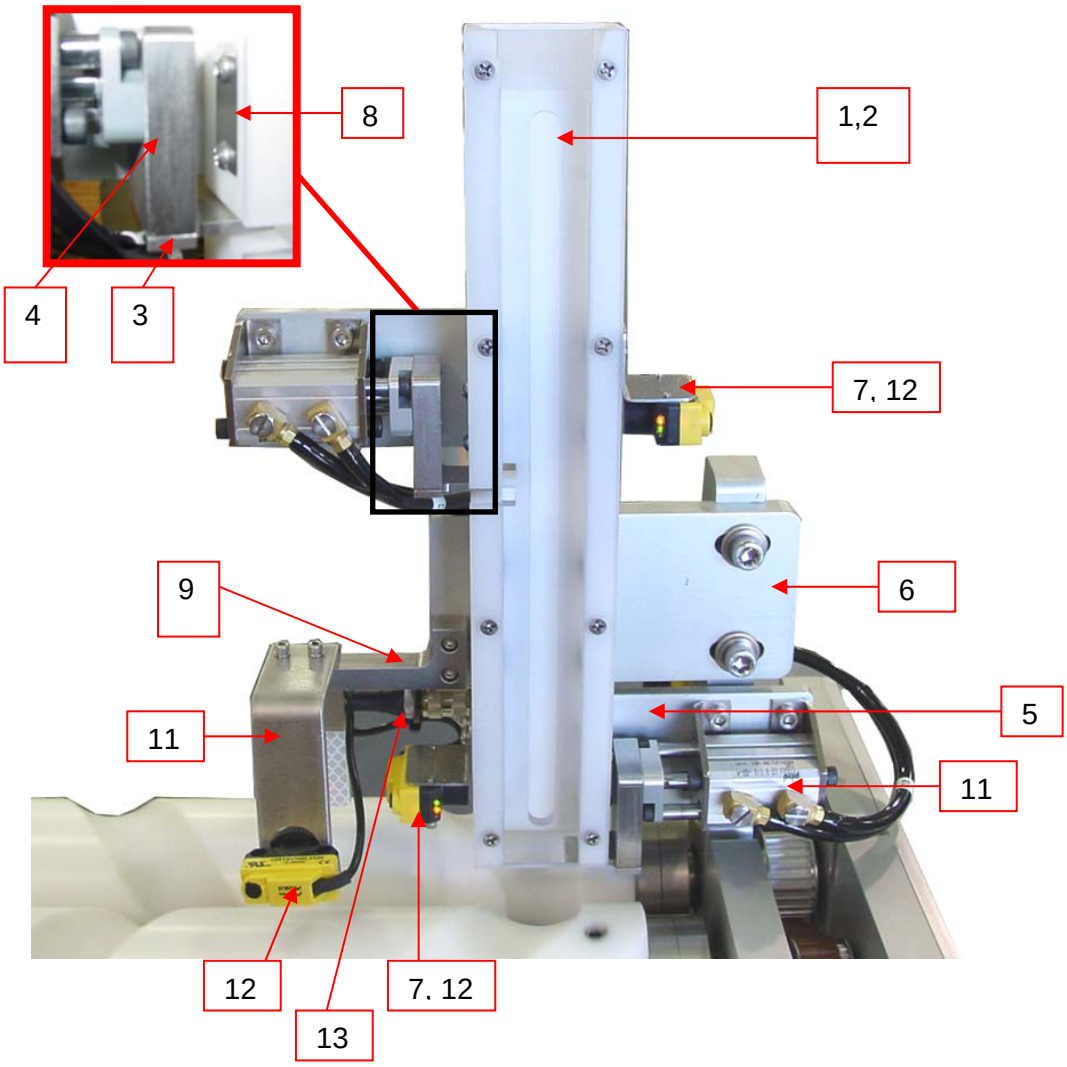
Section H: Escapement Assembly

The Escapement Assembly is calculated to release one product at a time into the Timing Screw Assembly. This allows the proper spacing of products on the conveyor.

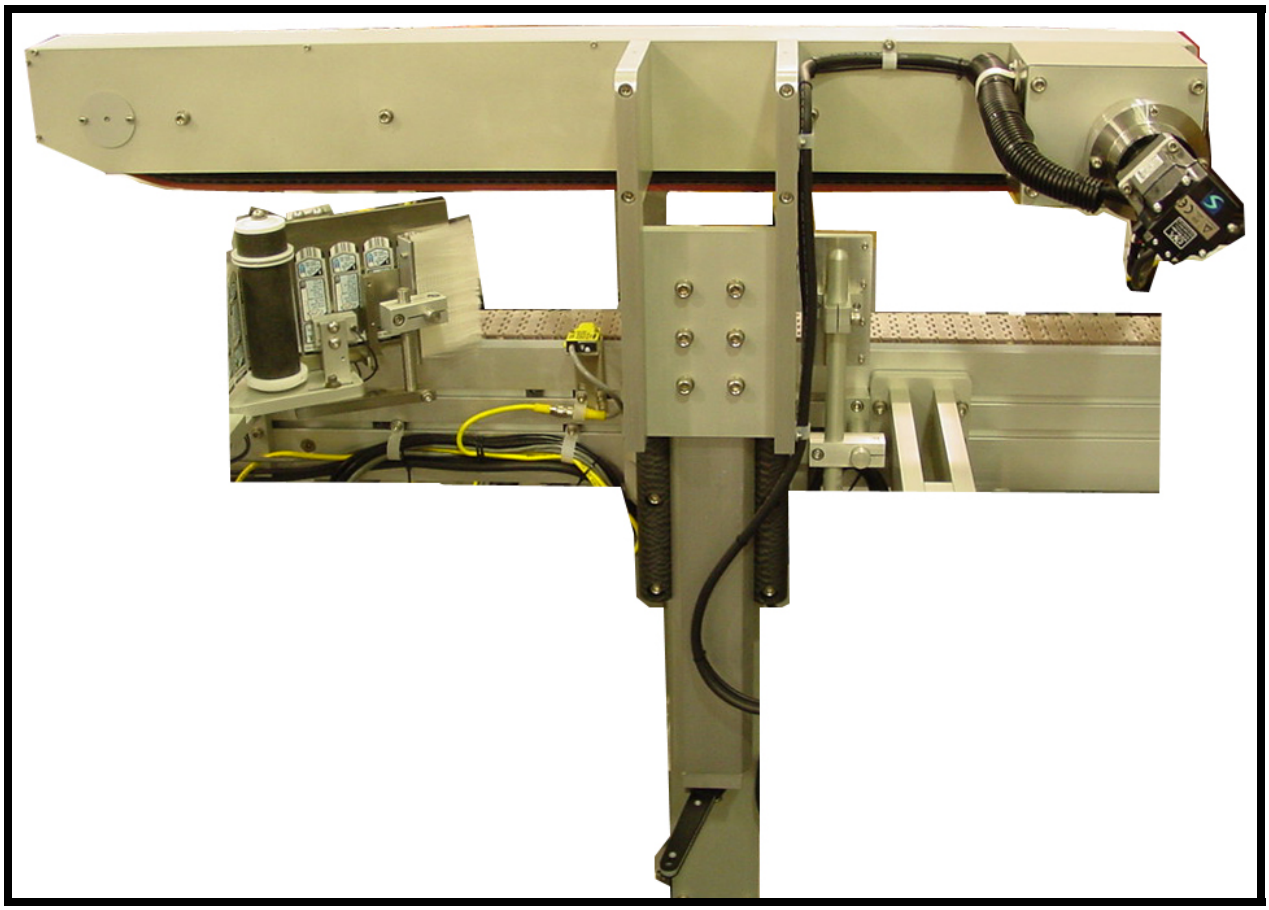


Section H: Escapement Assembly

Parts Call Out



REF	QTY	DESCRIPTION
1	1	Chute, Escapement
2	1	Cover, Chute-Escapement
3	2	Finger, Product Stop
4	2	Mounting Bar, Finger
5	2	Mounting Plate, Air Cylinder
6	1	Mounting Plate, Escapement Chute
7	2	Mounting Angle, Sensor
8	2	Mounting Plate, Reflector
9	1	Mounting Bracket, Sensor
10	1	Mounting Bar, Sensor
11	2	Air Cylinder, 12mm Bore x ¼”
12	3	Sensor, QS18, Retro, NPN
13	3	Disconnect Cable for 312



Top Hold Down

The top hold down belt is used to prevent the product from moving out of position while the label is being applied. The product must be spaced and oriented prior to entering the top hold down belt. The belt provides sufficient downward pressure on the product to hold the product in position on the conveyor. A foam rubber backing material is incorporated into the top hold down belt design to compensate for slight variations in product height.

The top hold down belt is powered by an independent AC motor. The drive motor is electronically linked to the conveyor drive motor so that both the conveyor and top hold down belt run at the same rate. The top hold down belt stops and starts with the conveyor and does not have its own start / stop controls.

ADJUSTMENT

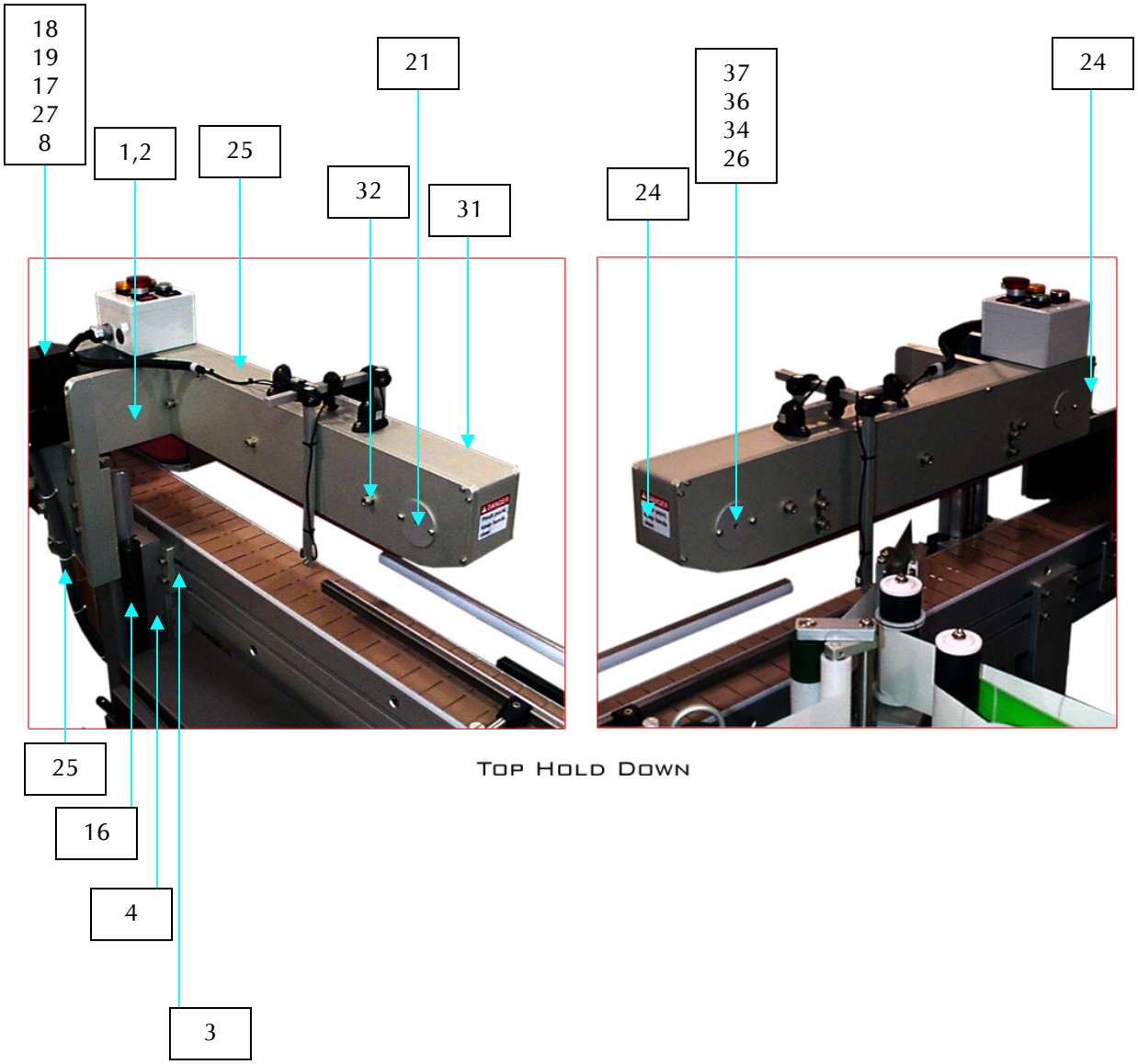
The top hold down needs to be adjusted for each different product height. To set the belt height, turn the adjustment handle (located at the base of the top hold down mount). Start by raising the belt up higher than the product. Place the product approximately centered under the belt width and lower the assembly with the adjustment handle. Lower the belt until the minimum pressure required to hold the product is applied. Run the machine and verify that the product does not move from its position while being labeled. Readjust the belt height to change the pressure if necessary.

Adjustment Handle Raises and lowers top hold down belt.

To set height:
1. Place product under belt
2. Lower Top Hold Down till the product fits snuggly,ie operator cannot easily pull product out from the fit.

Section I: Top Hold Down

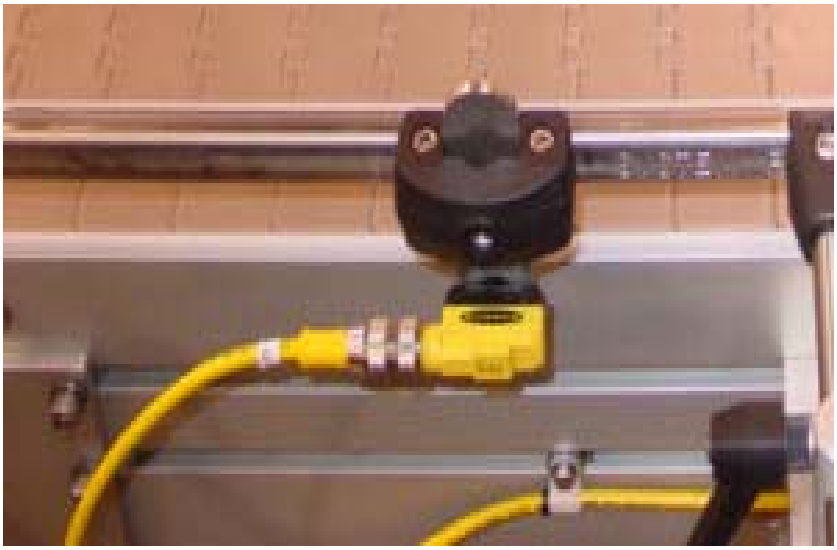
Top Hold Down Adjustment



Top Hold Down

REF	QTY	DESCRIPTION
1	2	Support 3"WideTHD
2	1	Mount Plate THD to Conv.
3	2	Nut Block 5/16 6-3/4 C.D.
4	1	Mount Plate THD
5	1	Leg THD Mounting
6	1	THD Support, 3" Wide Conveyor
7	2	Back Support THD
8	1	Spacer Plate Motor
9	1	Frame Support Spacer Plate, Motor
10	2	Plate, Frame Support Spacer
16		Column Horizontal Kit, 22-1/4 (1)
17	1	Motor, Junction Box, AC motor
18	1	Gear Head 30:1 Apex
19	1	Collar Shaft 1 ID
20	3	Spacer
21	1	Idler Shaft
22	2	Bracket Belt Support
23	1	Side Transfer Rear Cover Plate
24	1	Side Transfer Front Cover Plate
25	1	Side Transfer Top Cover Plate
26	1	Taper Lock Bushing Modification
27		Shaft Driver THD

REF	QTY	DESCRIPTION
28	1	Belt Support
29	1	Foam Rubber Pad
31	1	Far Side THD
32	1	Near Side THD
33	1	Spring , Side Transfer
34	2	Bearing Cap Modified
36	2	Ball Bearing .625 ID 1.5748OD
37	1	Timing Pulley TL24H200



MOUNTING AND CONNECTING

1. The Banner sensor (QS18VN6FF50Q8), can be mounted on adjustable bracket and positioned to detect the leading or trailing edge of a product.

DIFFUSED BEAM SENSOR SM312D AND QS18VN6FF50

These type of sensors are the most commonly used. The sensor emits a light which reflects off of the product and is then detected by the sensor. The defused beam sensor does not require the use of a reflector. This sensor works well on light colored products where there is an unobstructed area behind the product. This sensor should not be used on dark colors or transparent products. The QS series is a 50 mm fixed field sensor.

Section J: Sensors

Sensor Specifications

Supply Voltage: 10 to 30V dc at less than 25mA (exclusive of load). 10% maximum ripple.

Output Configuration: One current sourcing (PNP) and one current sinking (NPN) open collector transistor.

Protection: protected against false pulse on power-up, inductive load transients, power supply polarity reversal. Outputs are protected against continuous overload or short-circuit of outputs.

Response Time: sensors will respond to either a "light" or a "dark" signal of 1 millisecond or longer duration, 500Hz max. (Note: 100 millisecond delay on power-up: outputs are non-conducting during this time.) Response time specification is independent of signal strength.

Repeatability of Response: 0.3 milliseconds, independent of signal strength.

Light Beam: visible red (650nm): for use with plastic fiber optics.

Construction: reinforced VALOX® housing, totally encapsulated, stainless steel screws. Meets NEMA standards 1, 2, 3, 3S, 4, 4X, 12, and 13.

Cable: PVC-jacketed 4-wire cable (6' length) standard. Sensor model SM312FPQD with QD (Quick-Disconnect) connectors is also available; mating cable must be ordered separately.

Adjustments: Light/Dark Operate select switch and 15-turn slotted brass screw Gain (sensitivity) adjustment potentiometer (clutched at both ends of travel). Both controls located on rear panel, and protected by a gasketed, clear acrylic cover.

Indicator LED: exclusive, patented Alignment Indicating Device system (AID™, US patent #4356393) lights a rear-panel mounted red LED indicator whenever the sensor sees a "light" condition, with a superimposed pulse rate proportional to the light signal strength (the stronger the signal, the faster the pulse rate).

Operating Temperature Range: -20 to +70 degrees C (-4 to +158 degrees F).

PRODUCT SENSING

The labeling head can use a variety of different sensors or methods for giving the machine a start signal. The most common method of giving a start signal is with the use of a photo-electric product sensor. Alternatives to using a photo-electric sensor can be using a PLC, relay, or a mechanical switch. Any of these methods are well suited to trigger the LSI labeler.

PHOTO-ELECTRIC SENSORS

Different types of sensors can be used to detect the product. The product size, shape, and color should all be taken into consideration when selecting a product sensor. Physical limitations for mounting the sensor must also be considered. Some of the sensors more frequently used are listed in the next several pages.

Mounting

The sensor should be positioned so it detects the product as it passes in front of the sensor. For many applications the sensor would be mounted over a conveyor. When the product passes in front of the sensor it is detected and a signal is sent to start the labeling cycle. The sensor is normally mounted on an adjustable bracket which allows the sensor to be moved in the direction of product flow. Moving the sensor in the direction of product flow will change the location of the label on the product.

DIFFUSED BEAM SENSOR SM312D

This type of sensor is the most commonly used. The sensor emits a light which reflects off of the product and is then detected by the sensor. The defused beam sensor does not require the use of a reflector. This sensor works well on light colored products where there is an unobstructed area behind the product. This sensor should not be used on dark colors or transparent products.

Sensor Specifications

SUPPLY VOLTAGE: 10 to 30V dc at less than 25mA (exclusive of load). 10% maximum ripple.

OUTPUT CONFIGURATION: One current sourcing (PNP) and one current sinking (NPN) open collector transistor.

PROTECTION: protected against false pulse on power-up, inductive load transients, power supply polarity reversal. Outputs are protected against continuos overload or short-circuit of outputs.

RESPONSE TIME: sensors will respond to either a “light” or a “dark” signal of 1 millisecond or longer duration, 500Hz max. (Note: 100 millisecond delay on power-up: outputs are non-conducting during this time.) Response time specification is independent of signal strength.

REPEATABILITY OF RESPONSE: 0.3 milliseconds, independent of signal strength.

LIGHT BEAM: visible red (650nm): for use with plastic fiber optics.

CONSTRUCTION: reinforced VALOX® housing, totally encapsulated, stainless steel screws. Meets NEMA standards 1, 2, 3, 3S, 4, 4X, 12, and 13.

CABLE: PVC-jacketed 4-wire cable (6’ length) standard. Sensor model SM312FPQD with QD (Quick-Disconnect) connectors is also available; mating cable must be ordered separately.

ADJUSTMENTS: Light/Dark Operate select switch and 15-turn slotted brass screw Gain (sensitivity) adjustment potentiometer (clutched at both ends of travel). Both controls located on rear panel, and protected by a gasketed, clear acrylic cover.

INDICATOR LED: exclusive, patented Alignment Indicating Device system (AID™, US patent #4356393) lights a rear-panel mounted red LED indicator whenever the sensor sees a “light” condition, with a superimposed pulse rate proportional to the light signal strength (the stronger the signal, the faster the pulse rate).

OPERATING TEMPERATURE RANGE: -20 to +70 degrees C (-4 to +158 degrees F).

Installation and Alignment

Proper operation of the SM312D sensor requires that it be mounted securely and aligned properly. Excessive movement or vibration can result in intermittent or false operation caused by loss of alignment. For best results, final-mount the SM312D in an 18-mm hole by its threaded barrel or use one of the available mounting brackets.

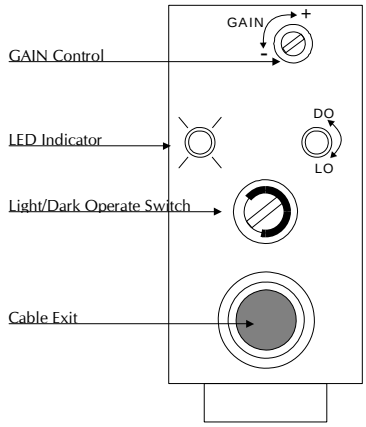
1. Begin with the sensor at the desired distance from the object to be sensed, and at the approximate position where it will be mounted. The background should be as far behind the object as possible (at least three times the distance of the sensor from the object), and as dark a color as possible compared to the object. Ideally, the object should present its largest reflective surface to the sensor.

2. Apply power to the sensor, and advance the 15-turn Gain control to maximum (clockwise end of rotation). If the sensor is "seeing" its reflected light, the sensor alignment LED should be "on". Move the sensor up-down-right-left (include angular rotation) to obtain the fastest alignment LED pulse rate. If a pulse is not observable (too fast to count), reduce the Gain control (counterclockwise rotation) to obtain a countable pulse rate.

3. Repeat the alignment motions after each Gain reduction. When you have found the sensor orientation that produces the fastest pulse rate, mount the sensor solidly in that position. Increase the receiver Gain to maximum. Test the system by removing the object from the sensing position. The receiver LED indicator should go "off". If the LED indicator does not go "off", the sensor is reacting to light reflected from a background surface. Reduce the Gain setting until the alignment indicator goes "off", plus two additional full turns. Again place the object in the sensing position. If the alignment indicator does not come "on", the sensor is receiving as much or more light energy from the background as from the object. Consider the following alternatives:

   - Move the sensor closer to the object and reduce the sensitivity (Gain);
   - Reduce background reflectivity by painting the background with flat-black paint, or by scuffing the background or cutting a hole through it;
   - Tilt the sensor or the background so that the sensing beam is not perpendicular to the background.

Sensor Rear View



Adiustments:

GAIN Control: 15-turn clutched potentiometer; turn clockwise to increase.

AID System LED Indicator: Red LED lights when the sensor sees its own modulated light source, and pulses at a rage proportional to the received light signal.

Light/Dark Operate Switch In light-operate (control fully clockwise), the sensor output conducts when an object is present. In dark-operate (control fully counterclockwise), the sensor output conducts when the object is absent.

RETRO-REFLECTIVE SENSOR SM312LV

This sensor is frequently used to detect products that are dark in color or in applications where the area behind the product is obstructed. This sensor requires the use of a reflector opposite of the sensor. The sensor emits a light which is reflected off of the reflector and detected by the receiver in the sensor. When the product passes through the beam of light it interrupts the signal being received by the sensor. It then gives a signal to fire the labeler.

Sensor Specifications

SUPPLY VOLTAGE: 10 to 30V dc at less than 25mA (exclusive of load). 10% maximum ripple.

OUTPUT CONFIGURATION: One current sourcing (PNP) and one current sinking (NPN) open collector transistor.

PROTECTION: protected against false pulse on power-up, inductive load transients, power supply polarity reversal. Outputs are protected against continuos overload or short-circuit of outputs.

RESPONSE TIME: sensors will respond to either a “light” or a “dark” signal of 1 millisecond or longer duration, (independent of signal strength), 500Hz max. (Note: 100 millisecond delay on power-up: outputs are non-conducting during this time

REPEATABILITY OF RESPONSE: 0.3 milliseconds, independent of signal strength.

LIGHT BEAM: visible red (650nm): model SM312LVAG has a polarizing lens filter.

CONSTRUCTION: reinforced VALOX® housing, totally encapsulated, o-ring sealing, acrylic lenses, stainless steel screws. Meets NEMA standards 1, 2, 3, 3S, 4, 4X, 12, and 13.

CABLE: PVC-jacketed 4-wire cable (6’ length) standard. Sensor model SM312LVQD and SM312LVAGQD with QD (Quick-Disconnect) connector are available; mating cable is ordered separately.

ADJUSTMENTS: Light/Dark Operate select switch and 15-turn slotted brass screw Gain (sensitivity) adjustment potentiometer (clutched at both ends of travel). Both controls located on rear panel, and protected by a gasketed, clear acrylic cover.

INDICATOR LED: exclusive, patented Alignment Indicating Device system (AID™, US patent #4356393) lights a rear-panel mounted red LED indicator whenever the sensor sees a “light” condition, with a superimposed pulse rate proportional to the light signal strength (the stronger the signal, the faster the pulse rate).

OPERATING TEMPERATURE RANGE: -20 to +70 degrees C (-4 to +158 degrees F).

Installation and Alignment

Proper operation of these sensors requires that they be mounted securely and aligned properly. Excessive movement or vibration can result in intermittent or false operation caused by loss of alignment. For best results, final-mount these sensors in an 18-mm hole by their threaded barrel or use one of the available mounting brackets.

1. Begin with the sensor at the desired distance from the retro target and at the approximate position where it will be mounted. An object at the sensing position should pass through the "core" of the sensor's light beam.

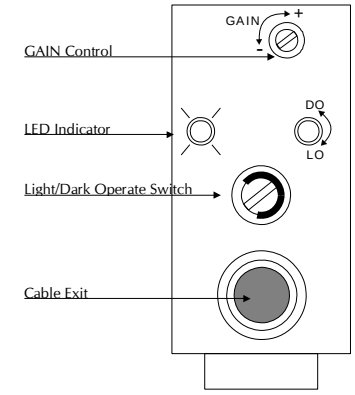
2. Apply power to the sensor, and advance the sensor's 15-turn Gain control to maximum (clockwise end of rotation). If the sensor is "seeing" the reflected light beam, the alignment LED should be "on". Move the sensor up-down-right-left to obtain the fastest receiver LED pulse rate. (Alternatively, the reflector may be moved.) If a pulse is not observable (too fast to count), reduce the Gain control (counterclockwise rotation) to obtain a countable pulse rate. (As an aid to alignment, it may be necessary to further reduce the strength of the light signal by tape-masking a portion of the retro reflective target area.)

3. Repeat the alignment motions after each Gain reduction. When you have found the sensor orientation that produces the fastest pulse rate, mount the sensor (or reflector) solidly in that position. Increase the receiver Gain to maximum. Test the system by placing the object to be detected into the sensing position. The indicator should go "off". If an "LV" model sensors indicator does not go "off" at this point, the sensor is reacting to light reflected from the object ("proxing").

   If proxing occurs, reduce the Gain setting until the alignment indicator goes "off", plus two additional full turns. Remove the object from the sensing position and check that the alignment from the sensing position and check that the alignment indicator Led come "on" and pulses at a rate of at least two beats per second. Confirm that the Led goes "off" when the object is replaced.

   It will help to mount the sensor so that it's light beam is not perpendicular to any flat reflective surfaces on the object (an angle of 10 to 15 degrees is usually sufficient). Also, at distances of a few feet or more, using more than one

Sensor Rear View



Adiustments:

GAIN Control: 15-turn clutched potentiometer; turn clockwise to increase.

AID System LED Indicator: Red LED lights when the sensor sees its own modulated light source, and pulses at a rage proportional to the received light signal.

Light/Dark Operate Switch In light-operate (control fully clockwise), the sensor output conduct when an object is absent. In dark-operate (control fully counterclockwise), the sensor output conduct when the object is present.

reflector may increase sensing contrast between object-present and object-absent.

CONVERGENT BEAM SENSOR SM312CL

This sensor is used the least of all the sensors listed. This sensor is color sensitive and must be mounted at close range to the area being sensed, normally within one inch. It is very usefull in detecting large differences in contrast.

Sensor Specifications

SUPPLY VOLTAGE: 10 to 30V dc at less than 25mA (exclusive of load). 10% maximum ripple.

OUTPUT CONFIGURATION: One current sourcing (PNP) and one current sinking (NPN) open collector transistor.

OUTPUT RATING: 150mA maximum each output at 25^{o}C, derated to 100mA at 70^{o}C (derate≈1mA per^{o}C). Output leakage current less than 1 microamp (off-state). Output saturation voltage (PNP output) less than 1 volt at 10mA and less than 2 volts at 150mA. Output saturation voltage (NPN output) less than 200 millivolts at 10mA and less than 1 volt at 150mA.

OUTPUT PROTECTION: protected against false pulse on power-up, inductive load transients, power supply polarity reversal. Outputs are protected against continuos overload or short-circuit of outputs.

RESPONSE TIME: sensors will respond to either a “light” or a “dark” signal of 1 millisecond or longer duration, (independent of signal strength), 500Hz max. (Note: 100 millisecond delay on power-up: outputs are non-conducting during this time. Response Time and Repeatability specifications are independent of signal strength.

REPEATABILITY OF RESPONSE: 0.3 milliseconds.

LIGHT BEAM: visible red (650nm); convergent beam.
SM312CV: spot size 0.05” diameter at 0.65” (16mm) focus point;
SM312CV2: spot size 0.12” diameter at 1.7” (43mm) focus point.

CONSTRUCTION: reinforced VALOX® housing, totally encapsulated, o-ring sealing, acrylic lenses, stainless steel screws. Meets NEMA standards 1, 2, 3, 3S, 4, 4X, 12, and 13.

CABLE: PVC-jacketed 4-conductor cable (6’ length) standard.

ADJUSTMENTS: Light/Dark Operate select switch and 15-turn slotted brass screw Gain (sensitivity) adjustment potentiometer (clutched at both ends of travel). Both controls located on rear panel, and protected by a gasketed, clear acrylic cover.

INDICATOR LED: exclusive, patented Alignment Indicating Device system (AID™, US patent #4356393) lights a rear-panel mounted red LED indicator whenever the sensor sees a “light” condition, with a superimposed pulse rate proportional to the light signal strength (the stronger the signal, the faster the pulse rate).

OPERATING TEMPERATURE RANGE: -20 to +70 degrees C (-4 to +158 degrees F).

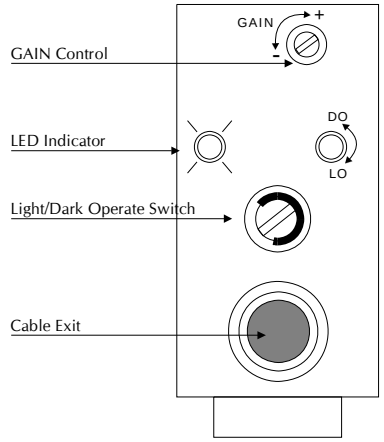
Installation and Alignment

Proper operation of these sensors requires that they be mounted securely and aligned properly. Excessive movement or vibration can result in intermittent or false operation caused by loss of alignment. For best results, final-mount these sensors in an 18-mm hole by their threaded barrel or use one of the available mounting brackets.

Begin with the sensor at the approximate position where it will be mounted. With power applied to the sensor, direct its visible red spot at the object approximately 0.65” (for model SM312CV) or 1.7” (for model SM312CV2) directly in front of the lens. Move the sensor very slightly toward or away from the object while observing the red “AID” indicator on the back of the sensor. Maximum reflected light and optimum sensor alignment to the object are indicated by the fastest Led pulse rate obtainable with Gain control set at the lowest setting required to light obtainable with the Gain control set at the lowest setting required to light the Led. This should occur at the same time that the red sensing spot on the object appears most sharply defined. Mount the sensor at this position and distance.

Reliable convergent sensing requires that the sensor-to-object distance be held relatively constant. This may be a critical factor, especially when highly reflective background objects are present, or when the background is close to the object. Best results will be attained under the following conditions: constant sensing distance from one object to the next, a background of low reflectivity, and the background as far from the object as possible.

Sensor Rear View



Adjustments:

GAIN Control: 15-turn clutched potentiometer; turn clockwise to increase.

LED Indicator: Red LED lights when the sensor sees its own reflected light from an object, and pulses at a rate proportional to the received light signal.

Light/Dark Operate Switch: In light-operate (control fully clockwise), the sensor outputs conduct when an object is present. In dark-operate (control fully counterclockwise), the sensor outputs conduct when the object is absentor when the darker of the two colors is sensed.

FIBER-OPTIC

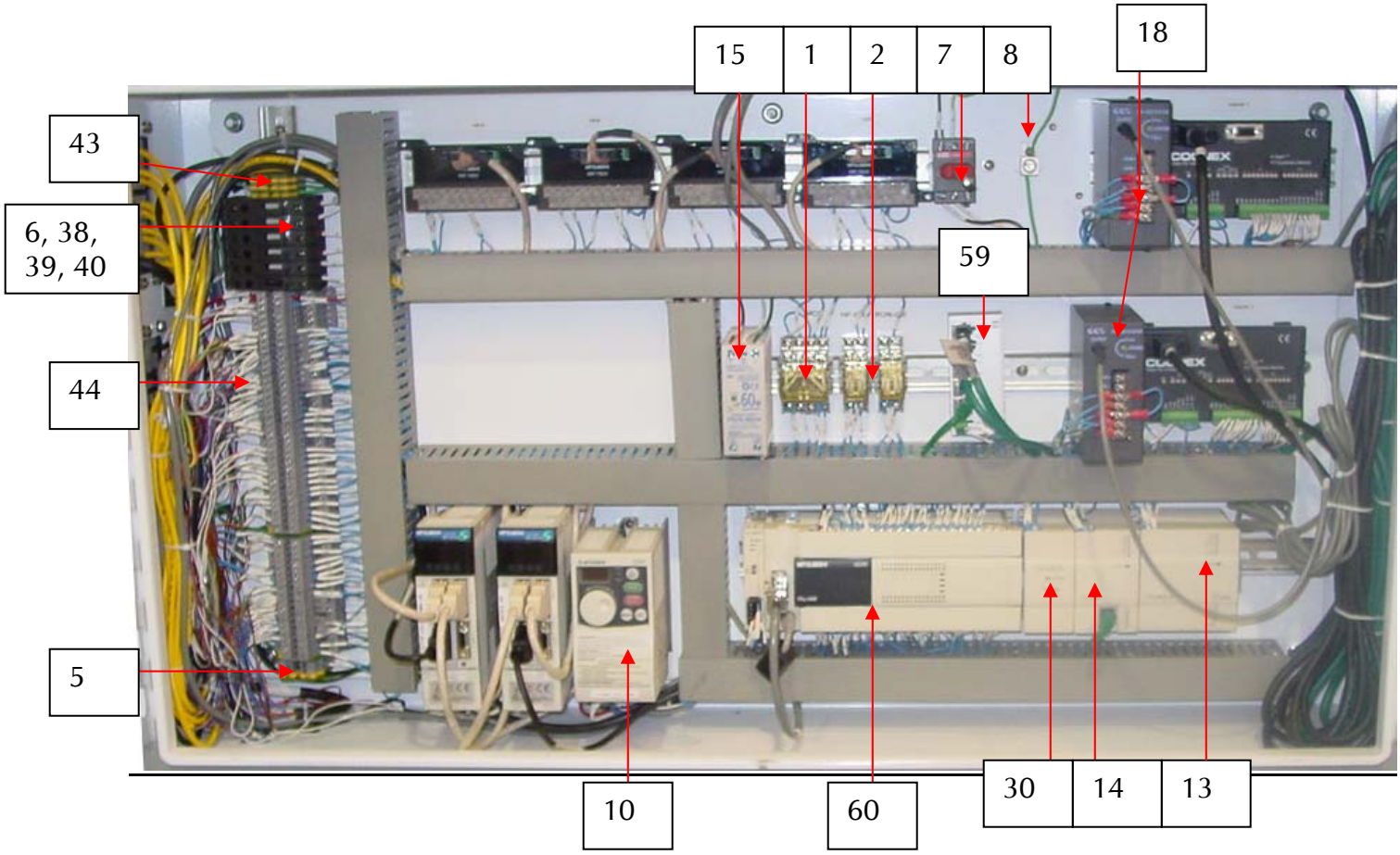
Most of the sensors listed in this section are available in a fiber-optic version. The sensors will operate in the same manner as described earlier in this section. The difference is the emitter and receiver are mounted to the end of a fiber-optic cable(s). This type of scanner is used when the standard unit is too large to mount in a restrictive area.

MECHANICAL SWITCH INTERFACE

In certain applications it may be necessary to use a mechanical switch to trigger the labeling head. This is very useful in semi-automatic applications. A switch can be mounted in a fixture which holds the product. When the product is placed in the fixture it will trip the switch and trigger the machine.

Door Enclosure

Main Control Panel (Inside)



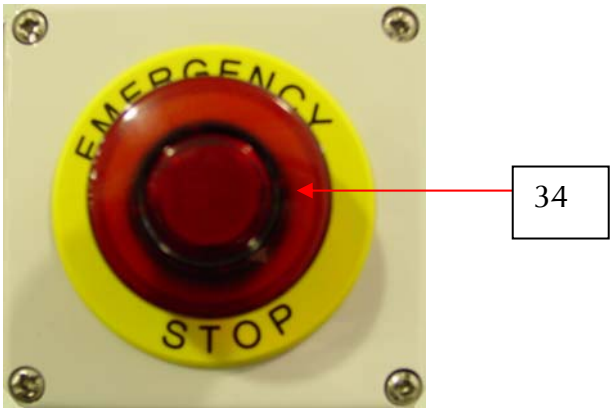
Alarm Tower

Steady Red Light
System is stopped.

Steady Amber Light
System is running
Low Label/Low Ribbon (Printer)

Steady Green Light
System is running.

E-Stop



E-Stop located on Control Box and on Top Hold Down Assembly.

Section L: Control Box

Parts list

Ref	QTY	Description
1	1	RELAY, 4PDT, 24V
2	1	RELAY SOCKET 4PDT
3	1	MAIN DISCONNECT BASE
4	1	MAIN DISCONNECT HANDLE
5	1	END SECTION
6	5	FUSEHOLDER
7	1	SHAFT, MAIN DISCONNECT 10”
8	1	GROUND LUG, PANEL MOUNT
9	5	TERMINAL BLOCKS (GROUND)
10	2	DRIVE, AC INVERTER, S500. 5HP
11	2	END SECTION
12	3	END STOP
13	1	CCLINK MASTER
14	1	CCLINK SLAVE
15	1	OPERATOR INTERFACE, GOT SERIES
16	1	OPERATING CABLE, 10M, GT to FX
17	2	MOTOR CONTROLLER, SERVO, J2
18	2	MOTOR SERVO 200 WATT W/ENCODE
19	2	MOTOR CONTROLLER, POWER CABLE
20	2	MOTOR CONTROLLER, CABLE ACCY
21	4	MOTOR CONTROLLER, TRM BLK

Section L: Control Box

Parts list

Ref	QTY	Description
22	1	POWER SUPPLY, +24 VDC, 60 WATTS
23	4	MOTOR CONTROLLER, CABLE ACCY
24	1	ENCLOSURE 24” x 42” x 8”
25	1	PANEL FOR ENCLOSURE 24” x 42”
26	1	CONSOLE BOX MODIFICATION
27	1	WALL FLANGE/BASE BRACKET
28	1	FLANGE COUPLING
29	2	PENDANT ARM TUBE 19”
30	1	EXPANSION MODULE 8 OUTS
31	4	ENTRY SYSTEM, CABLE GLAND
32	2	15 AMP, 115 VAC DUPLEX RECEP
33	1	QUAD BOX OUTLET
34	2	E STOP YELLOW NAMEPLATE
35	3	CONNECTOR, FEMAL FREE HANGING
36	3	CONNECTOR, PLUG CIRCULAR
37	6	CABLE CLAMP, STRAIN RELIEF
38	1	FUSE, 2-AMP 3AG FAST ACTING
39	4	FUSE, 5 AMP, LITTLEFUSE
40	1	FUSE 15 AMP, LITTLEFUSE

Section L: Control Box

Parts list

Ref	QTY	Description
41	1	RELAY, SOLID STATE DC-DC PIN
42	1	TERM BLOCK JUMPER
43	2	END SECTION
44	56	TERMINAL BLOCKS
45	1	COVER, MICROSWITCH
46	1	MICRO-ROLLER, MICROSWITCH
47	1	CONNECTOR, PLUG, 2P, 3W
48	1	BASE UNIT LITE STACK XBV SERIES
49	1	ALARM GREEN STEADY
50	1	ALARM RED STEADY
51	1	ALARM ORANGE STEADY
52	2	CONNECTOR, FEMALE, 9-PIN
53	1	CONNECTOR 9-PIN D-SUB
54	1	RELAY SOCKET DPDT
55	2	RELAY DPDT+24 VDC
56	3	LAMP (24V, 6.5W) ALARM
57	1	SERVO CABLE 5M ENCODER CABLE
58	1	SERVO CABLE CBL 5M, J2S
59	1	5 PORT ENET SWITCH, 24VDC

Section L: Control Box

PARTS LIST

Ref	QTY	Description
60	1	ETHERNET MODULE FOR FX3U
61	1	PLC, FX3U, 16 DC IN
62	1	RS485 MODULE FOR FX3U

Section D-Labeler(s) Section		
Qty	**Part Number**	**Description**
1	ETAFUSE602002	6.25 AMP Fuse
1	ELMSCACC0064	Fuse Holder 3 AG
1	ELPWRL024017	Power Supply, 24VDC
1	ELPLCHMI0014	Operator Interface GOT Series
1	ELPLCCMP0038	PLC Fixed I/O Control
1	ELOPTOB00008	Amplifier Sensor (Auto Teach)
1	ELSWTRCN0001	Rocker Switch
1	9609-1061	Pressure Spring Label Sensor
1	ELOPTAF00004	Fiber plastic 46UHFM
1	ELOPTAF00002	Fiber Plastic Pit 66U
Unwind - Rewind Drive Subassembly		
1	10-1191-1010 A	Rewind Felt Disc
1	9609-2040	Pulley Rewind 1.17 pd
1	50-1304	Pulley 3mm
1	50-2044	Pulley 28 T
1	PTTB072M150	Timing belt
1	PTRB3044K141	Round Belt 3/16 diameter
1	MHES05004502	Unwind Spring
1	1000-1128 A	Brake Band
1	ELMOTCST013	Drive Stepper Motor
1	095-1002	Candy Cane for rewind
1	MHCS08508500	Spring compression .845 x .081 x ¾
2	PTBB06213700	Ball Bearing 5/8 ID x 3/8 OD
2	ELOPTCS11	Convergent beam sensor

Section D2-Applicator		
2	40-0334-2002	Brush Holder Bracket
2	40-0334-2004	Brush Holder Rod
2	40-0334-2005	Squeegee 4 ½" W
2	40-0334-2006	Squeegee Clamp 4 ½" W
2	40-0334-2008	Squeegee Spring 4 ½" W
2	14-0554-5001	Roller Axle
2	14-0554-5005	Roller
1	PNASSYMAC09	Manifold
Section L- Systems Controls		
2	ELMOTCAC0014	Drive, Ac Inverter, S500, 0.5 Hp
5	ELTRMFUS0002	Fuseholder
1	ETFUSE152002	15 Amp Fuse
4	EFTUSE502002	5 Amp Fuse
1	EFTUSE202002	2 Amp Fuse
2	ELSWTRPL0010	E-Stop Illuminated Switch Push/Pull
1	ELSWTALM0031	Alarm Green, Steady 24VDC XVB
1	ELSWTALM0034	Alarm Red, Steady 24VDC XVB
1	ELSWTALM0035	Alarm Orange, Steady 24VDC XVB
1	ELRLY4FDC001	Relay, 4PDT, 24V
1	ELRLTSKT0001	Relay Socket 4PDT

Section G1-Conveyor and Base Frame Assembly		
8	MHLM37314	Leveling Pad
1	PTBB06215700	Ball Bearing
22	14-0554-0080	Rubber Conveyor Belt
1	PTGMINV02226	1/6HP Gearmotor
Section G2-Conveyor Rejection Assembly		
1	PNALCXSM2050	Air Slide 20mm x 50mm
Section H-Escapement Assembly		
1	PNALR12002500	Air Cylinder 12mm B x 1
Section I-Top Hold Down		
1	PTRS101020	Gear Head Apex 30:1
1	14-0554-3002	Belt (timing - Multi Layer)
	PTBB06215700	Ball Bearing .625 ID 1.5748 OD
Section J- Sensors		
3	ELOPTCS11	Convergent Beam Sensor 312CVQD
2	ELOPTDS10	Sensor QS18VN6FF50Q8
3	ELOPTRB12	Sensor QS18 Retro, NPN
Section P- Diverter Assembly		
1	PNALR25007500	Air Cylinder 25mm Bore
Section R- Timing Screw Assembly		
1	PTCLTGC6	Clutch, Torq/Gard
1	PTRS10120	Gear Head Apex 30:1
1	PTTB16T50750	Timing Belt 16mmW, T5mmP

TROUBLE SHOOTING

PROBLEM	PROBABLE CAUSE	SOLUTION
No Power		
	1. Machine not plugged in	Correct
	2. No main power	Correct
	3. Fuse #1 blown	Replace Fuse
	4. Main Power Switch failure	Replace Switch
	5. Internal wiring faulty or incorrect	Repair
	6. Faulty input power	Correct
Motor Fuse Blown		
	1. Defective or incorrect fuse	Replace with proper fuse
	2. Bind or jam-up in motor, drive chain or web path	Correct binding
	3. Electrical short	Inspect & correct
	4. Motor defective	Replace
No Function Auxiliary		
	1. fuse blown	Replace
	2. Aux component not connected	Connect
	3. Defective Aux control component	Replace
	4. Defective switch	Replace
	5. Defective or broken wires	Inspect & repair
No Label Feed- see Printer OEM manual		
	1. Motor not working	Check motor and wiring
	2. Failed product sensor	Replace sensor
	3. Nip roller disengaged	Release nip lift
Continuous Label Feed – see Printer OEM manual		
Continuous Label Feed – see Printer OEM manual		
	1. Defective jog switch	Replace
Erratic Label Feed		
	1. Nip roller not engaged	Release nip lift
	2. Label unwind brake not installed properly	Re-adjust
	3. Adhesive built up on peeler bar	Clean
	4. Variation in motor speed	Check motor
	5. Threaded around air assist tube	Correct threading

PROBLEM	PROBABLE CAUSE	SOLUTION
Web Breaks		
	1. Label die cut through liner partially or completely	Replace
	2. Improper threading	Check threading
	3. Web guide collar too tight or misaligned	Re-adjust
	4. Worn peeler blade	Inspect & replace
	5. Dancer arm tension too high	Reset
Rewind Does Not Work		
	1. Felt disc worn out	Replace
	2. Rewind clutch adjusted too loose	Re-adjust

CLEANING

To maintain proper operation, your labeler must be kept clean from label and adhesive build-up. During normal operation, the adhesive in the labels may transfer and build-up on the labeler. A mild solvent such as alcohol should be used to remove the adhesive. Labels should be removed, first by tearing off the label material, and then by removing the adhesive with a solvent. When removing adhesive build-up, special attention should be given to the pinch roller, peeler bar, drive roller, photocell spring steel, and any other part that comes in direct contact with the web. If the adhesive build-up is allowed to accumulate, it will affect labeling accuracy and may cause damage to the machine.

NOTE: Never use a razor or any other sharp instrument to remove labels from a roller. Doing this will damage to the roller.

To clean the machine, we recommend a mild solvent such as alcohol. If a solvent other than alcohol is used, it should not have an oil base and should dry quickly without leaving any residue. If the solvent is too strong, it may damage the finish of the machine or deteriorate the rollers.

MAINTENANCE

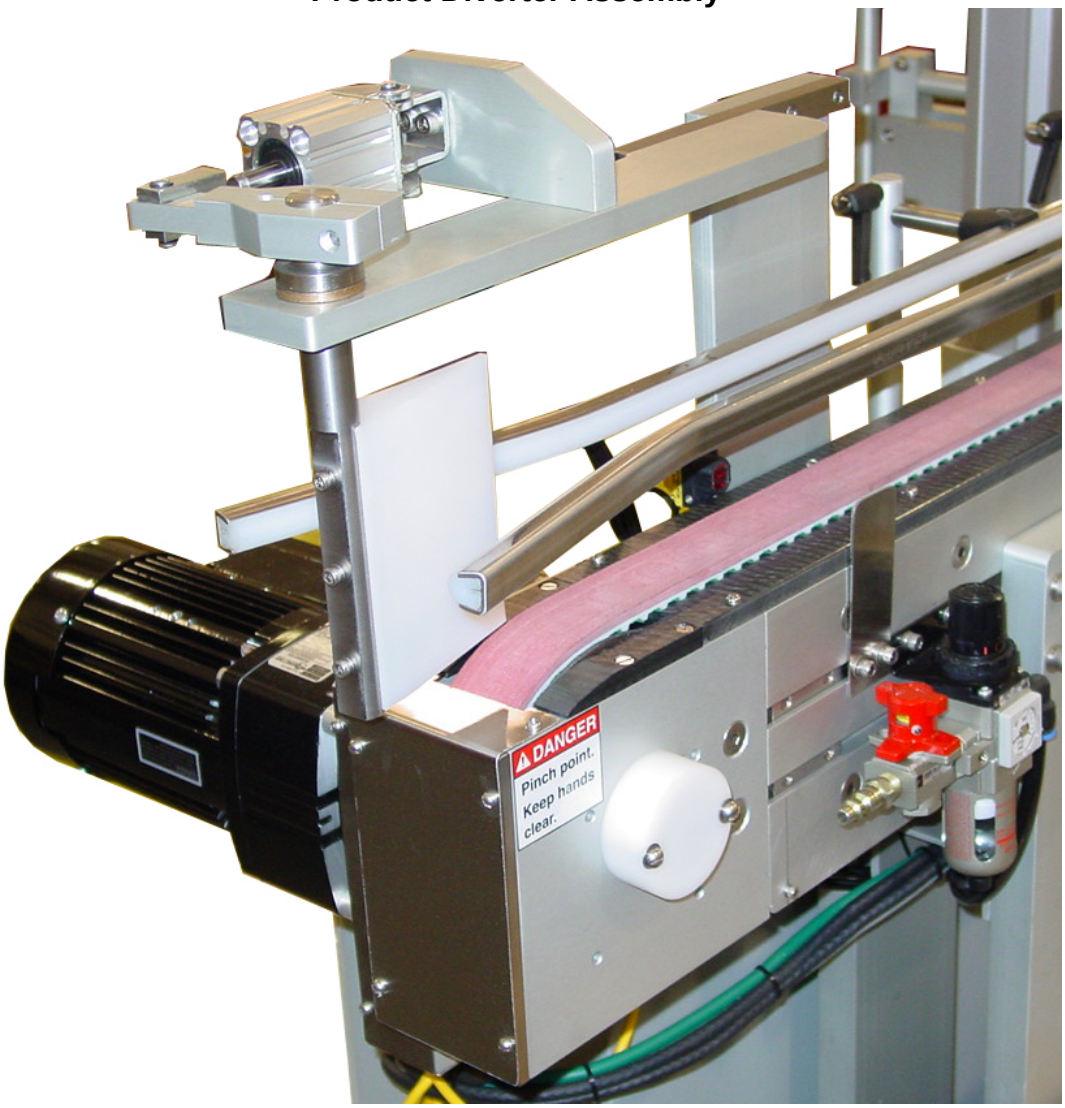
LSI builds machines to require a minimum amount of maintenance. If the regular maintenance is performed, the machine will last for years. However, if maintenance is ignored, it may shorten the life of the machine. The following is a list of the required maintenance required to keep your machine in top operating condition.

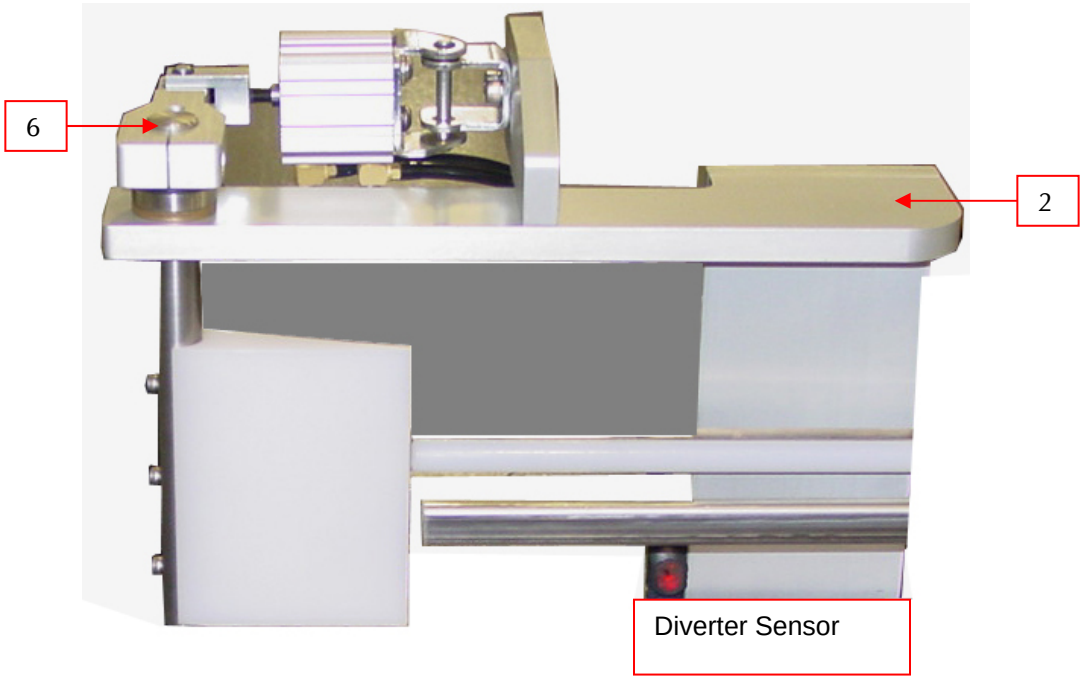
1. Keep machine clean from foreign matter, label and adhesive build-up.
2. Periodically check and retighten any screws that may have vibrated loose.
3. Replace any worn or damaged parts with the correct factory replacement. Incorrect or make-shift parts may affect the proper operation of the machine.
4. The machine requires no further lubrication. All chains are operated dry to prevent oil from slinging onto electronic components.
5. Check for wear, and replace if necessary, the unwind brake belt and the rewind disc.
6. Check and adjust if necessary any chains or belts installed on the machine.

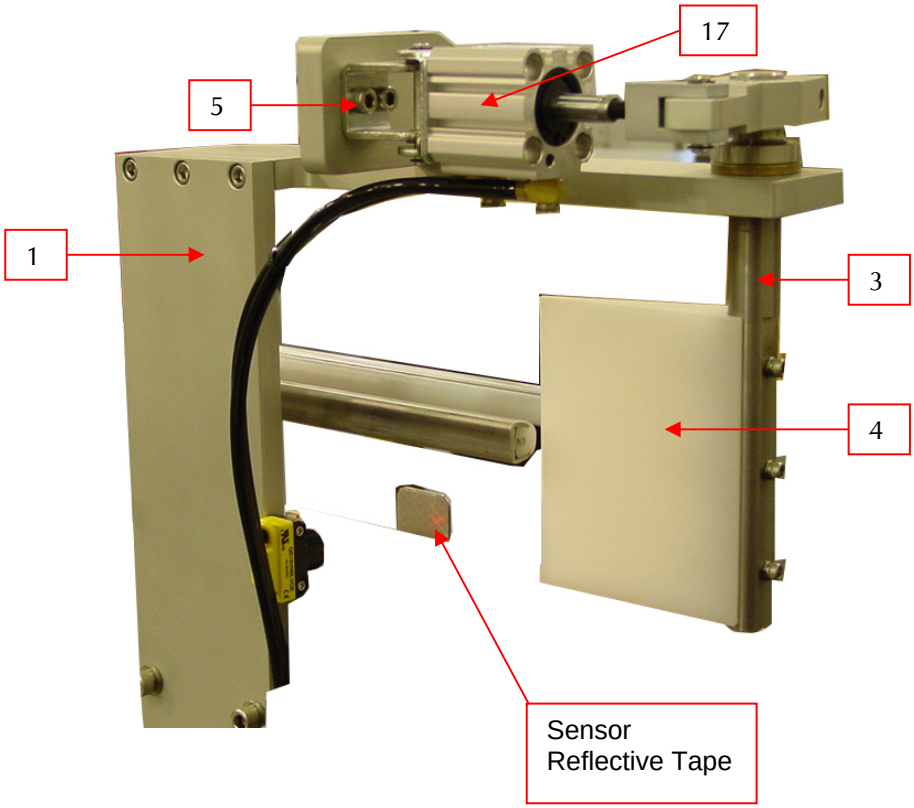
Section P: Product Diverter

The Product Diverter redirects the product from the conveyor into the outfeed bin. Each bin will have a maximum number of products allowed. A sensor will keep count of the allotment. Once the allotment is reached, the sensor will signal the Product diverter to reposition and continue dispensing the product into the next outfeed bin. This is done without stopping the conveyor. An operator needs to remove the full outfeed bin and replace it with an empty otufeed bin at the end of the conveyor.

Product Diverter Assembly




6
2
Diverter Sensor


17
5
1
3
4
Sensor
Reflective Tape

REF	QTY	DESCRIPTION
1	1	Mounting Plate, Horizontal
2	1	Mounting Plate, Vertical
3	1	Post, Pivot – Diverter
4	1	Diverter
5	1	Mount, Air Cylinder
6	1	Lever, Diverter
8	1	Mounting Bar, Lower
9	1	Mounting Bar, Upper
10	1	Mounting Bar, Vertical
11	1	Rod, Vertical
12	1	Rod, Horizontal
13	1	Base Mount ¾” Shaft
14	1	Banner Mount 2”L, Vertical
15	1	Universal Mounting Block, LH
16	1	Bushing Flange ¾ x 1 x ¾
17	1	Air Cylinder, 25mm Bore x ¾”
18	1	Frame by 8020 (Double Box)

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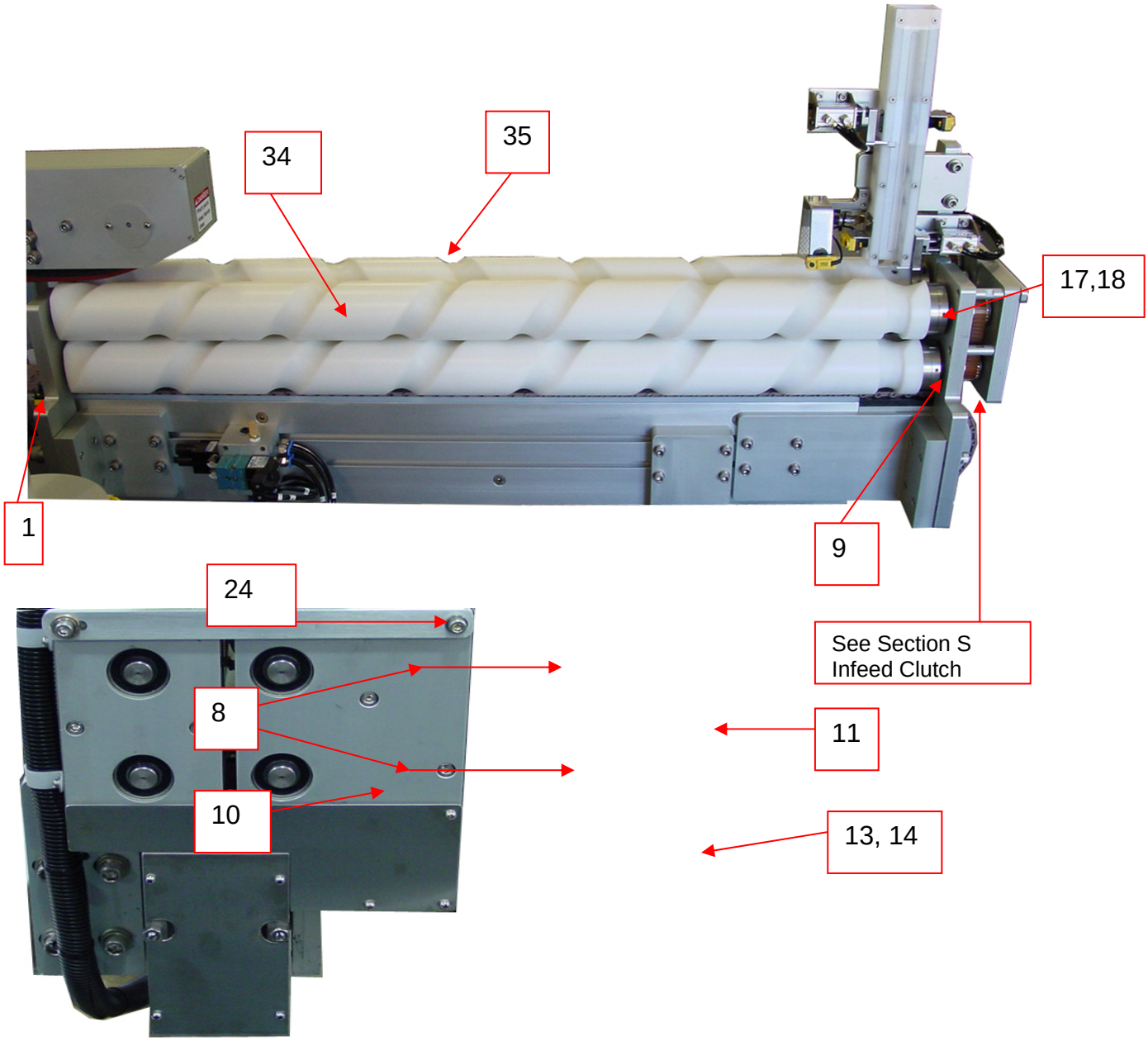
Section R: Timing Screw Assembly

The Timing Screw Assembly is designed in order for the proper spacing and balance of the product on the conveyor. The product is released into the Timing Screw Assembly (via the Escapement Assembly) where it is carried down the conveyor.



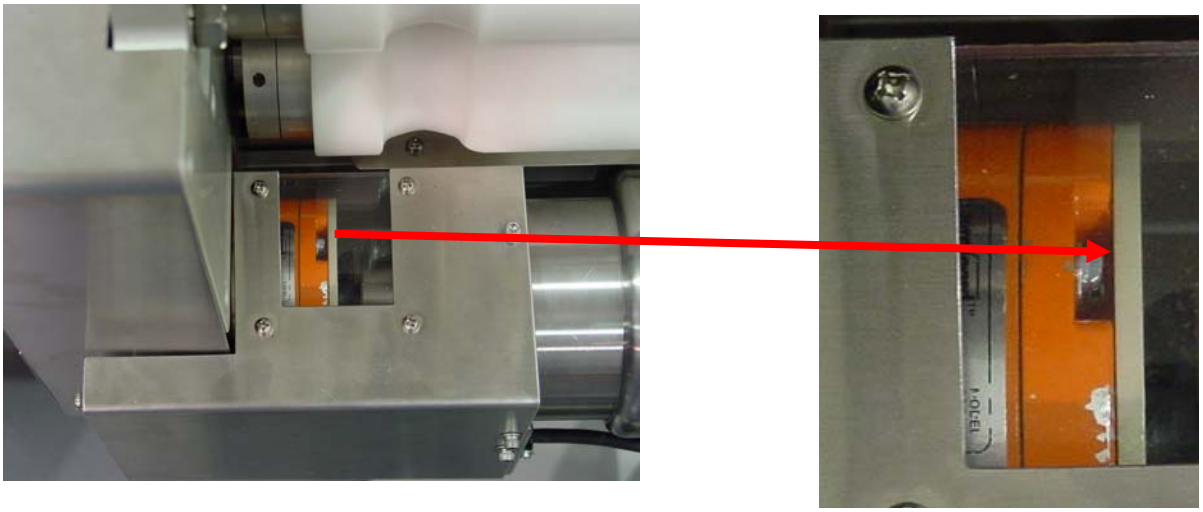
REF	QTY	DESCRIPTION
1	1	Mounting Plate, Front Timing Screw
2	2	Adjusting Plate, Front
3	1	Arm, Mounting – Front
4	4	Shaft Drive
5	4	Pulley, Altered -24T
6	1	Arm Mounting, Front
7	1	Mounting Plate
8	4	Shaft, Idler
9	1	Mounting Plate - Rear
10	1	Arm, Mounting - Rear
11	1	Mounting Bracket, Motor
12	1	Pulley, Idler – Altered 24T
13	1	Shaft, Idler
14	1	Shaft, Motor
15	1	Plate, Clutch Adapter
16	1	Pulley, Drive – Altered 24T
17	8	Collar, Timing Screw
18	8	Collar Clamp, Timing Screw
19	1	Arm, Mounting – Rear
20	1	Bearing Support Plate, Front

REF	QTY	DESCRIPTION
21	6	Stand-Off, Bearing Plate
22	1	Spacer Ring
23	1	Bearing Support Plate – Rear
24	1	Strap, Plate
25	1	Collar Modified w. Timing Mar
26	1	Shaft, Idler (Timing Shaft)
27	2	Retaining Ring, ½ ID SS
28	8	Retaining Ring, 5/8 ID SS
29	3	Ball Bearing .500 ID 1.125 OD
30	12	Ball Bearing .5/8 ID 1 3/8 OD
31	1	Timing Belt 16mm , T5mmP
32	1	Clutch, Torq/Gard #TGC6
33	1	Motor, Servo 200 Watt W/Encoder
34	2	Timing Screw LH -42”LG, 6”P
35	2	Timing Screw RH -42”LG, 6”P
36	1	Key, Motor Shaft
37	1	Collar Shaft 1-1/2” ID
38	1	Gearhead, 30:1 Apex

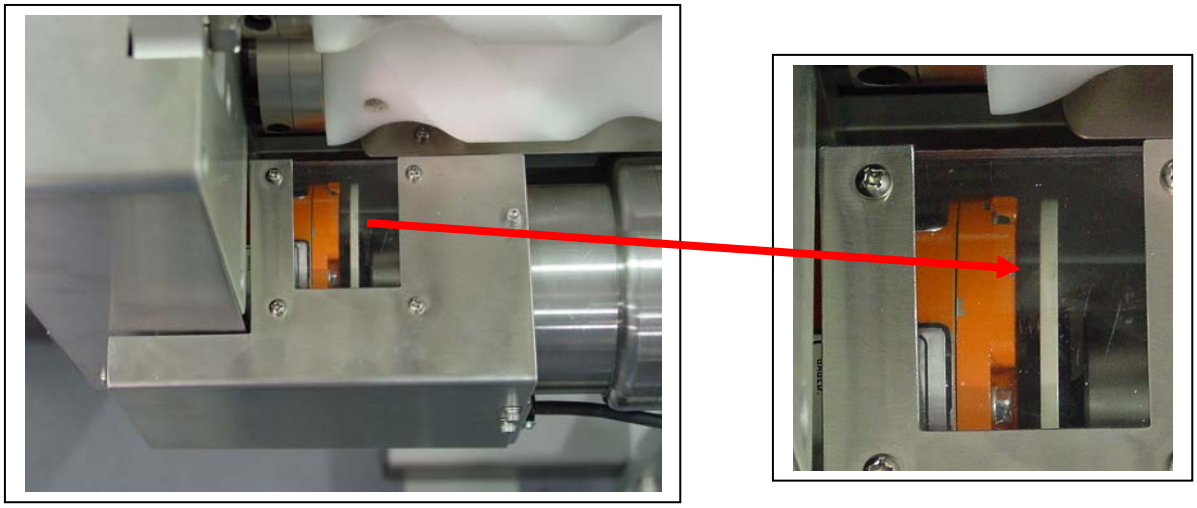
Section S: Infeed Clutch

Service Overload Clutch

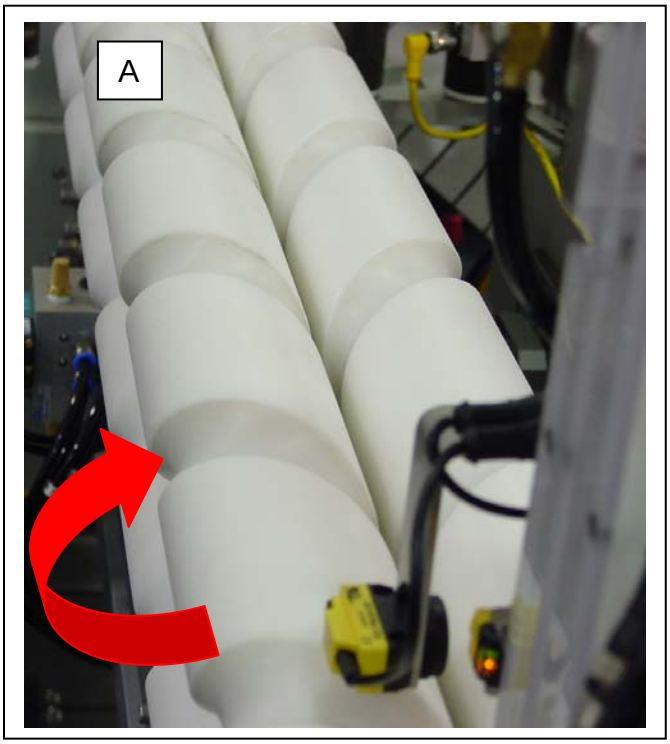
This infeed screw assembly is equipped with a “kick-out” system which has a clutch. The clutch is located by the timing screw drive on the FRONT head side of the conveyor. During normal operation the clutch will be in the “ENGAGED” position as shown below through the vision window provided.



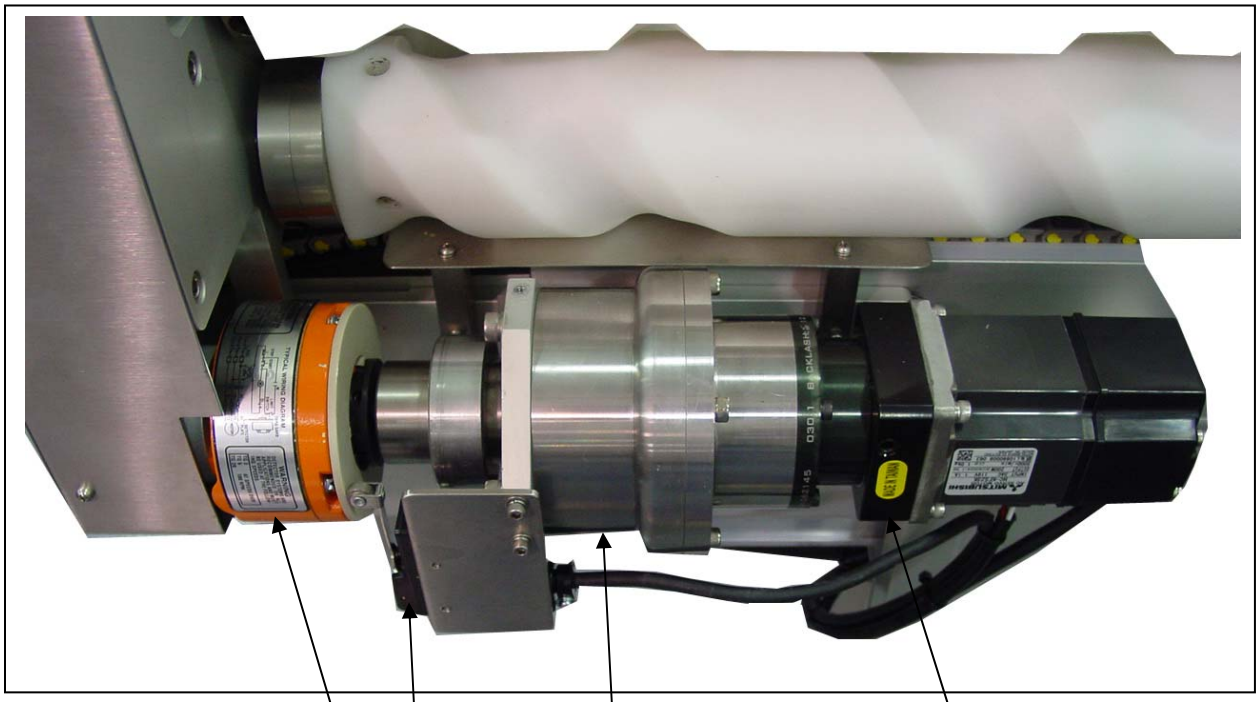
In the event of a product jam, human error, or some other cause that prevents the Timing Screw from rotating, the clutch will automatically disengage. When the clutch disengages three things will happen. They are: the machine will shutdown, a red warning beacon light will illuminate, and “Timing Screw Clutch Disengaged” is shown on the HMI.



To reset the clutch:



Operator is to stand on the clutch side of the conveyor. Using two hands grab timing screw “A”. With a jerking motion turn screw towards self till the clutch reseats. NOTE: This may take up to three times before the clutch firmly seats itself.


PTCLTGC6 Clutch
Roller Arm Limit Switch
PTRS10120 Gearhead
PTSM200W Motor

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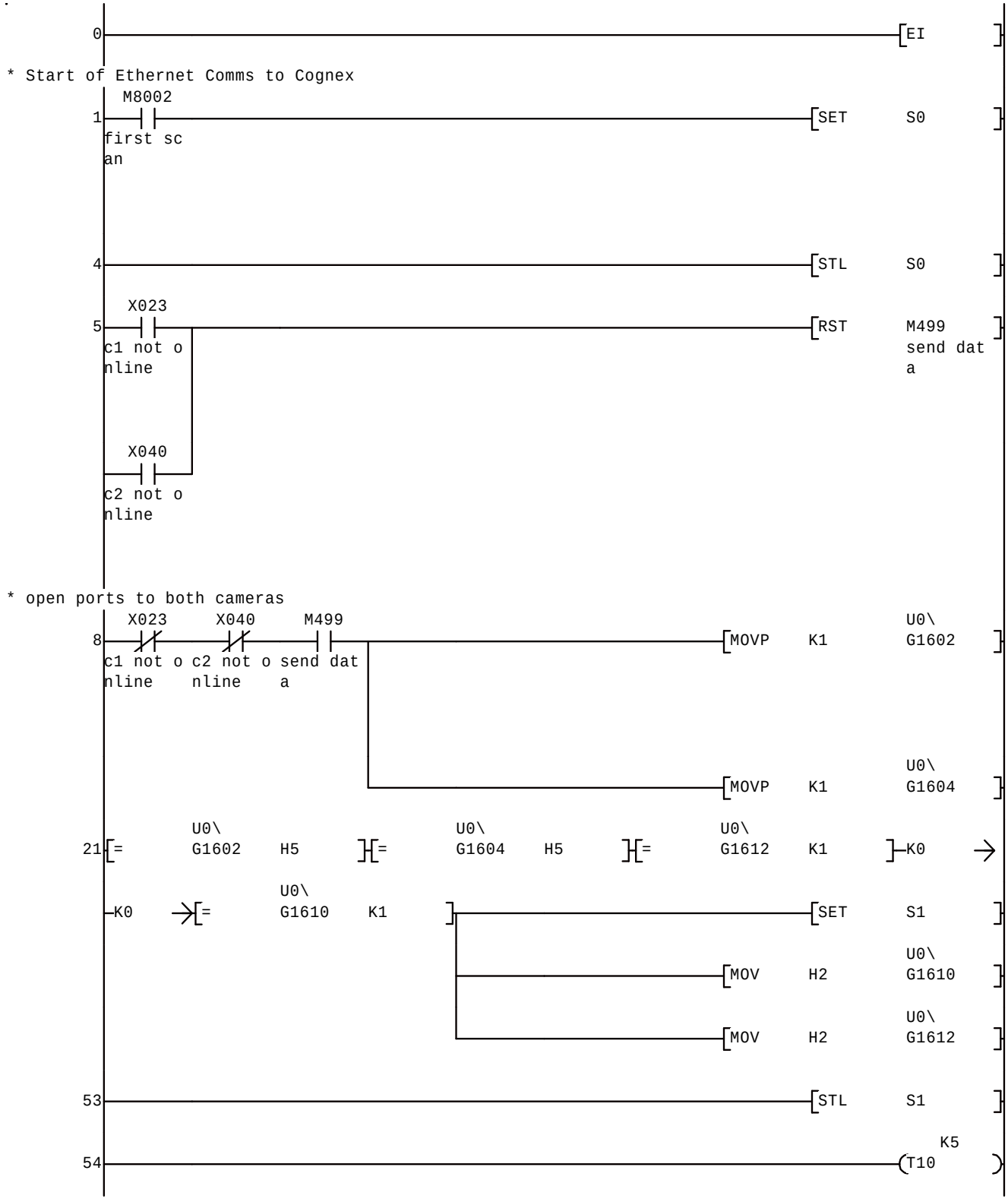
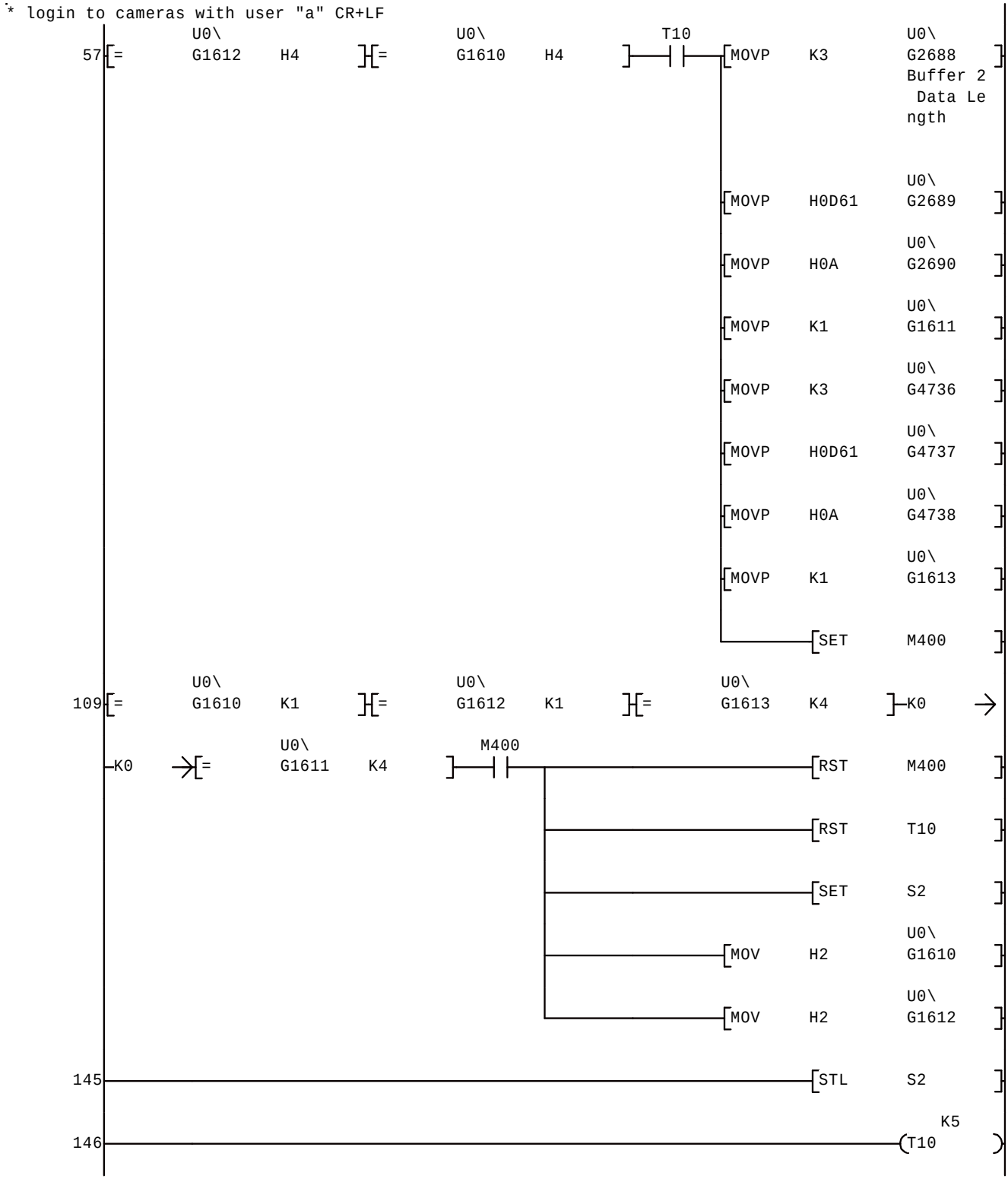
Appendix A

Ladder Logic

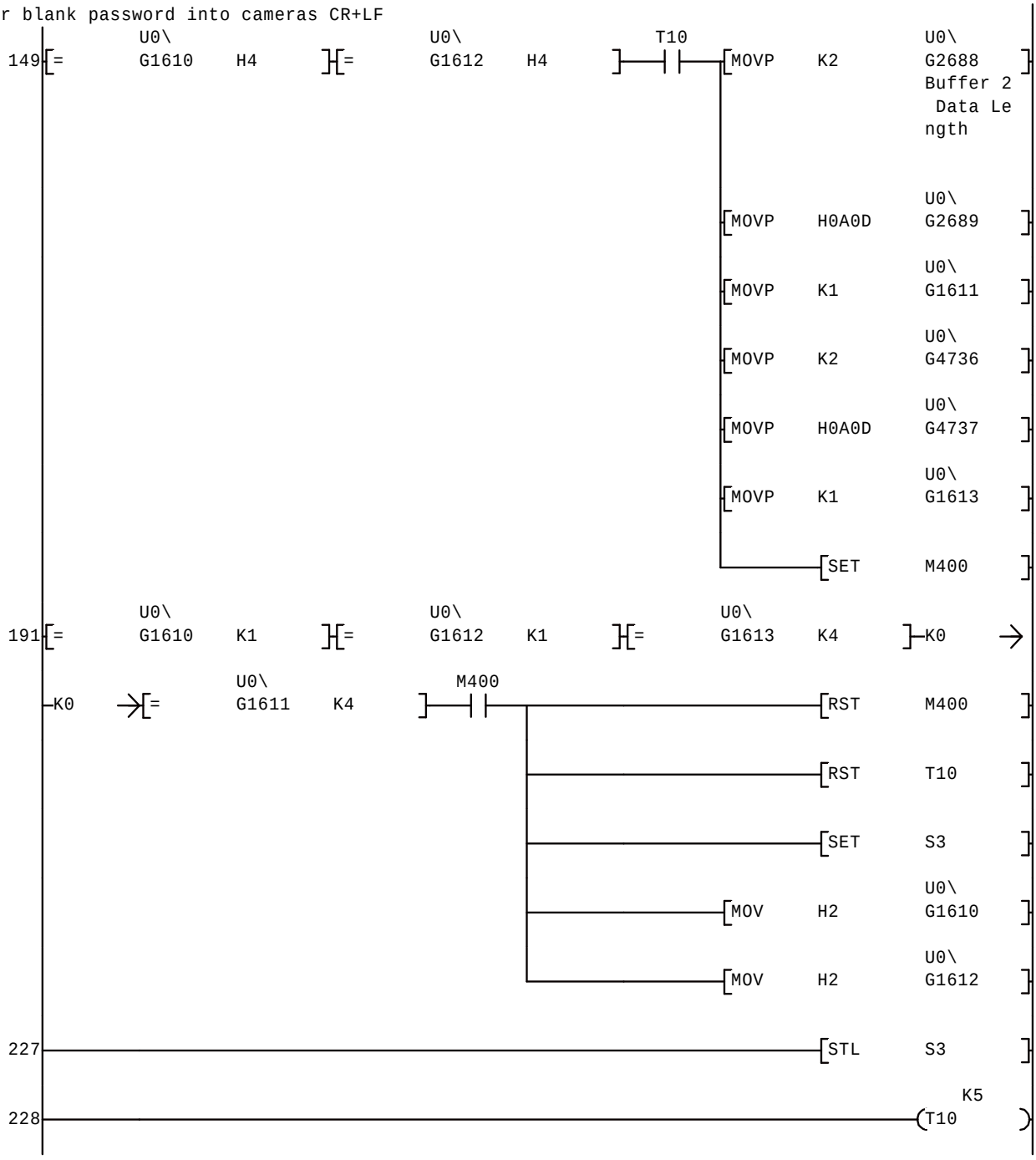
Main System Program (LSI Serial Number 14-0554)
Version: 14-0554K



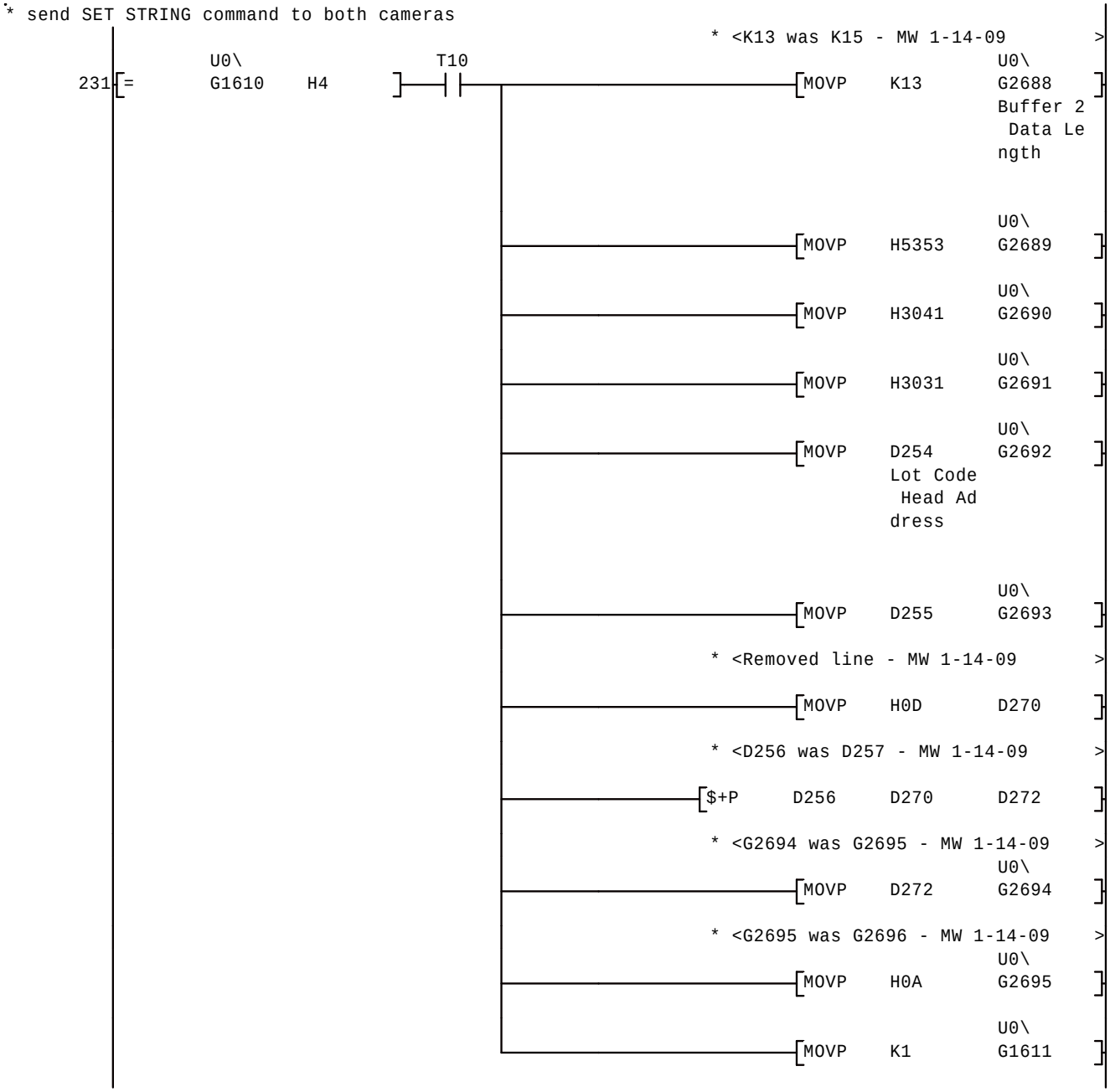
Main System Program (LSI Serial Number 14-0554)
Version: 14-0554K



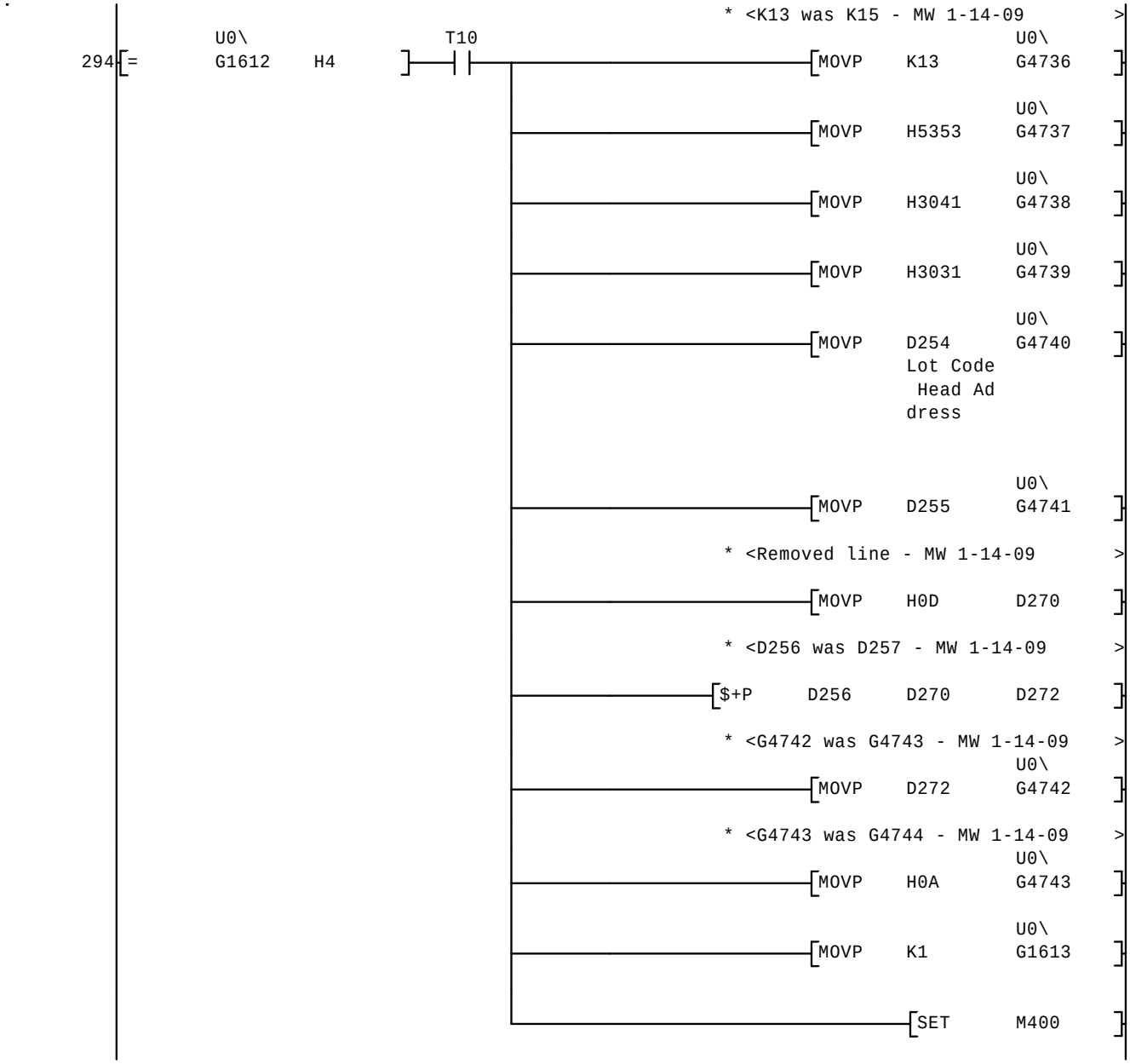
Main System Program (LSI Serial Number 14-0554)
Version: 14-0554K
* enter blank password into cameras CR+LF



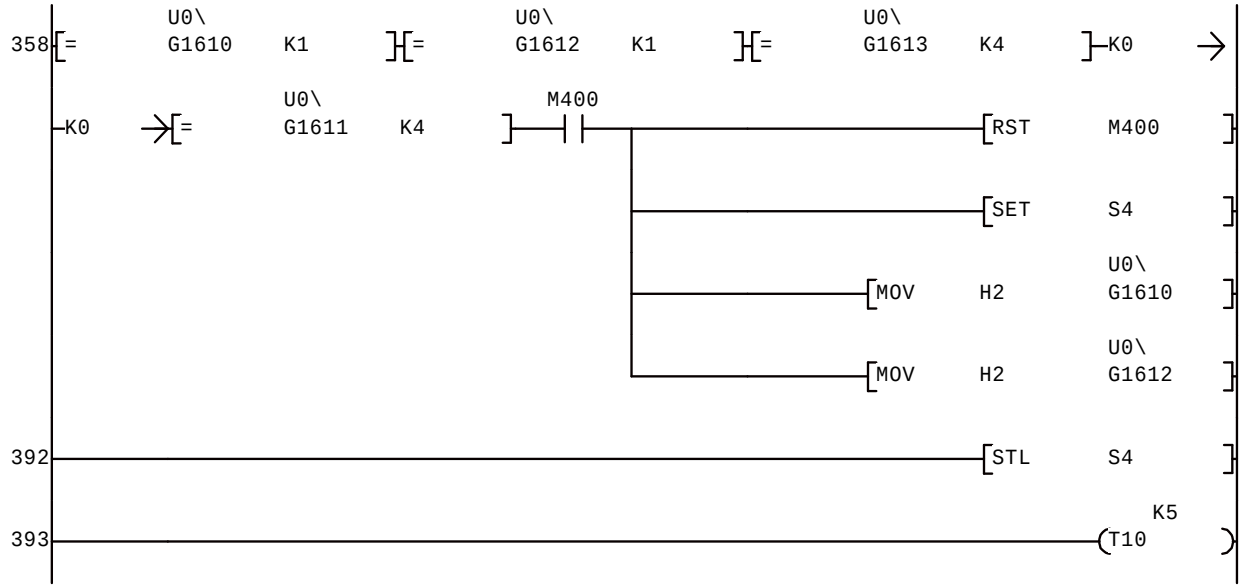
Main System Program (LSI Serial Number 14-0554)
Version: 14-0554K



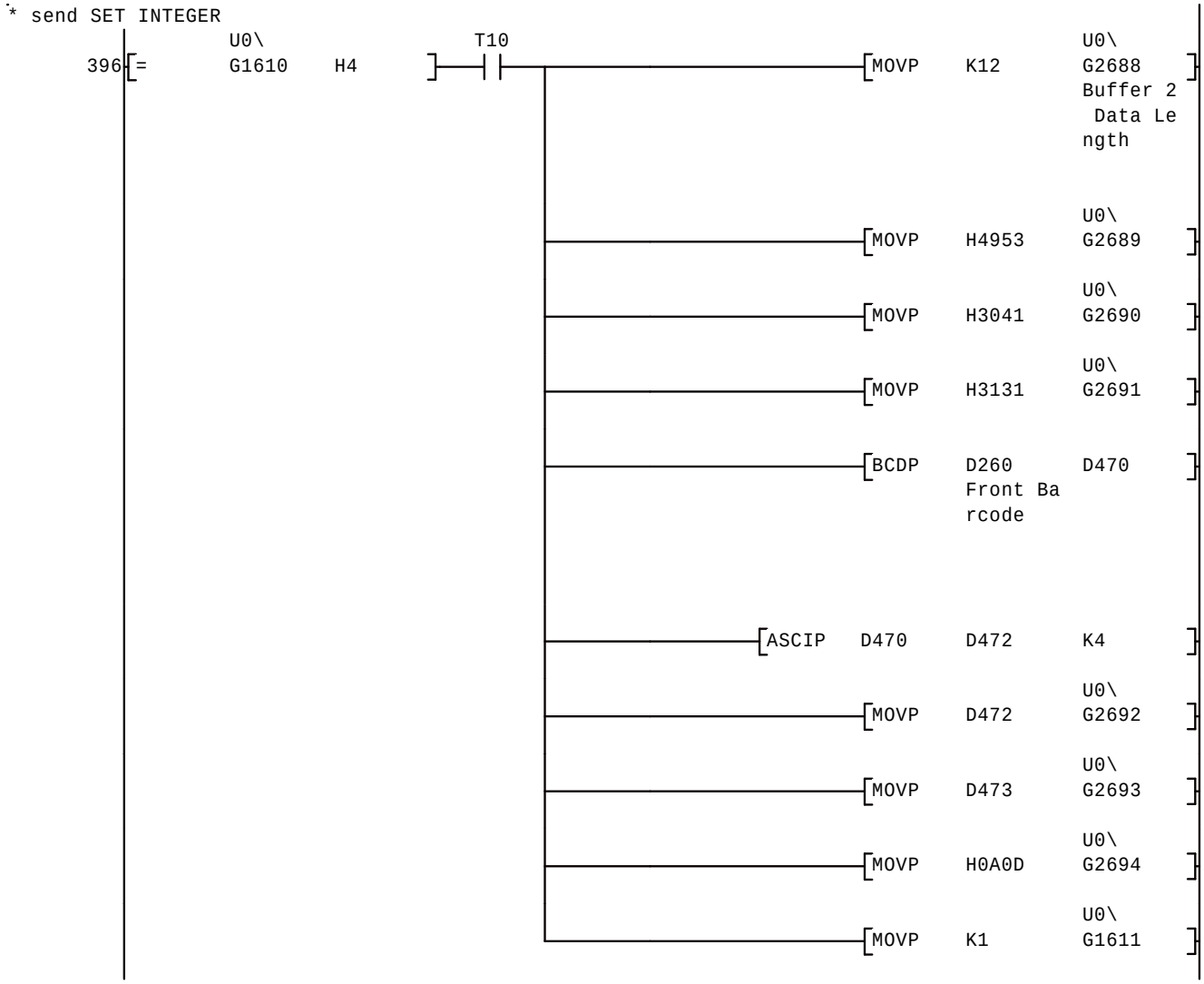
Main System Program (LSI Serial Number 14-0554)
Version: 14-0554K



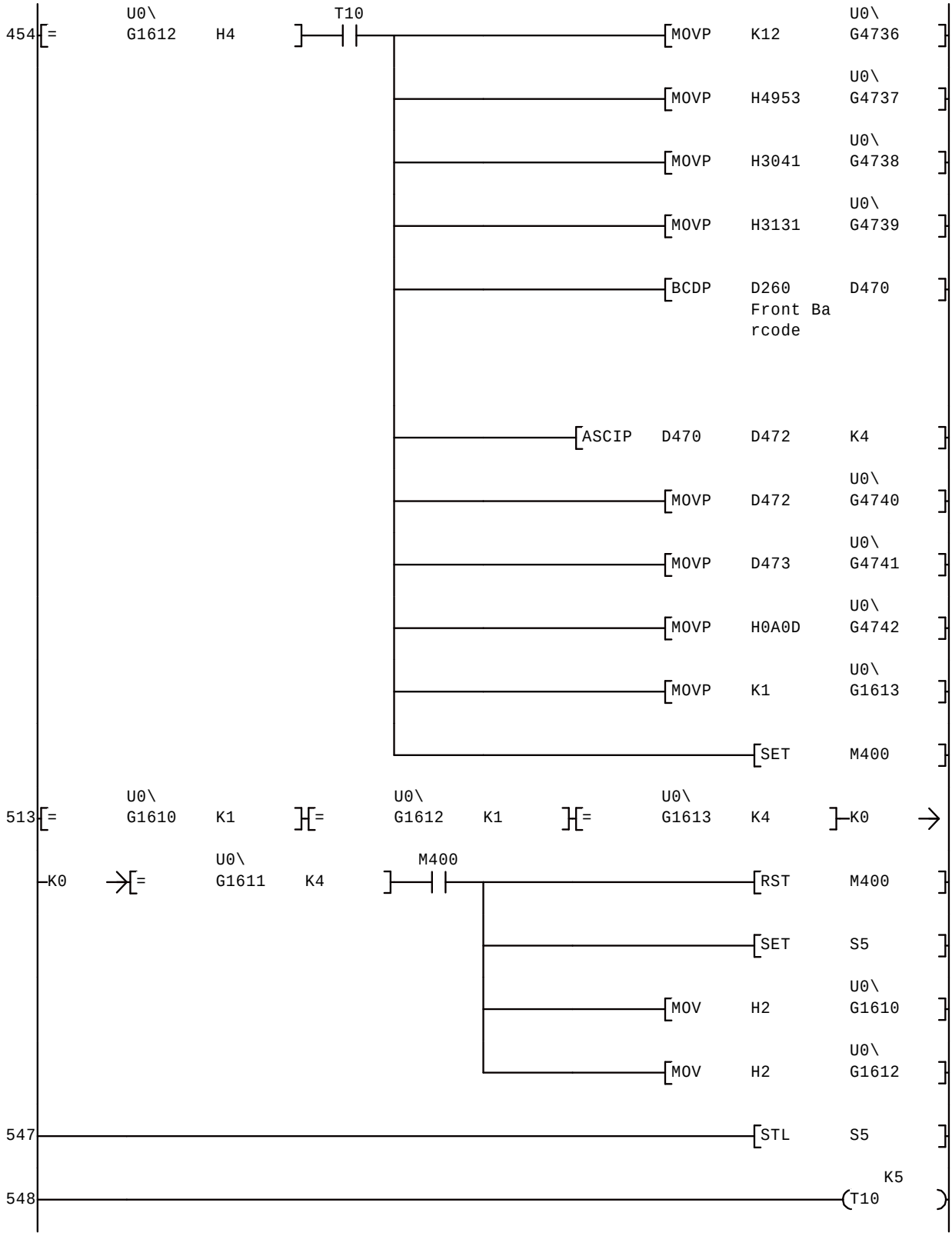
Main System Program (LSI Serial Number 14-0554)
Version: 14-0554K



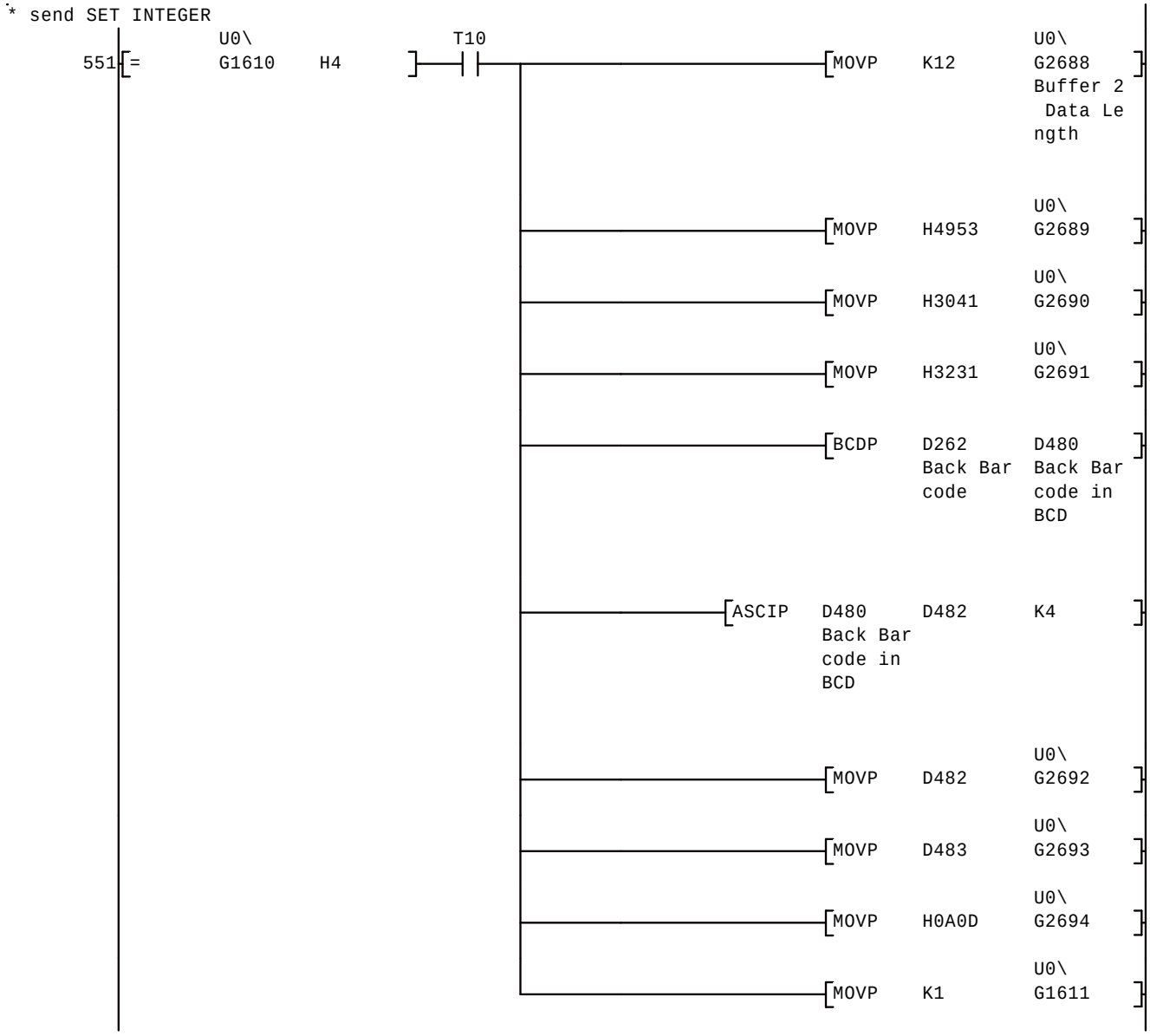
Main System Program (LSI Serial Number 14-0554)
Version: 14-0554K



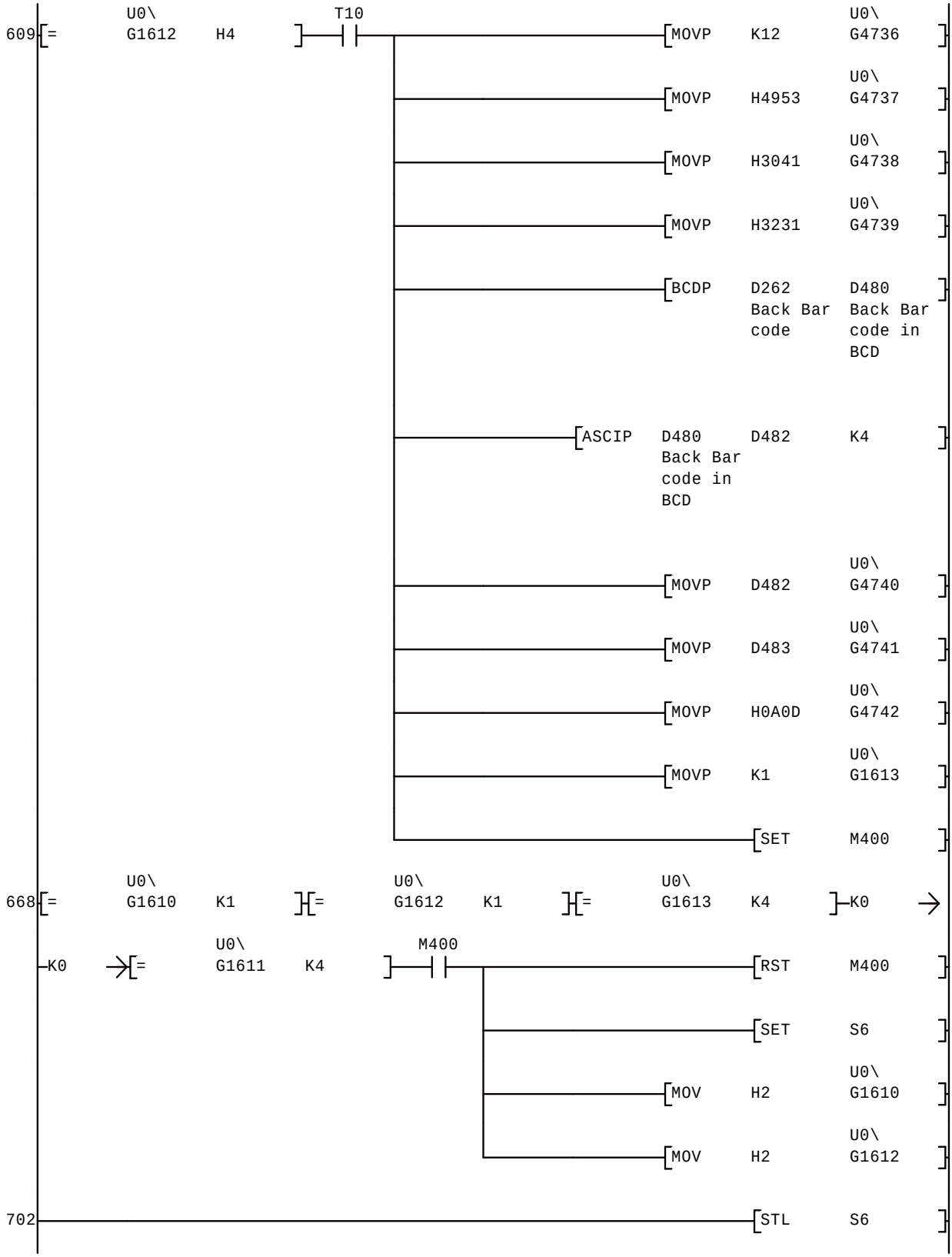
Main System Program (LSI Serial Number 14-0554)
Version: 14-0554K



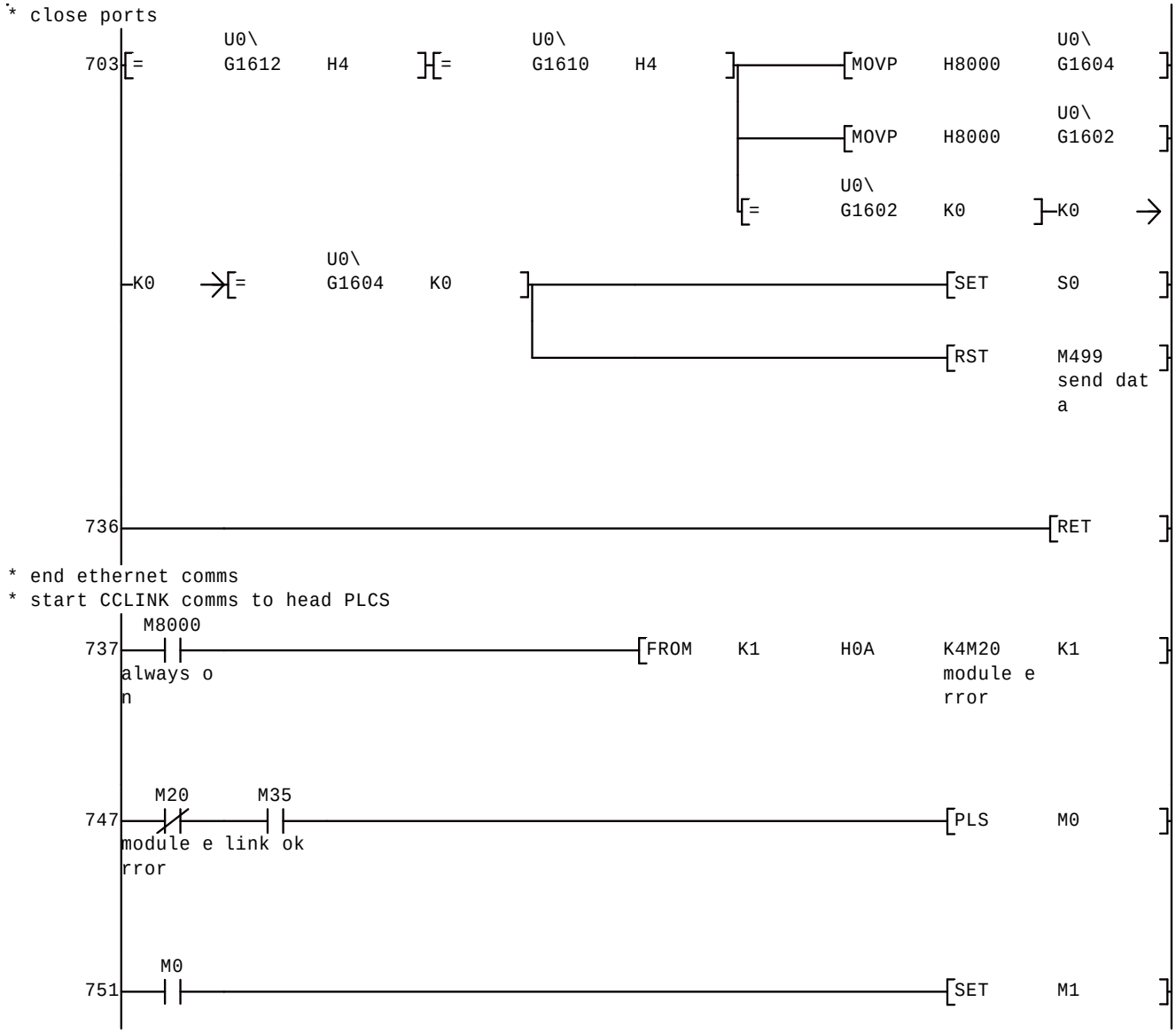
Main System Program (LSI Serial Number 14-0554)
Version: 14-0554K



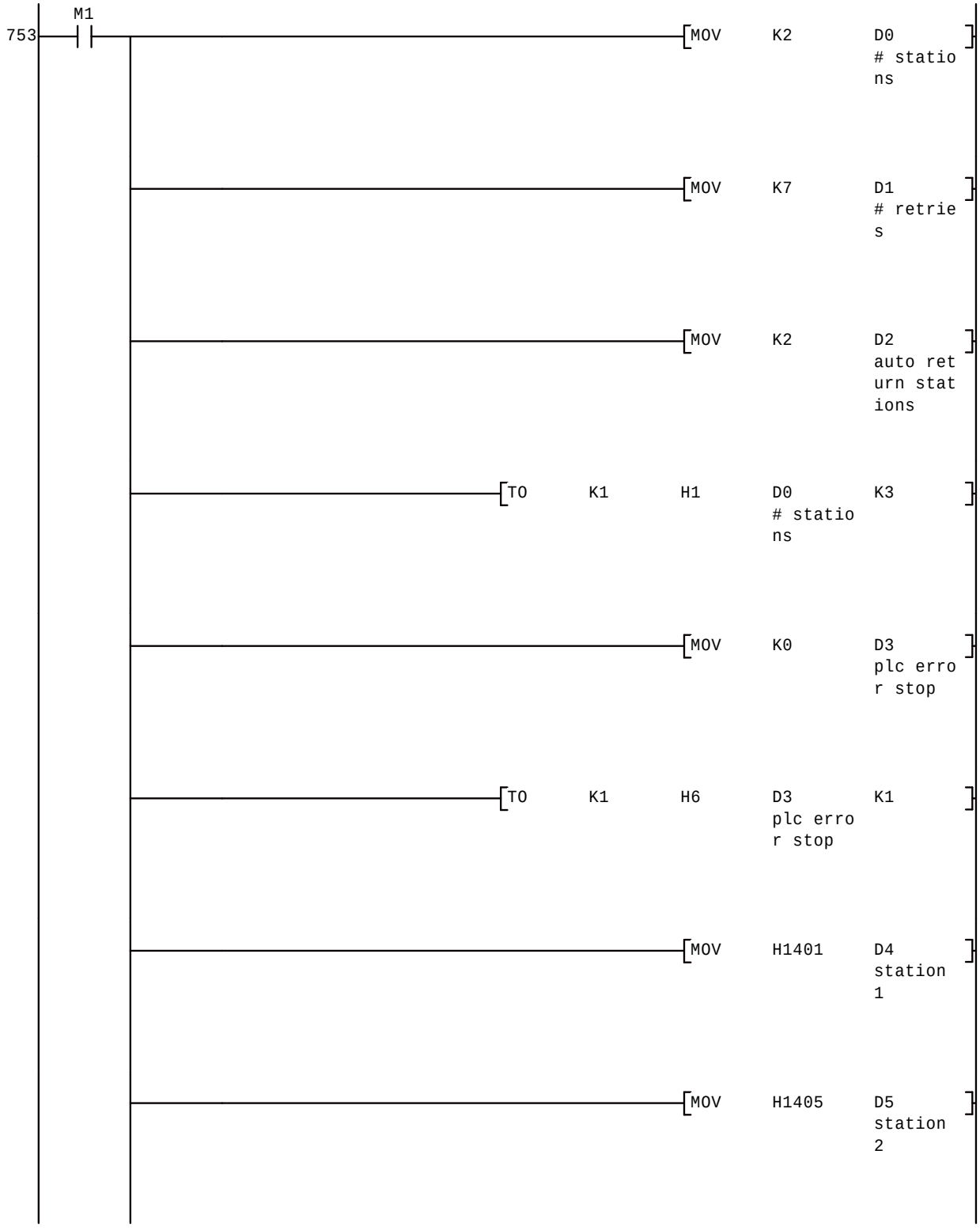
Main System Program (LSI Serial Number 14-0554)
Version: 14-0554K



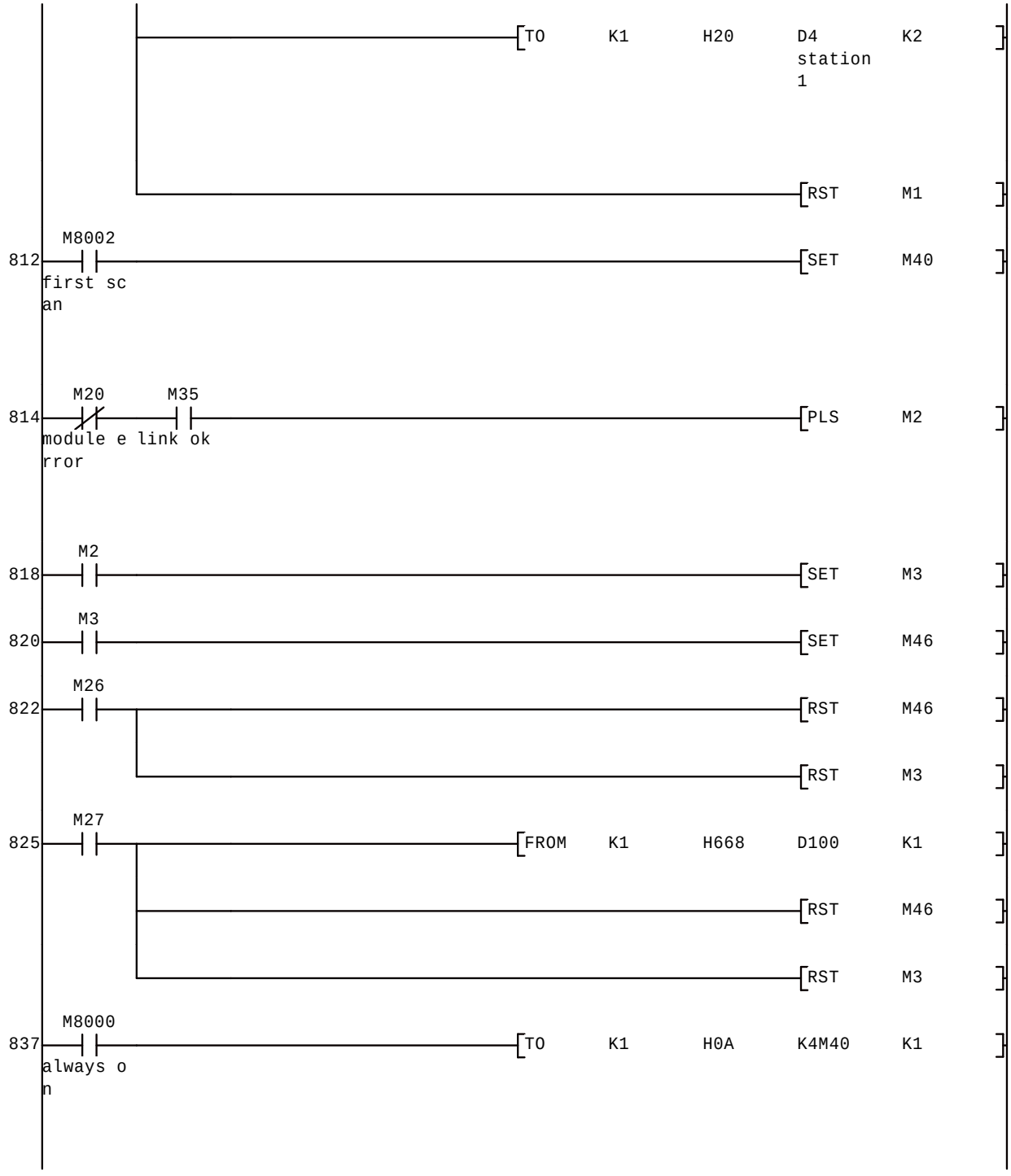
Main System Program (LSI Serial Number 14-0554)
Version: 14-0554K



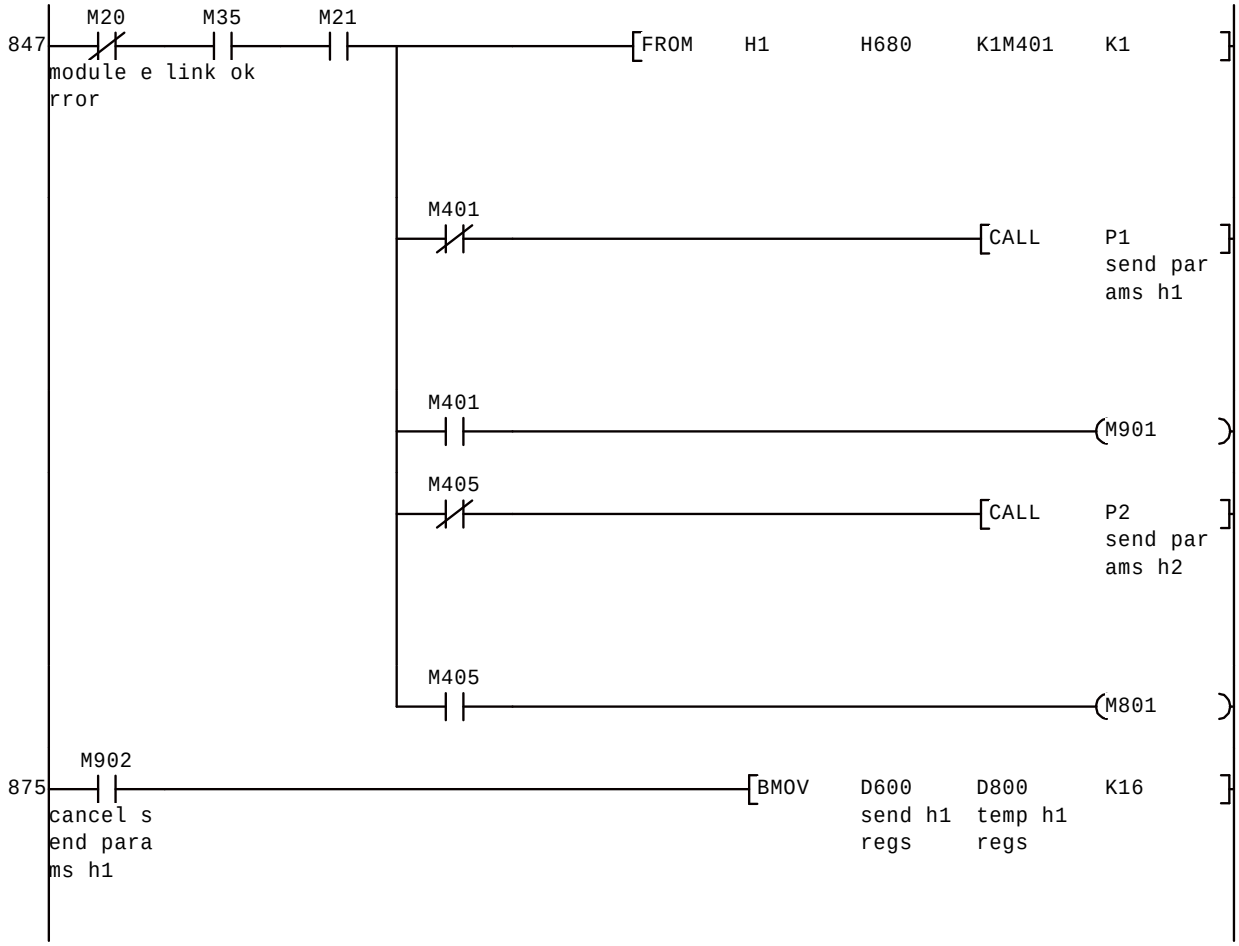
Main System Program (LSI Serial Number 14-0554)
Version: 14-0554K



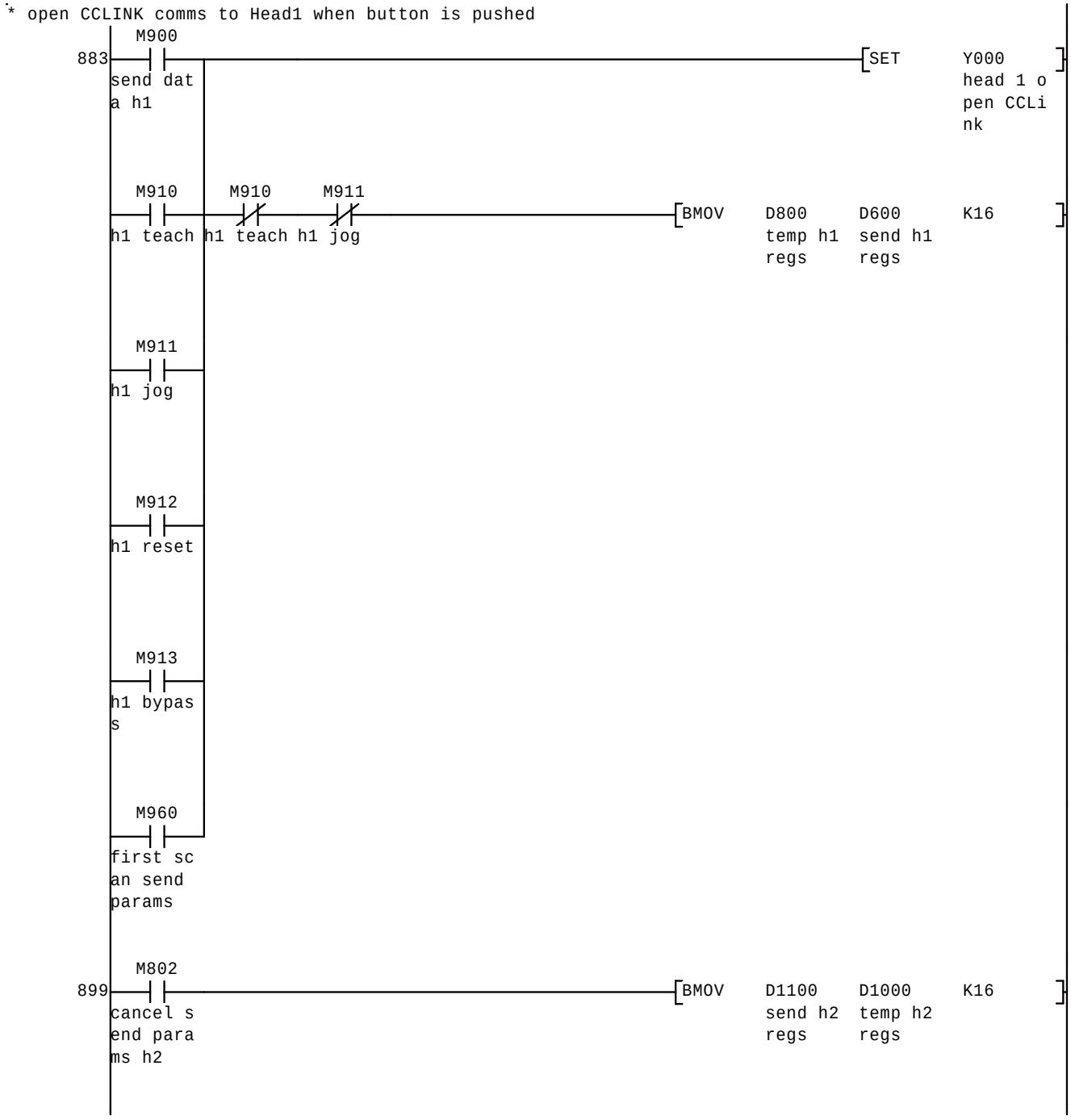
Main System Program (LSI Serial Number 14-0554)
Version: 14-0554K



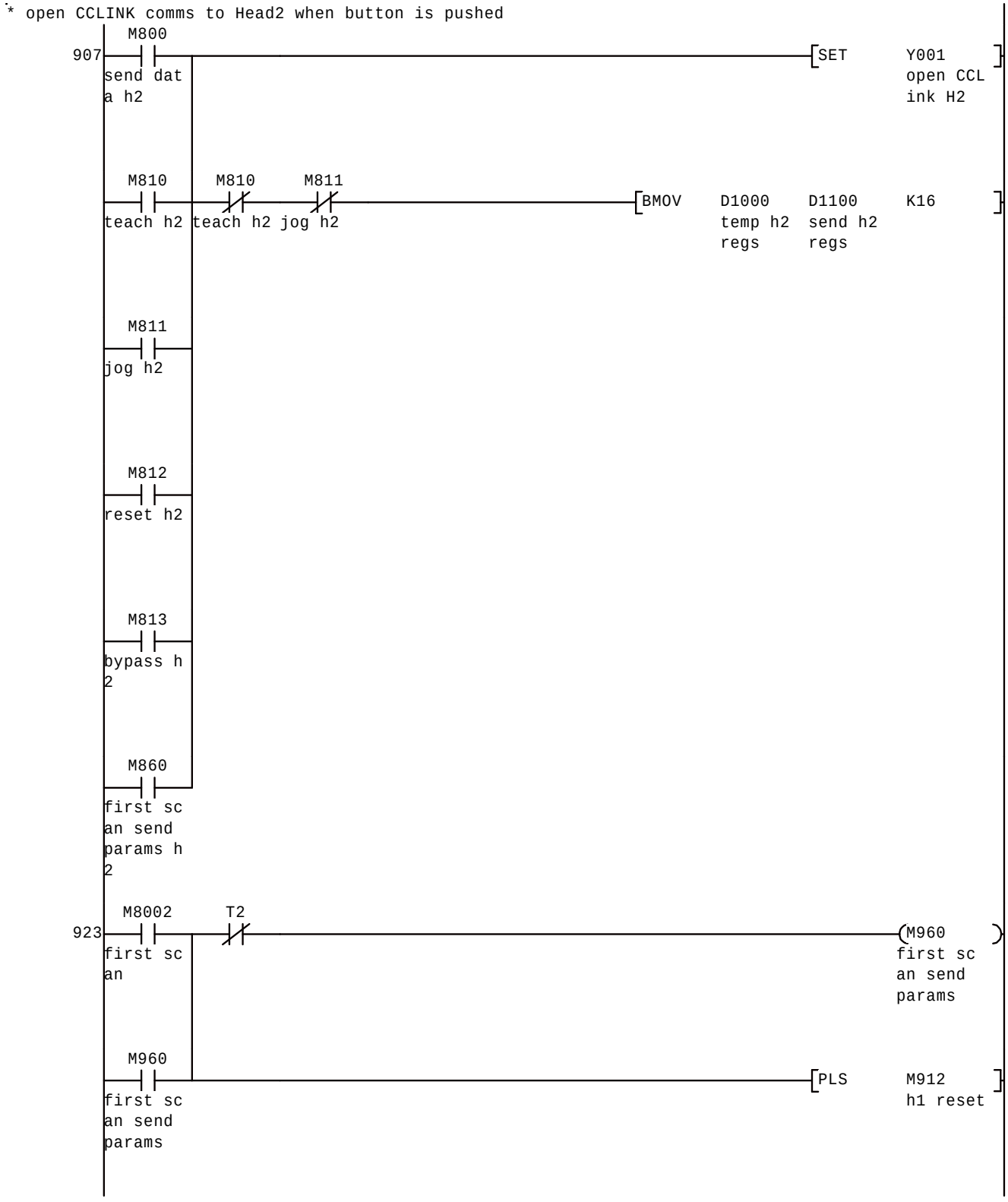
Main System Program (LSI Serial Number 14-0554)
Version: 14-0554K



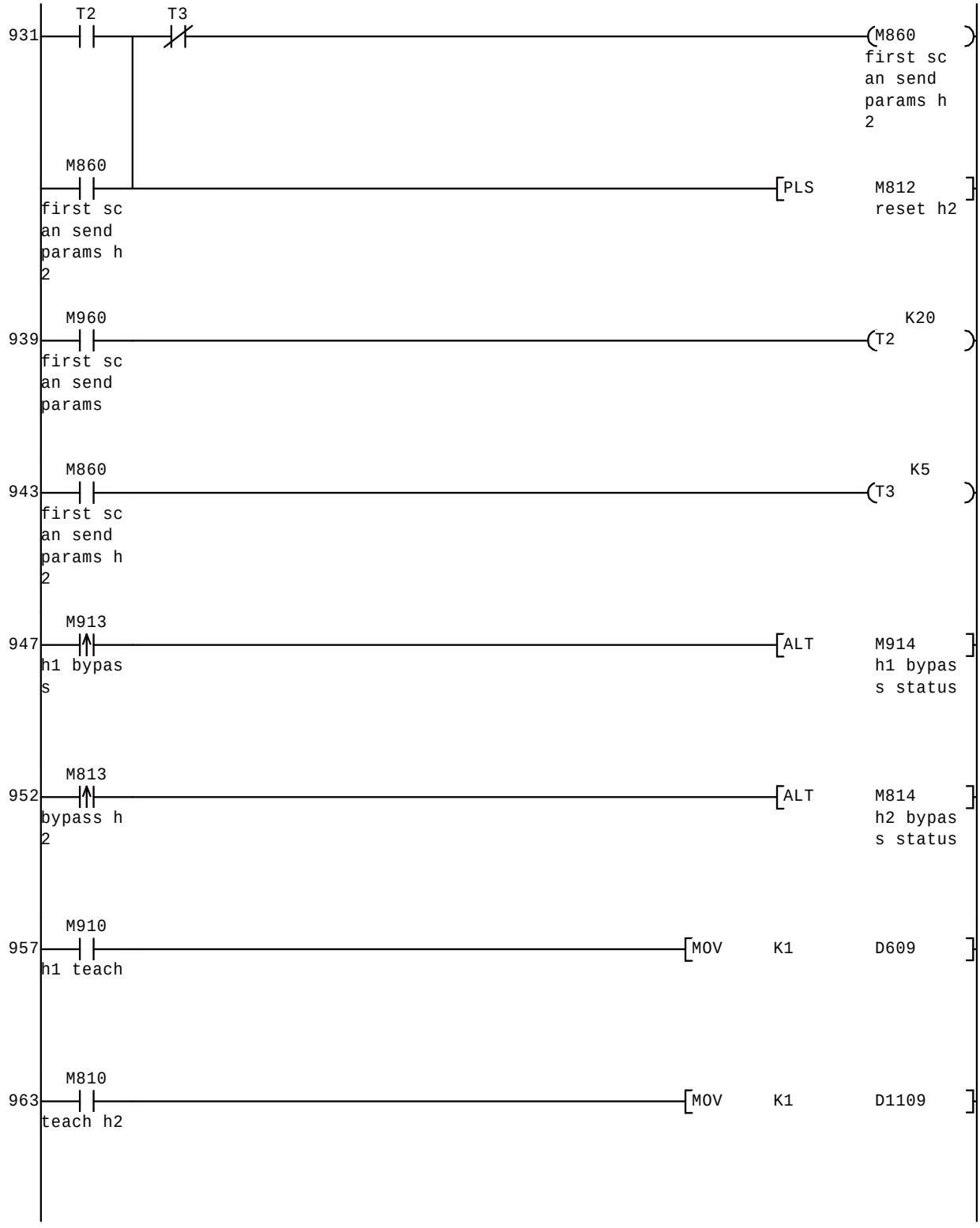
Main System Program (LSI Serial Number 14-0554)
Version: 14-0554K



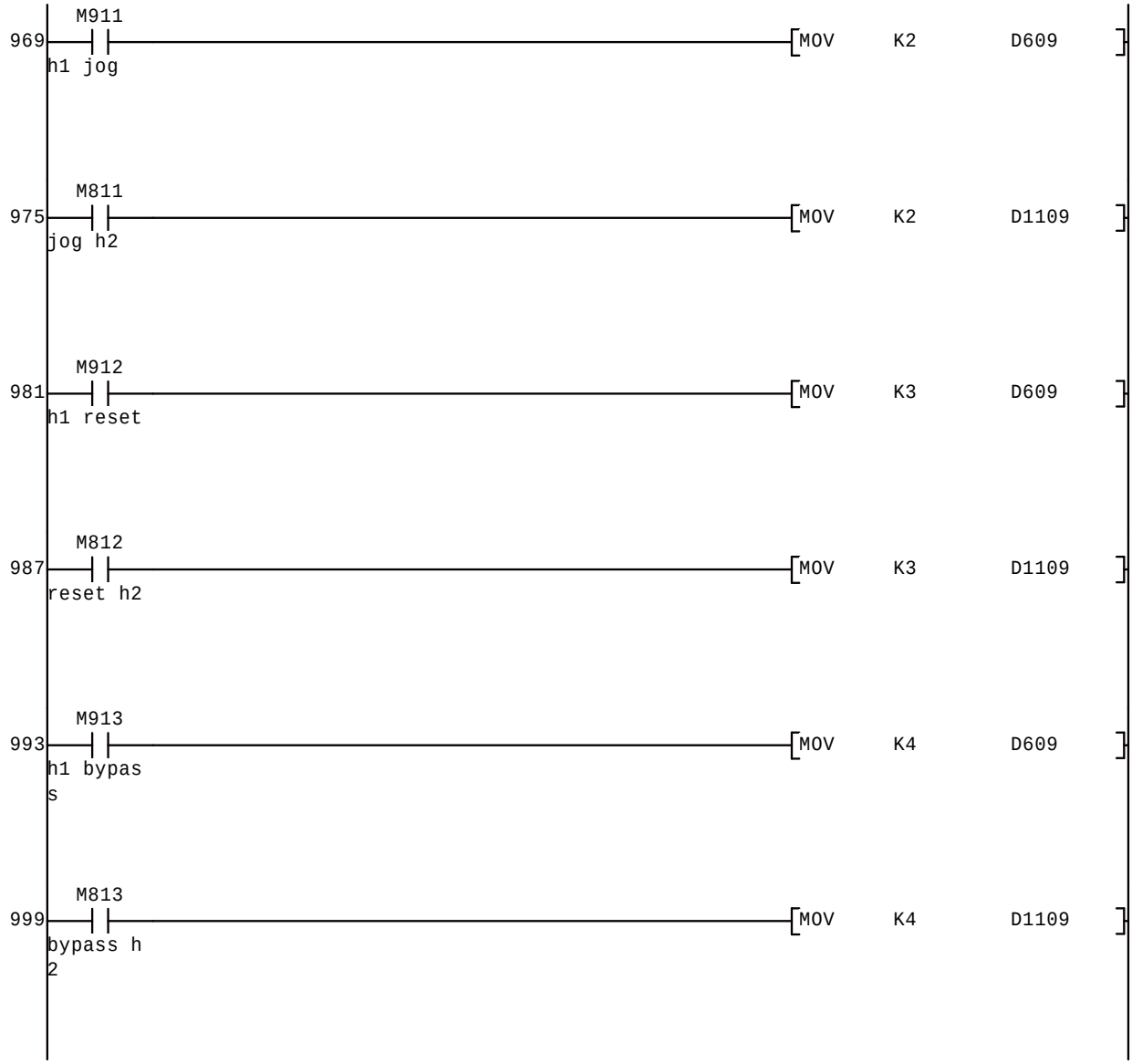
Main System Program (LSI Serial Number 14-0554)
Version: 14-0554K



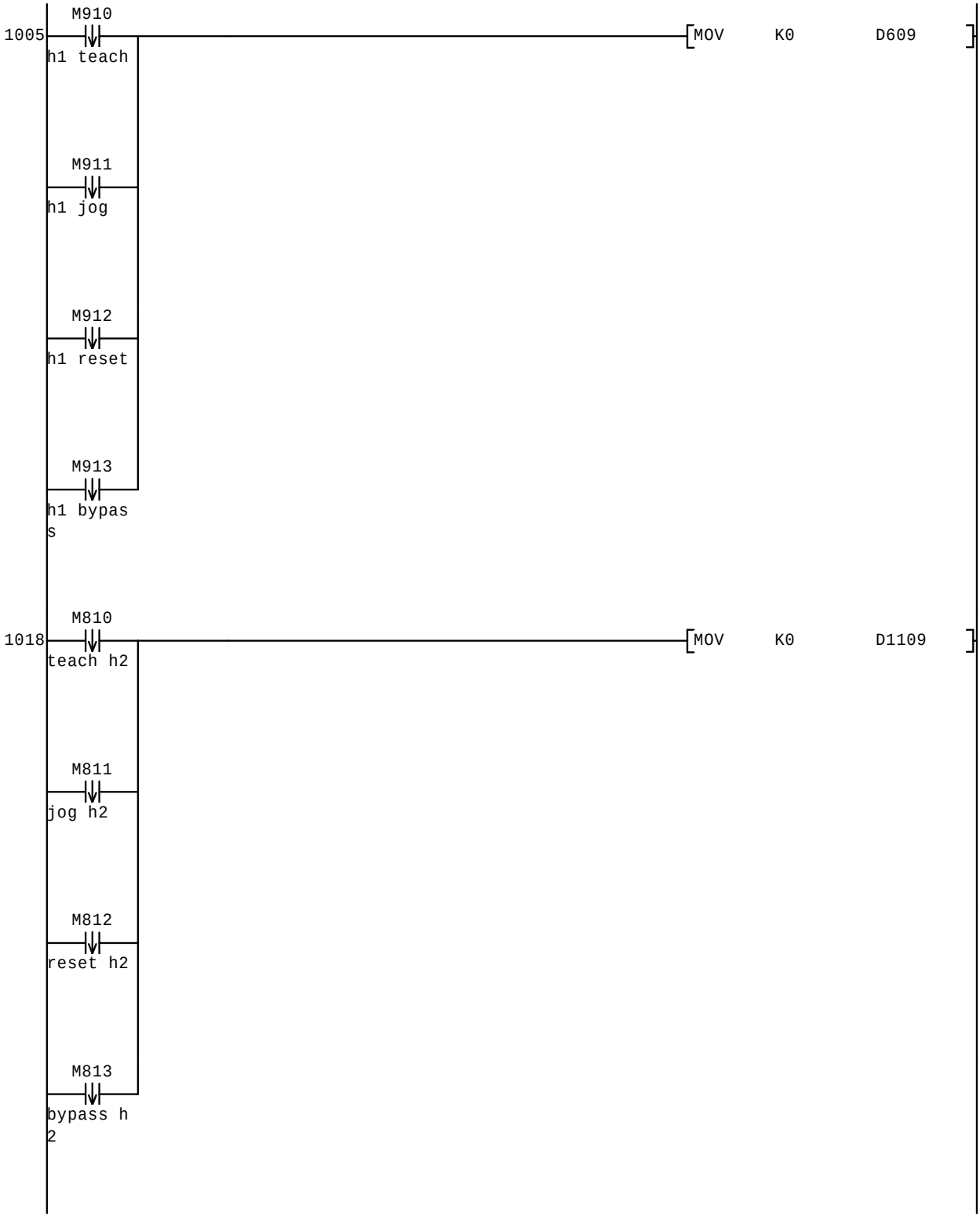
Main System Program (LSI Serial Number 14-0554)
Version: 14-0554K



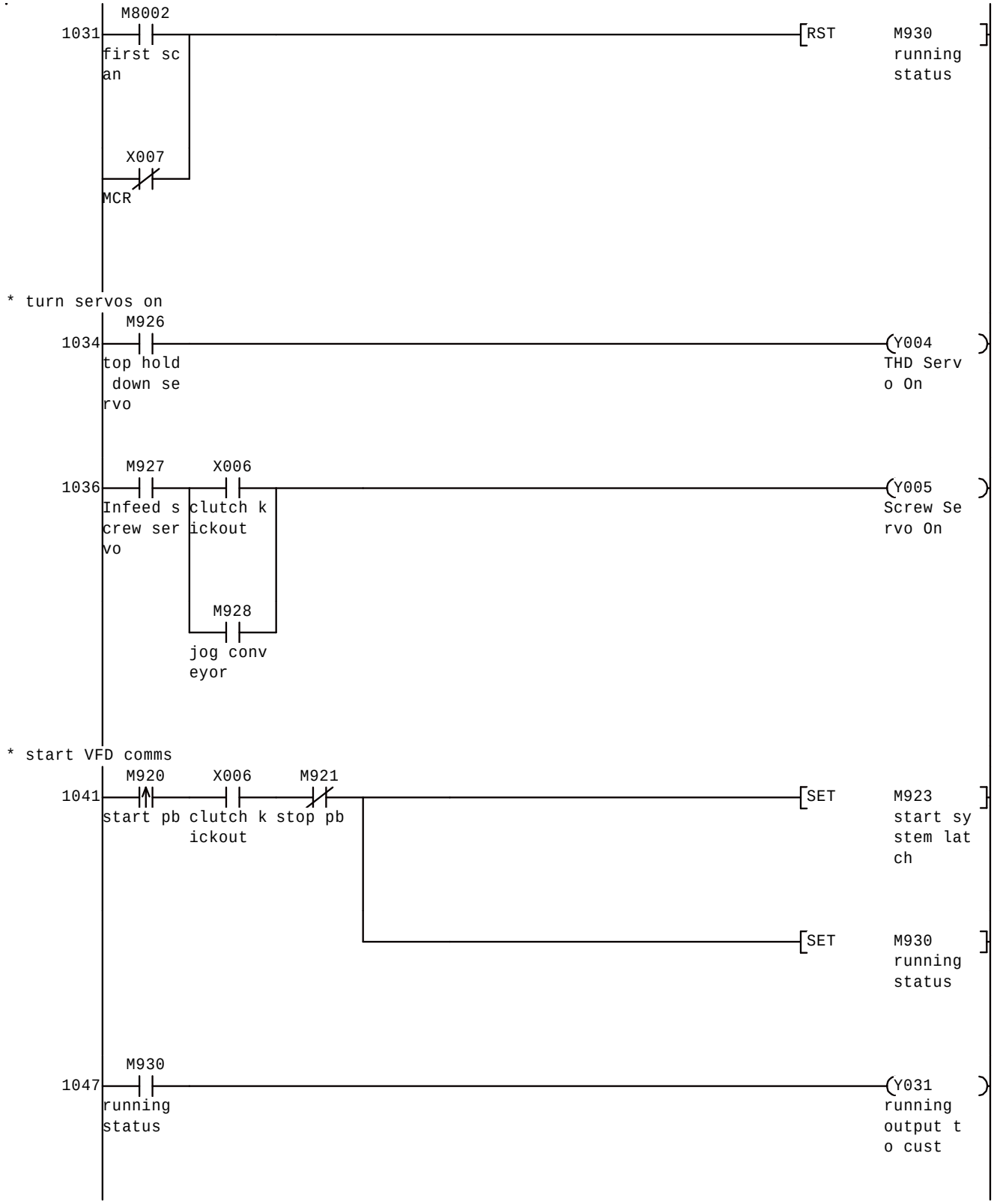
Main System Program (LSI Serial Number 14-0554)
Version: 14-0554K



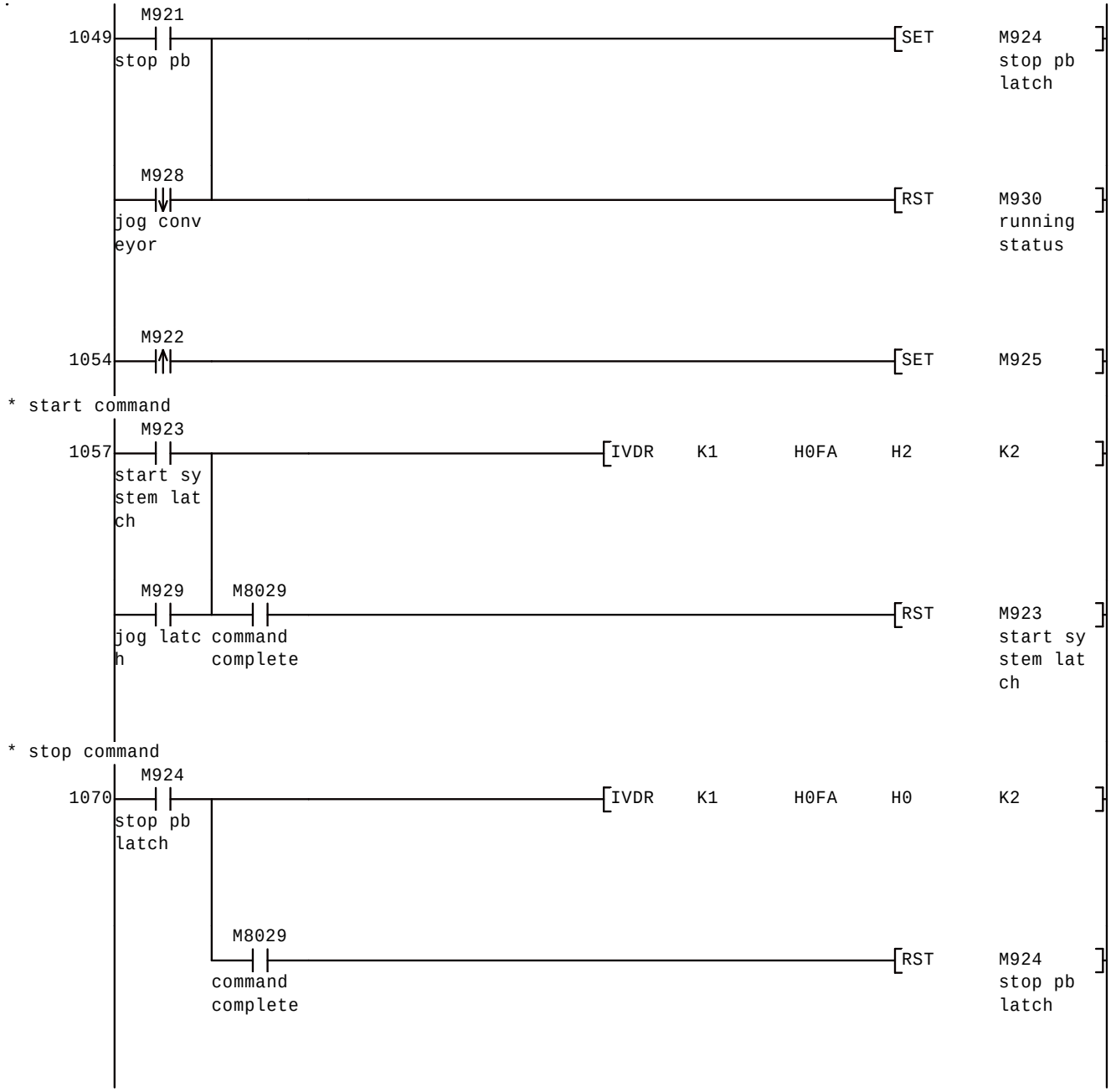
Main System Program (LSI Serial Number 14-0554)
Version: 14-0554K



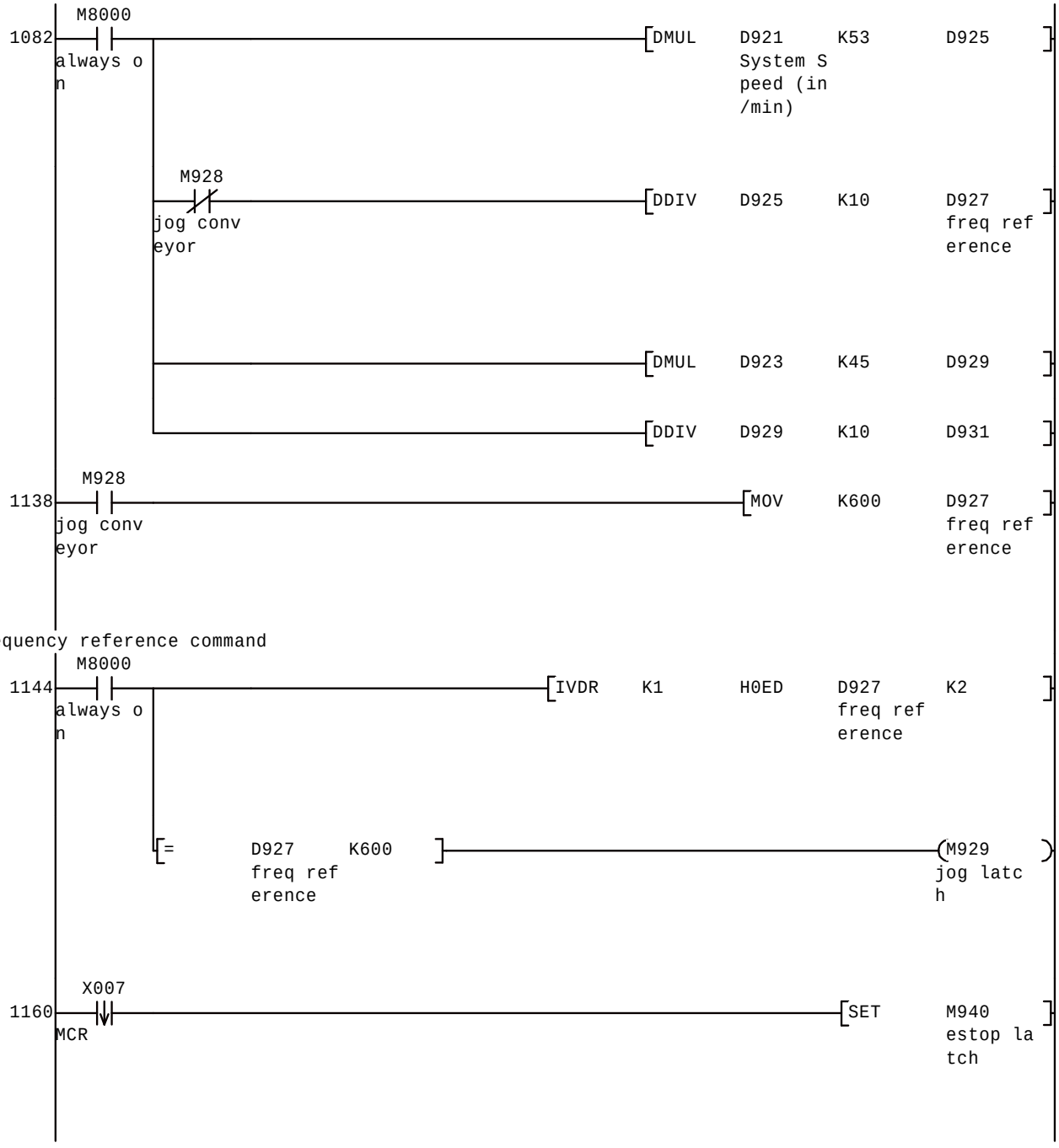
Main System Program (LSI Serial Number 14-0554)
Version: 14-0554K



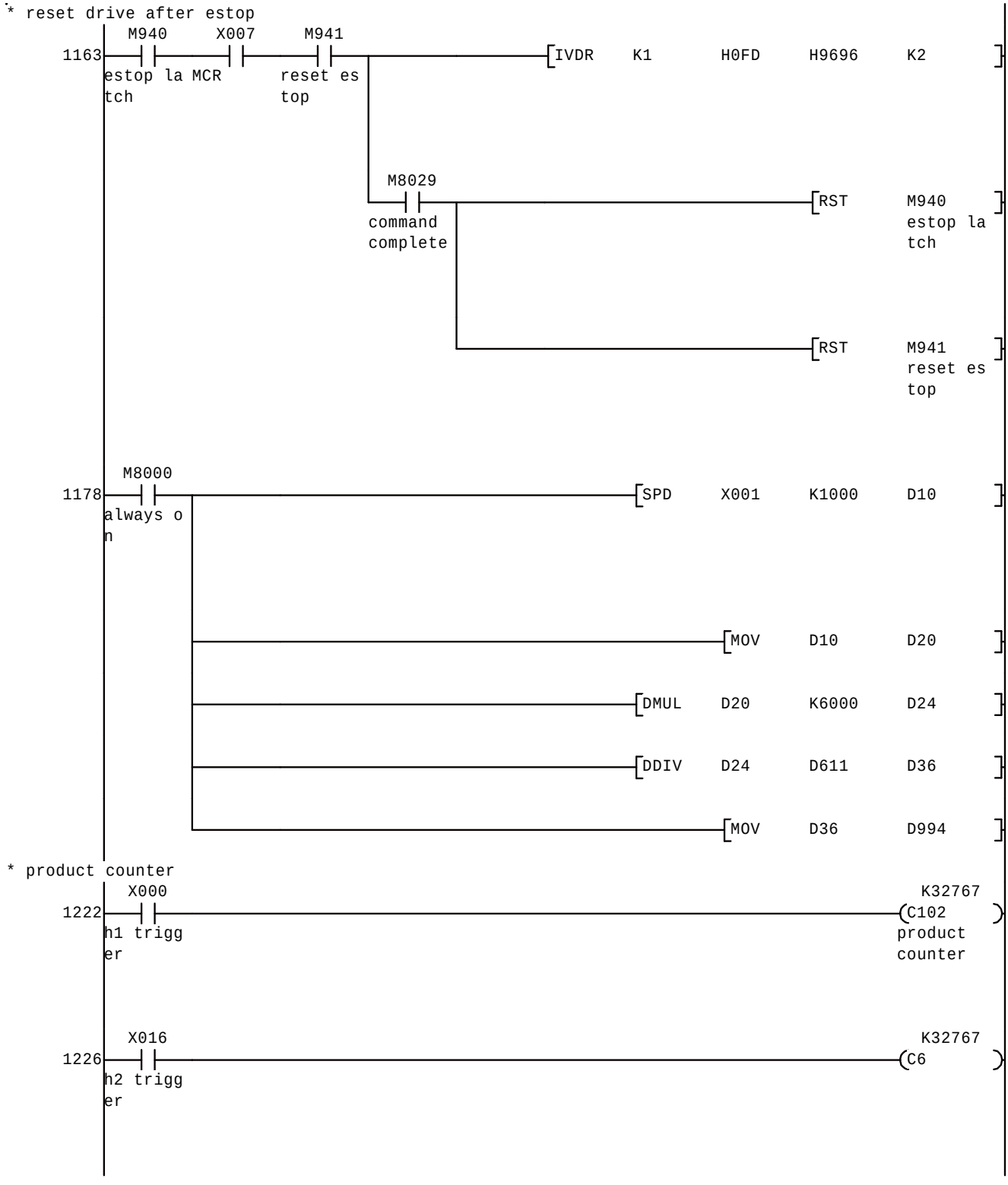
Main System Program (LSI Serial Number 14-0554)
Version: 14-0554K



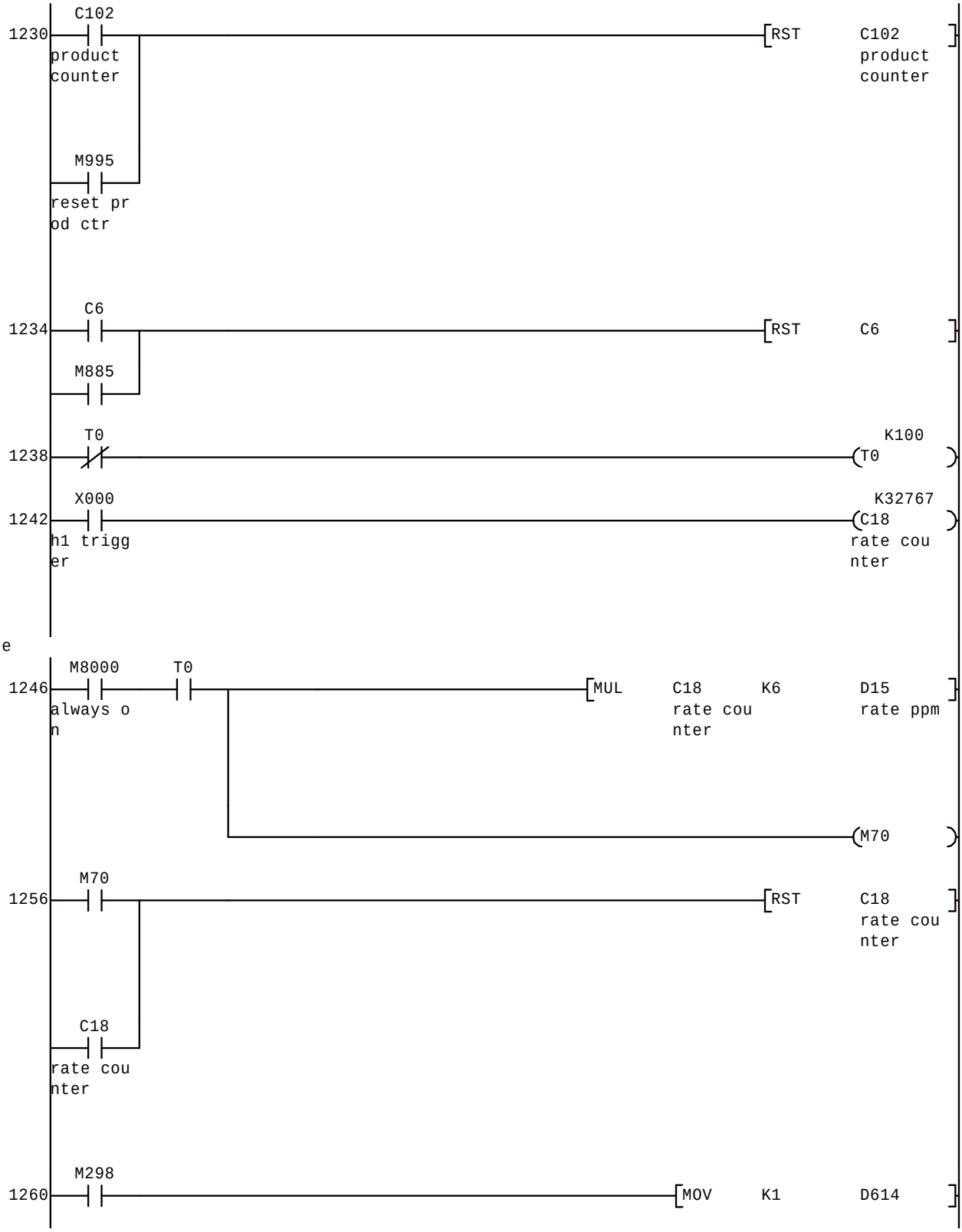
Main System Program (LSI Serial Number 14-0554)
Version: 14-0554K



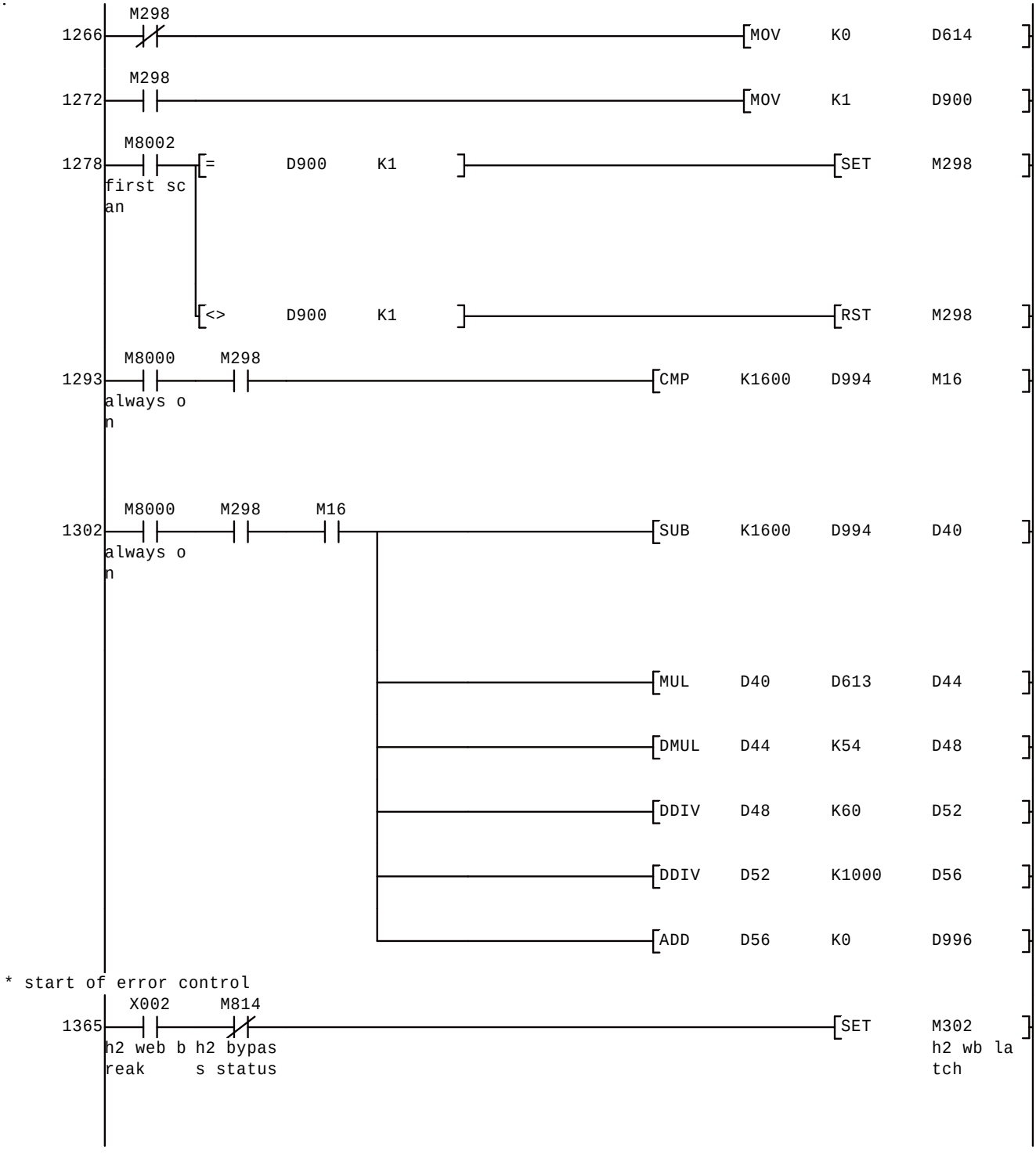
Main System Program (LSI Serial Number 14-0554)
Version: 14-0554K



Main System Program (LSI Serial Number 14-0554)
Version: 14-0554K

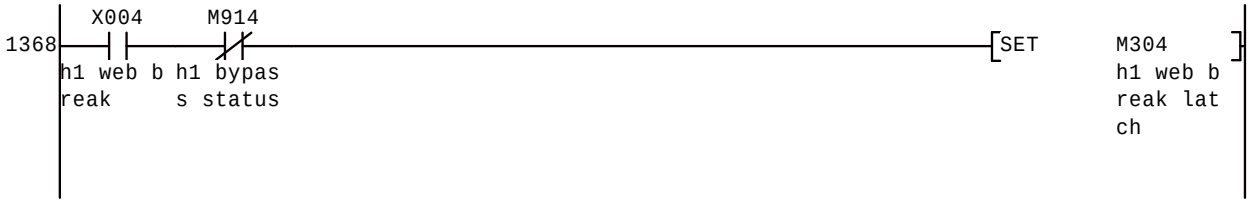


Main System Program (LSI Serial Number 14-0554)
Version: 14-0554K

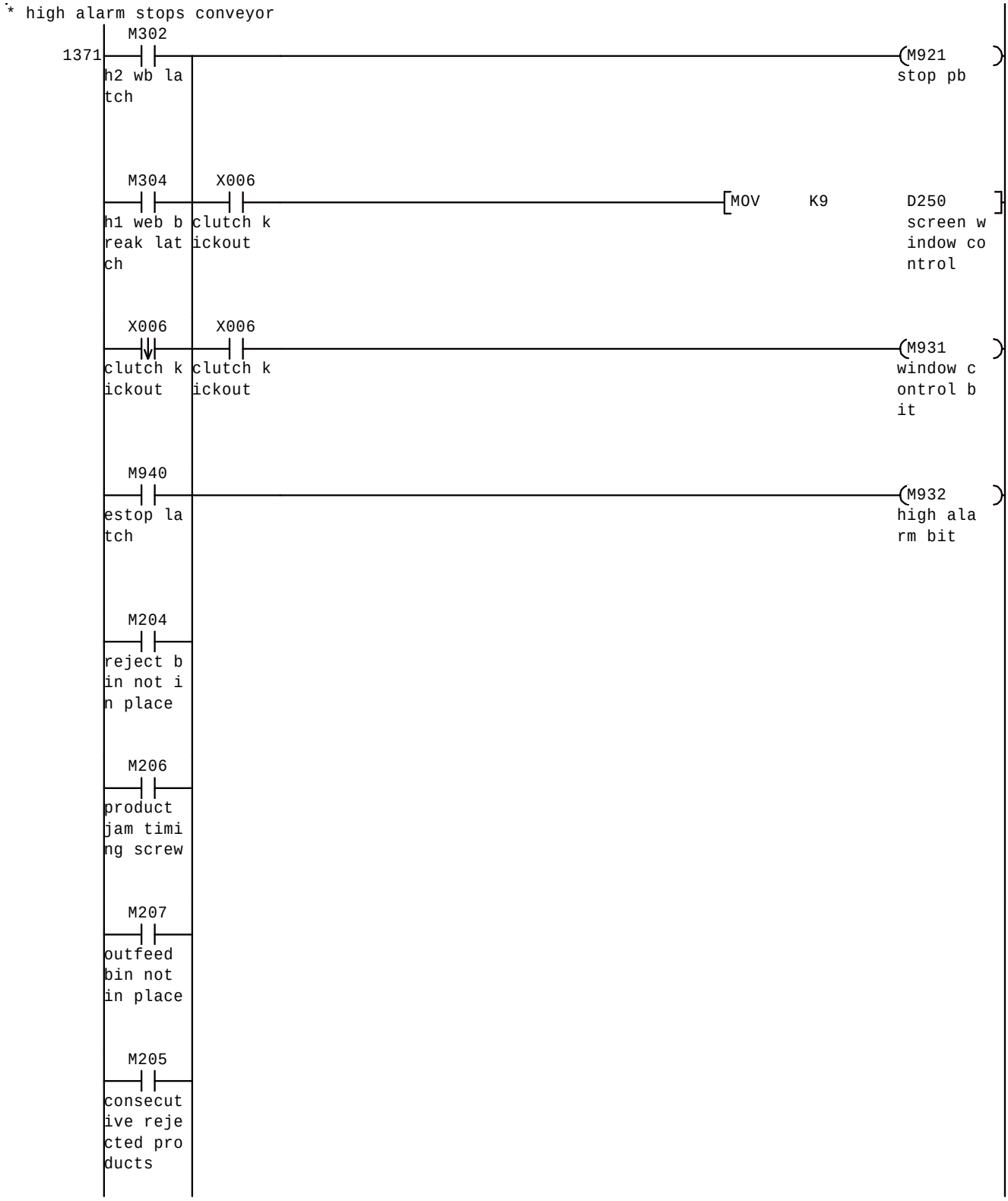


* start of error control

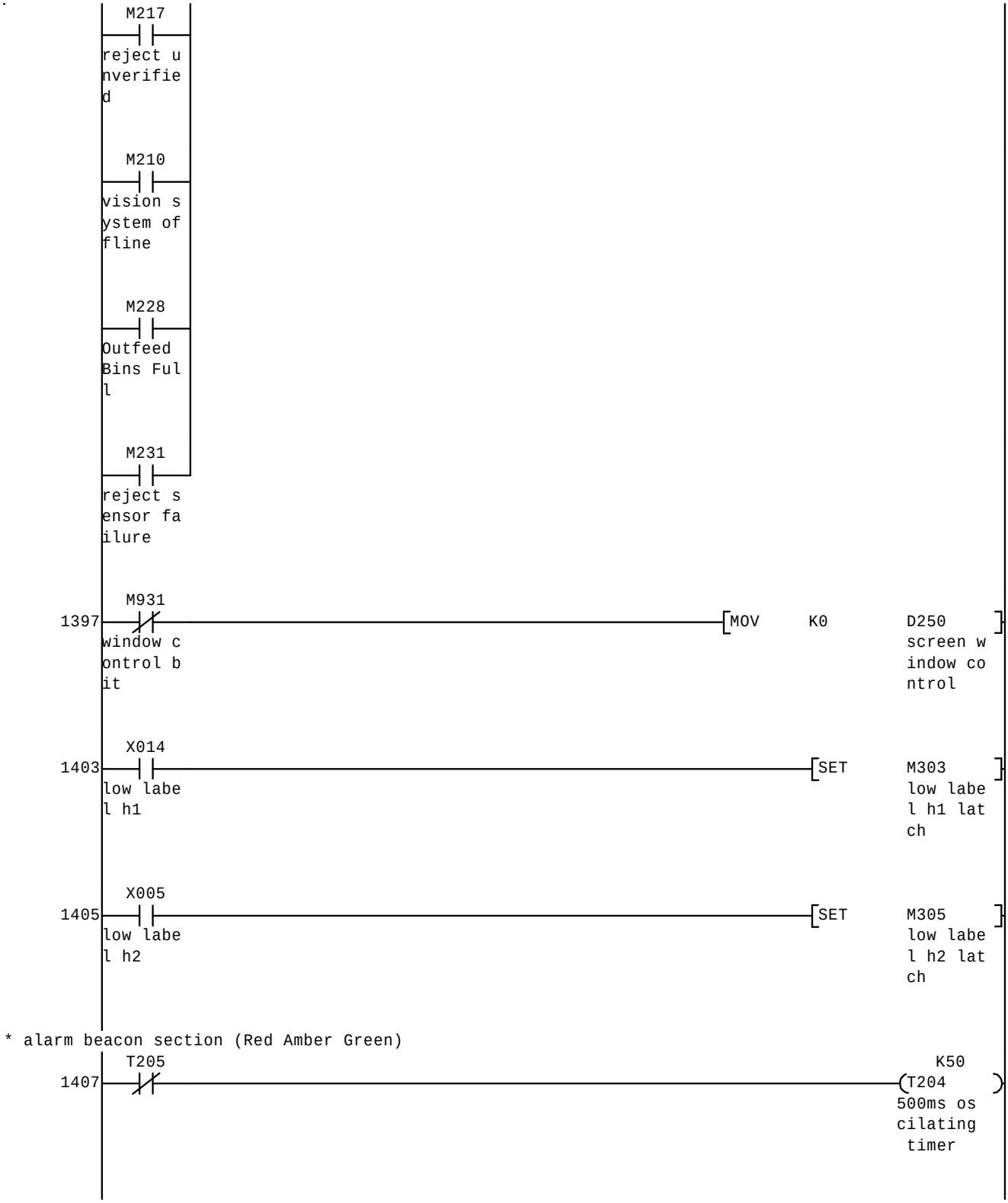
Main System Program (LSI Serial Number 14-0554)
Version: 14-0554K



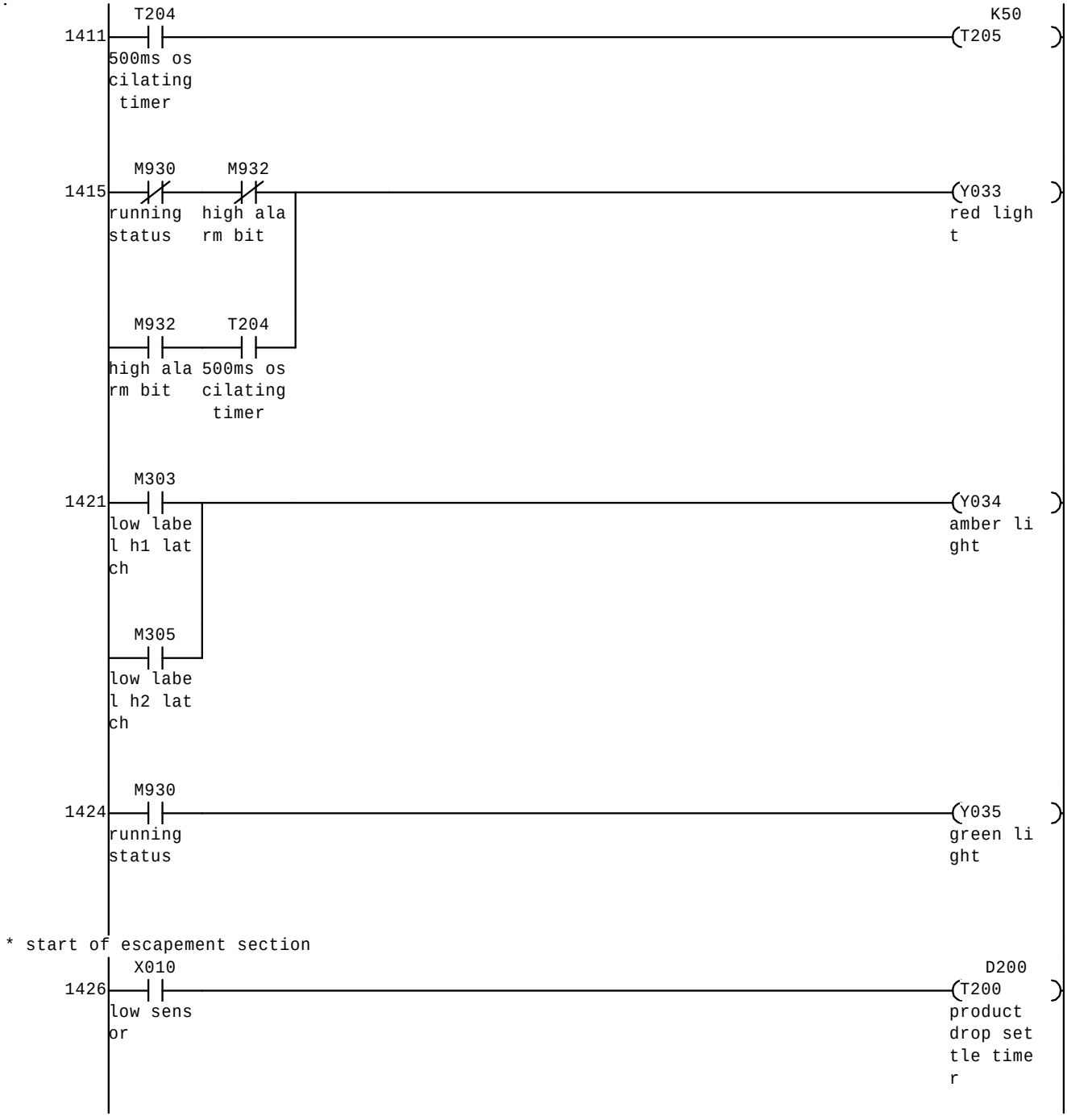
Main System Program (LSI Serial Number 14-0554)
Version: 14-0554K



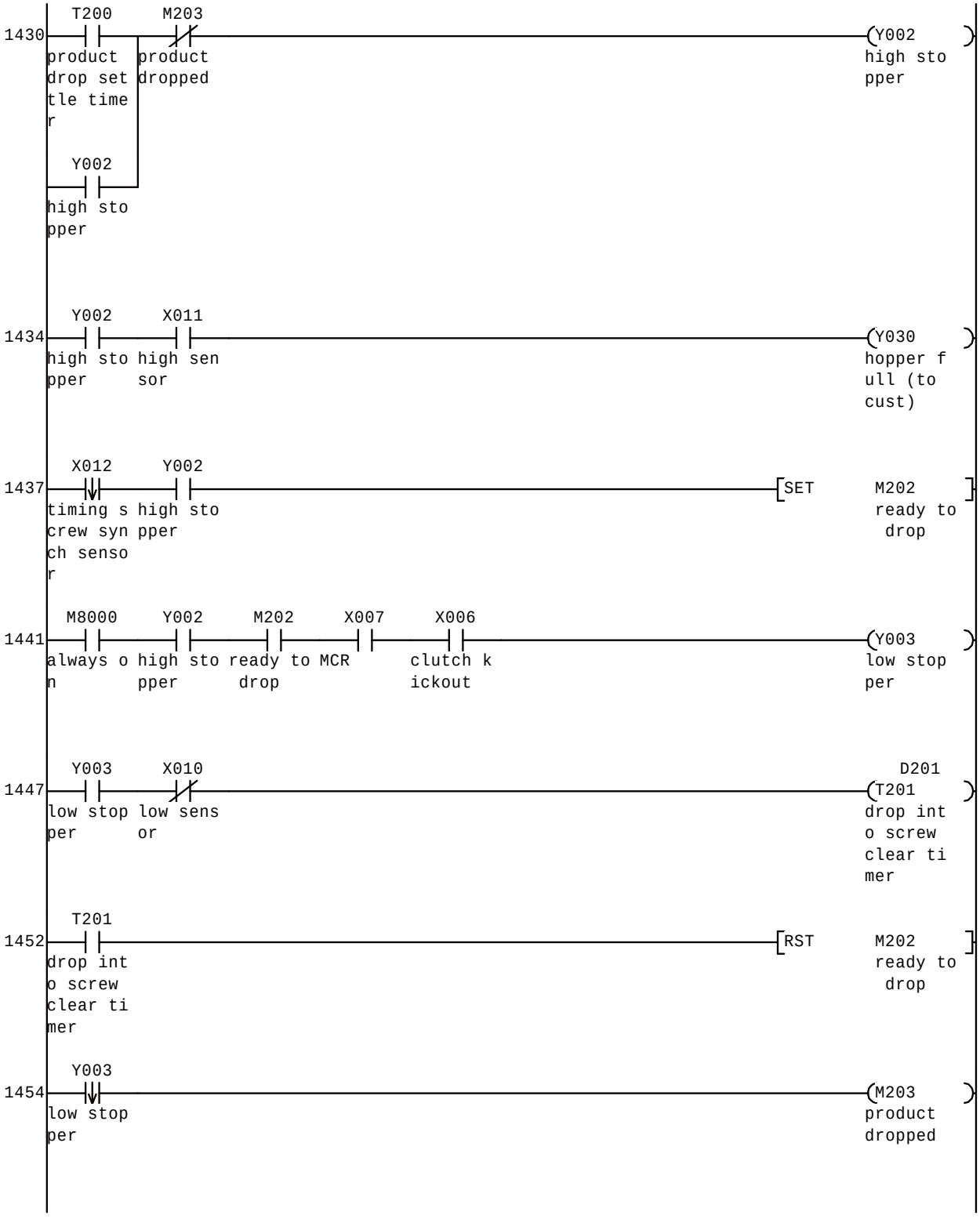
Main System Program (LSI Serial Number 14-0554)
Version: 14-0554K



Main System Program (LSI Serial Number 14-0554)
Version: 14-0554K



Main System Program (LSI Serial Number 14-0554)
Version: 14-0554K



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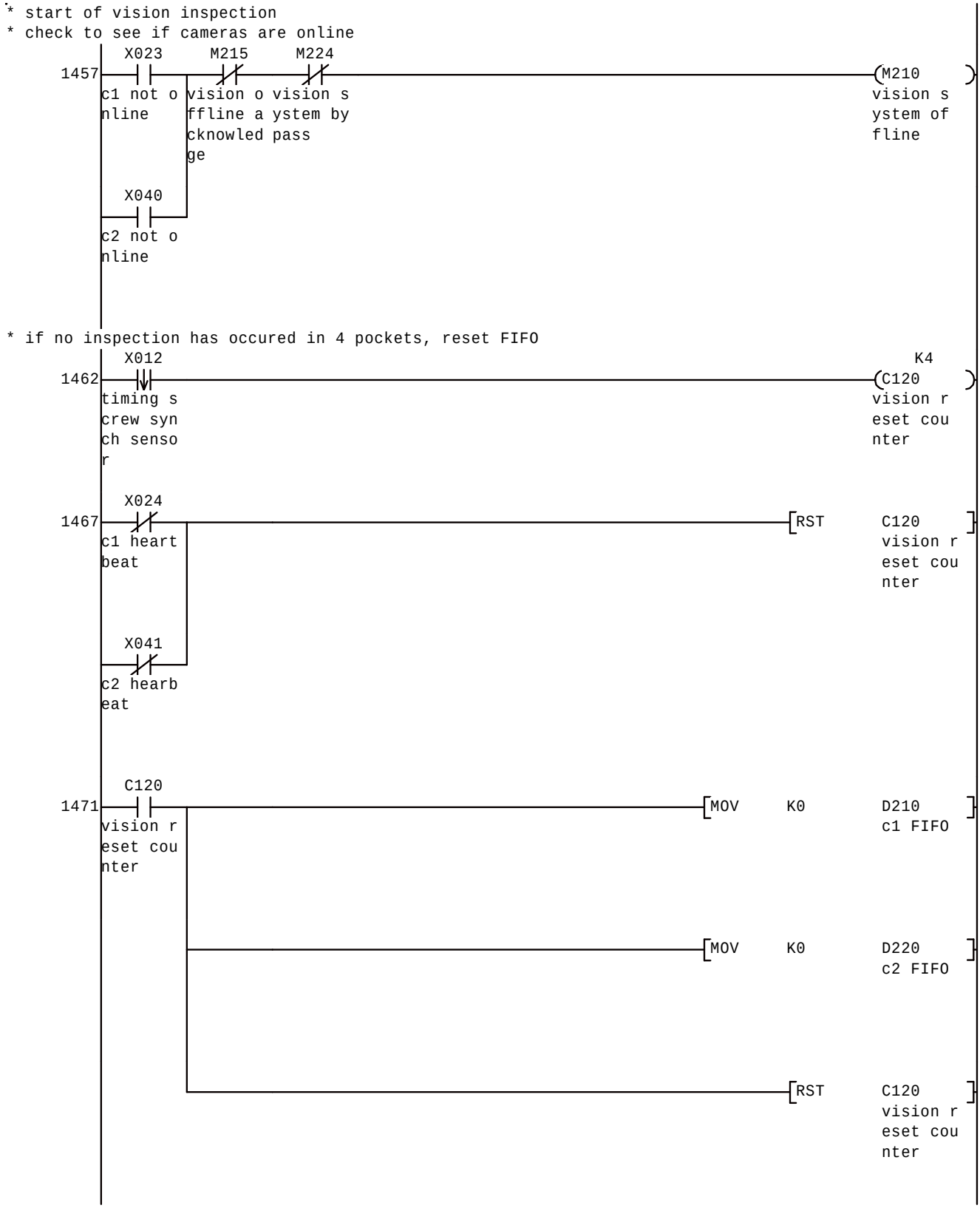
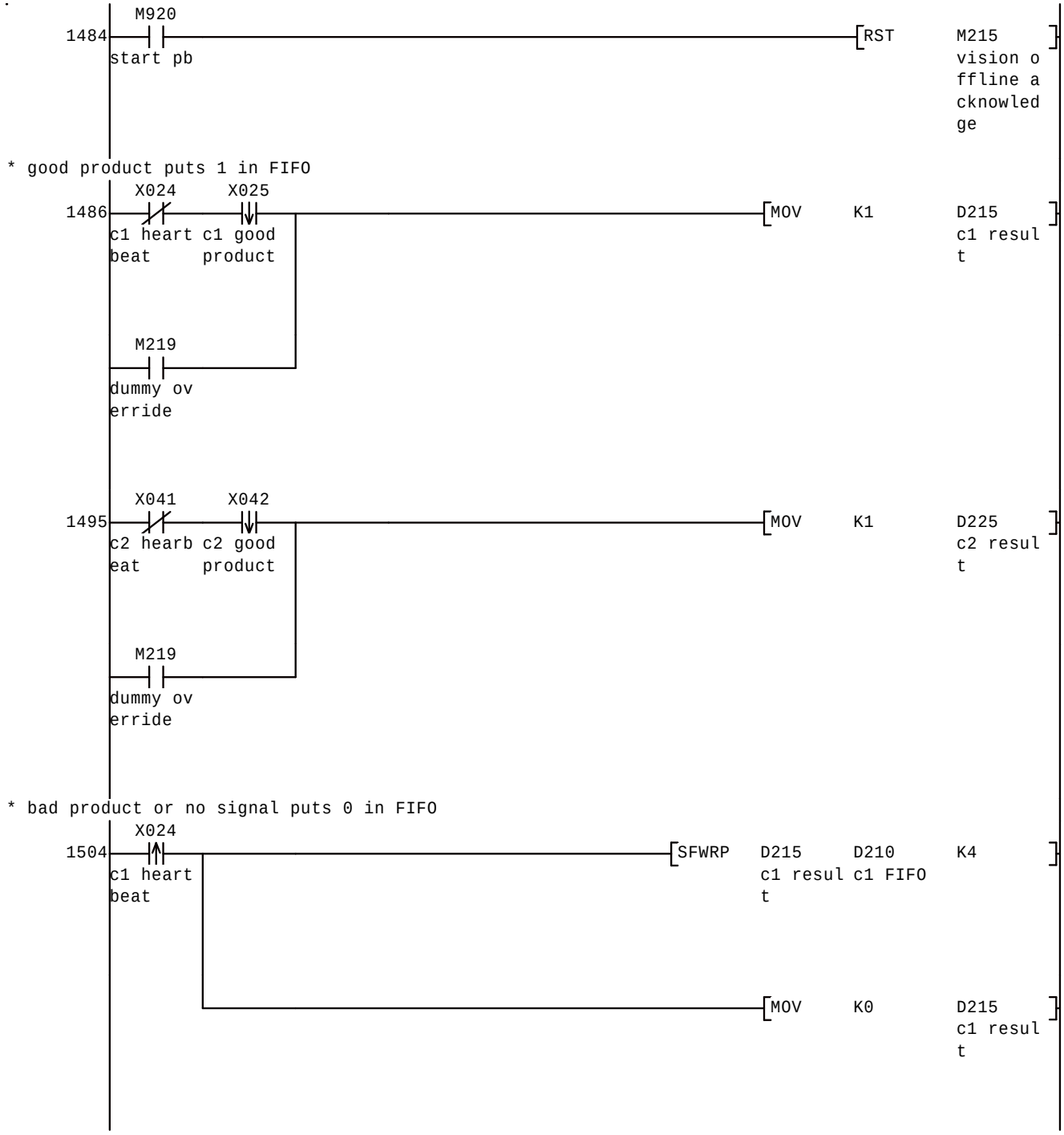
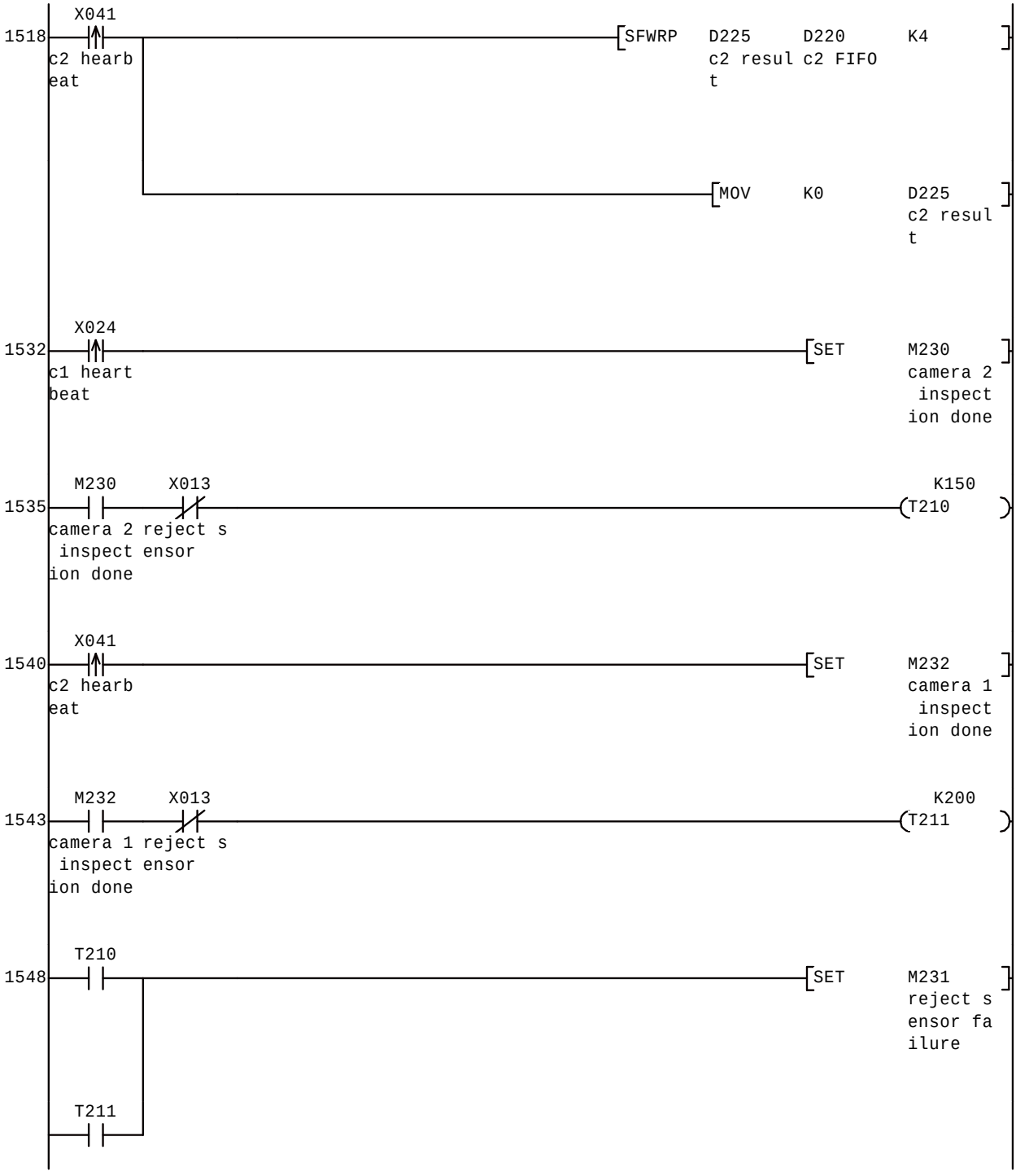
Version: 14-0554K



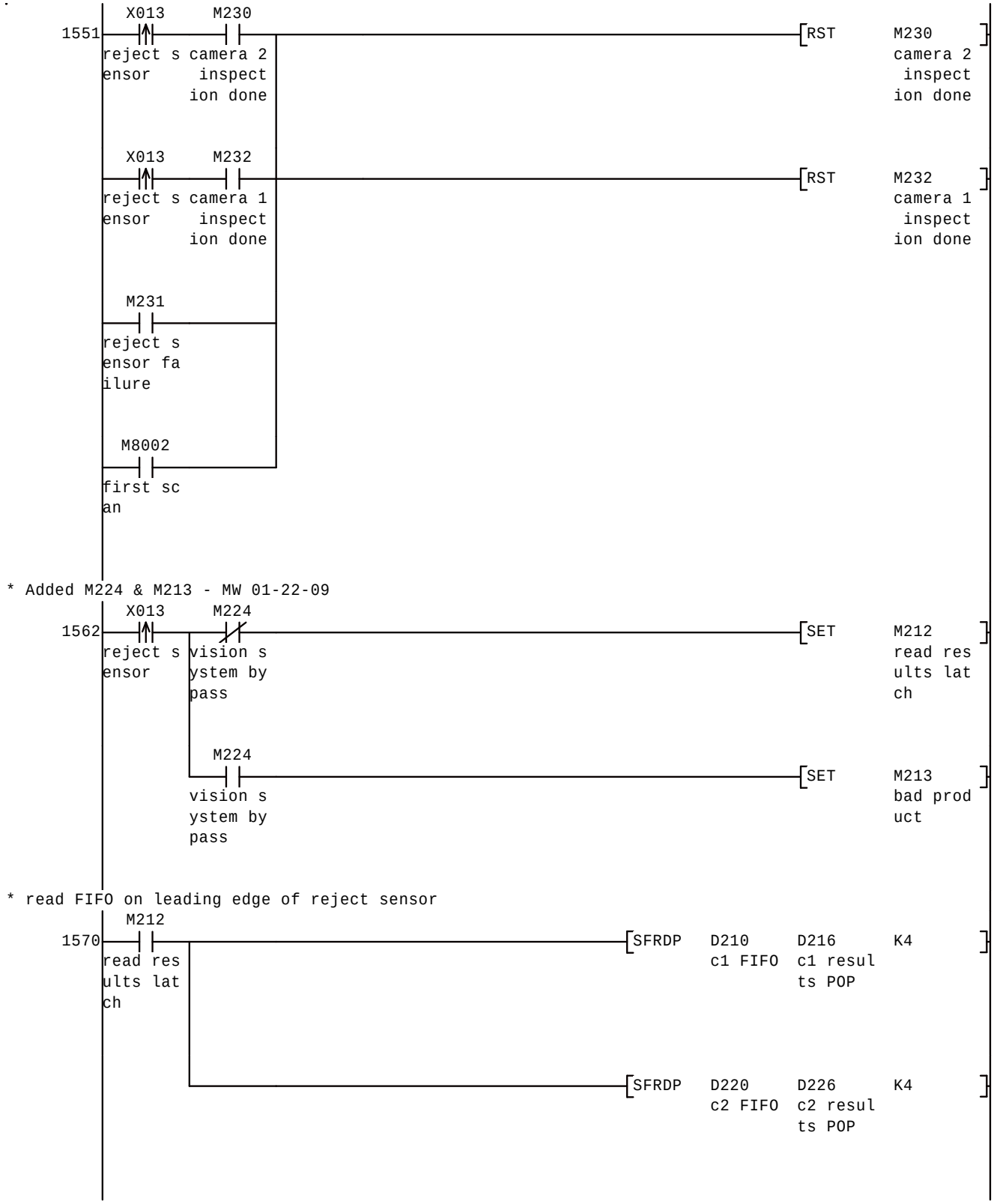
Main System Program (LSI Serial Number 14-0554)
Version: 14-0554K



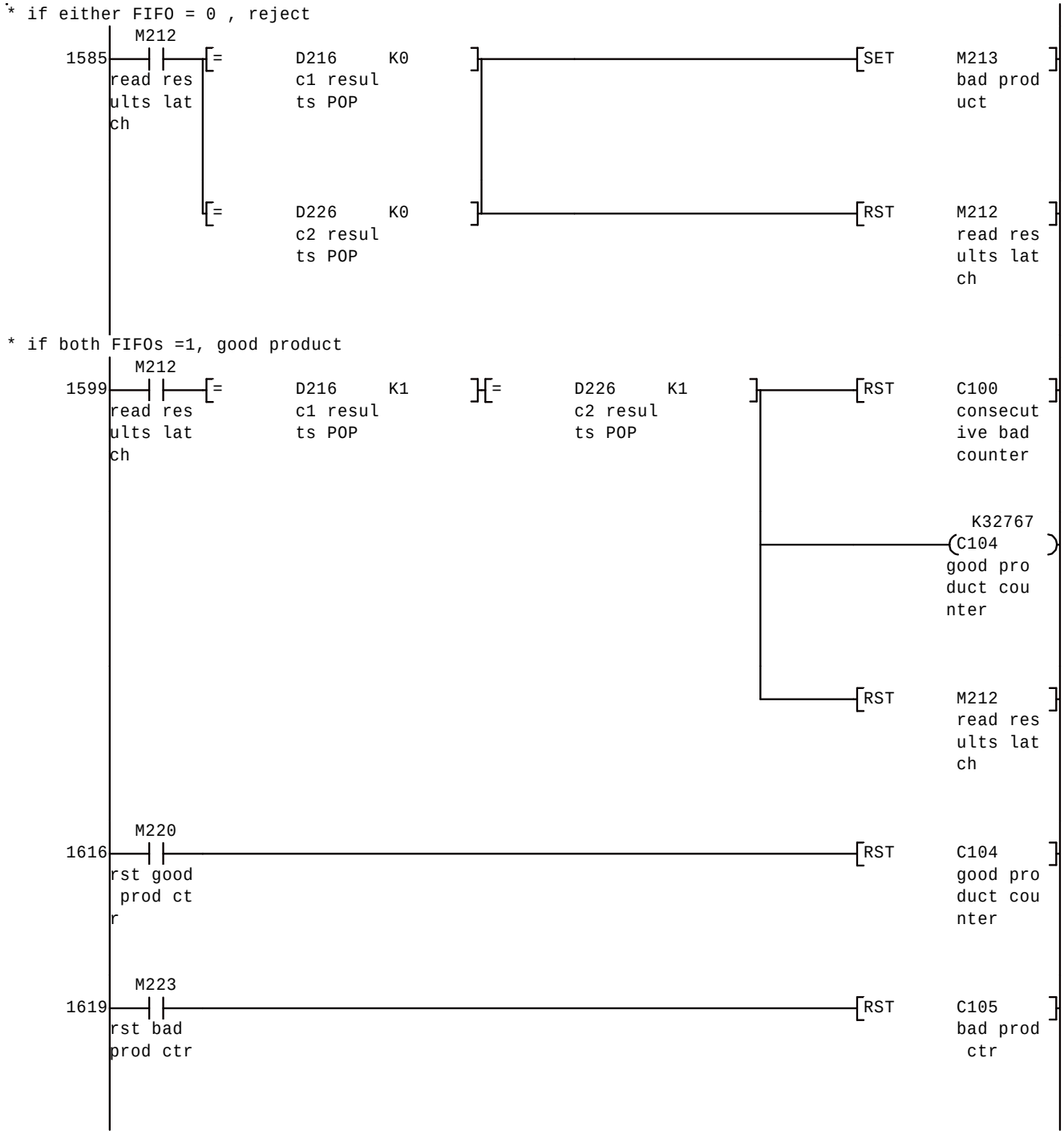
Main System Program (LSI Serial Number 14-0554)
Version: 14-0554K



Main System Program (LSI Serial Number 14-0554)
Version: 14-0554K



Main System Program (LSI Serial Number 14-0554)
Version: 14-0554K



Main System Program (LSI Serial Number 14-0554)
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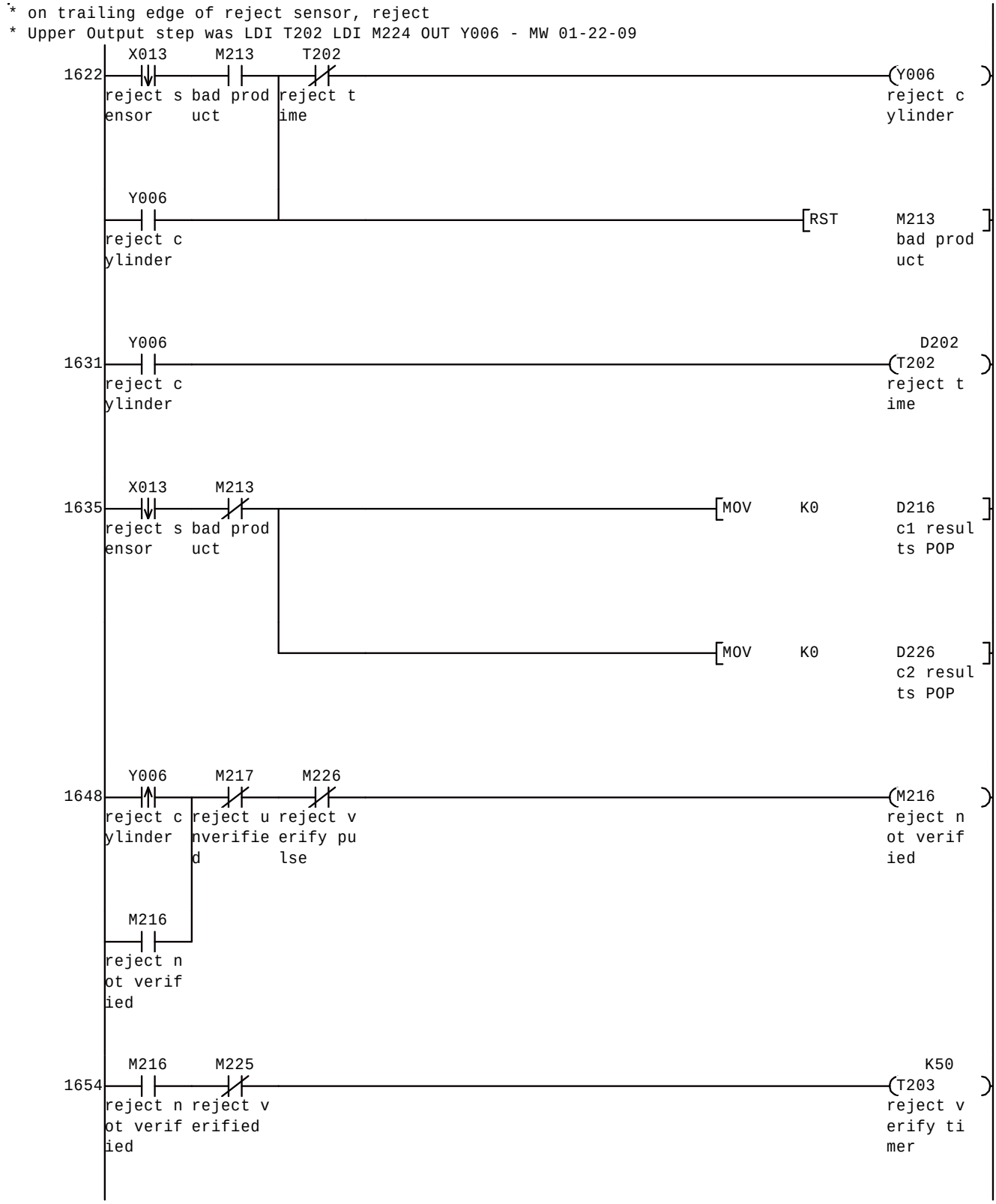
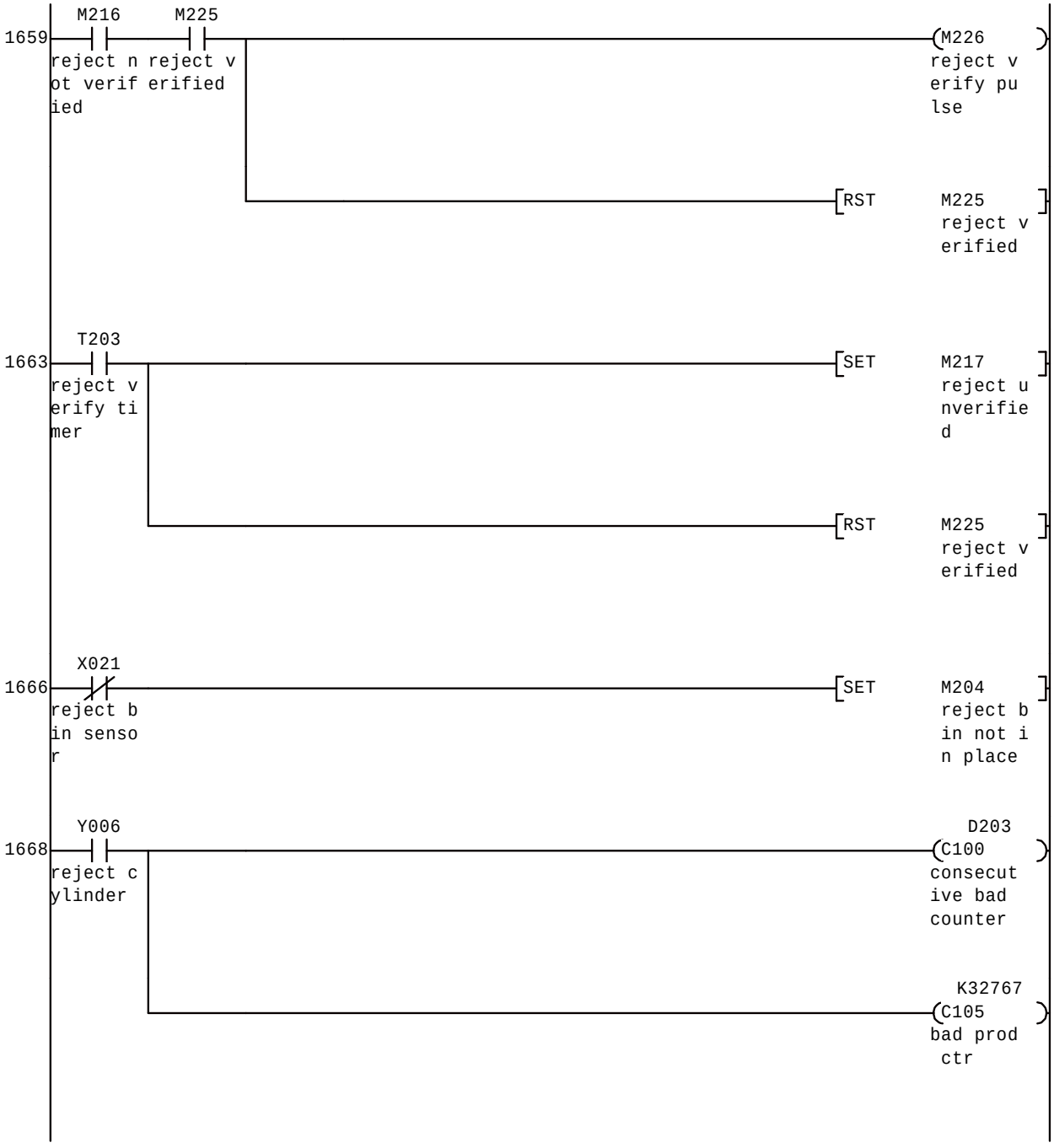
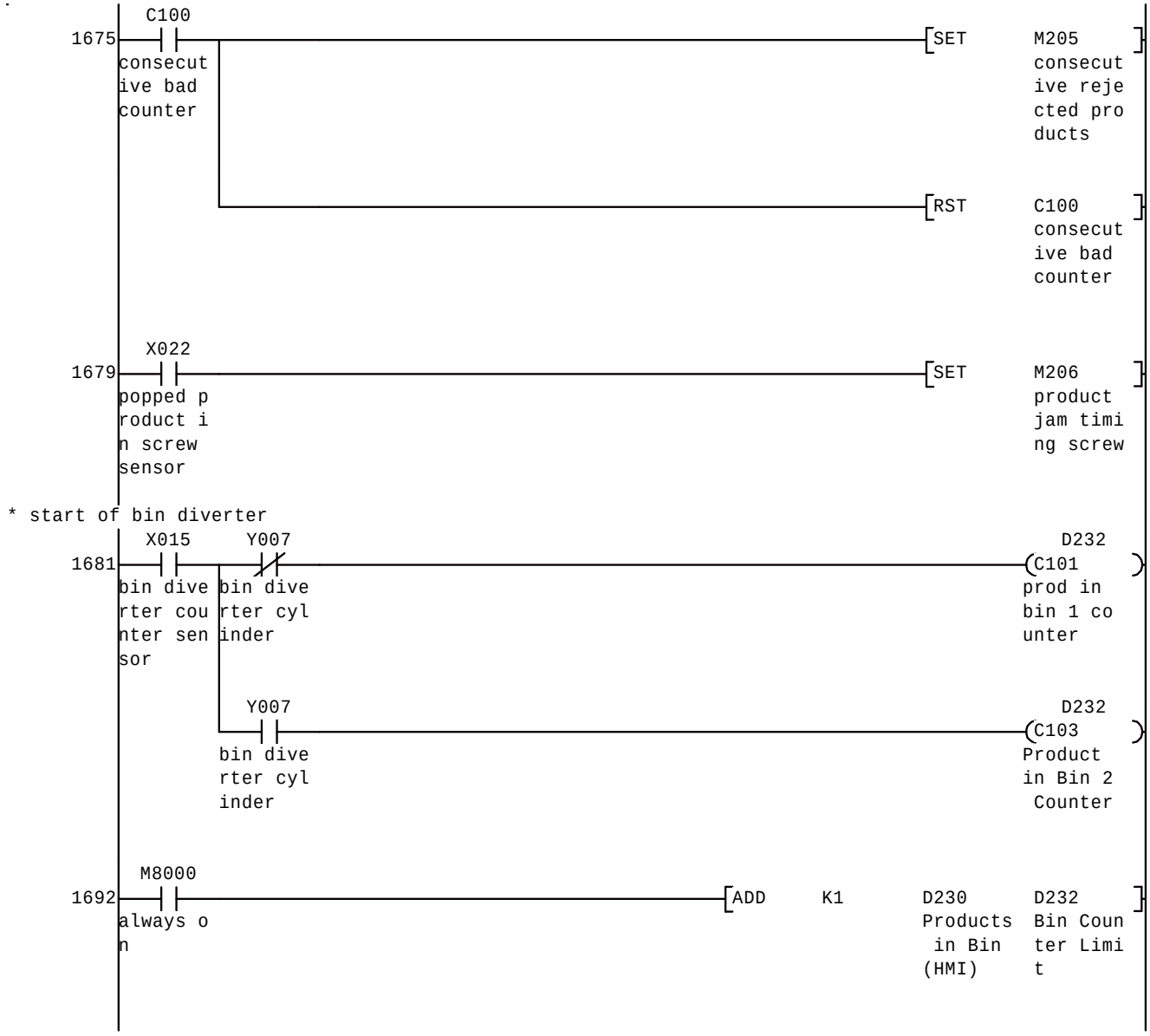


Main System Program (LSI Serial Number 14-0554)
Version: 14-0554K



Main System Program (LSI Serial Number 14-0554)
Version: 14-0554K



Main System Program (LSI Serial Number 14-0554)
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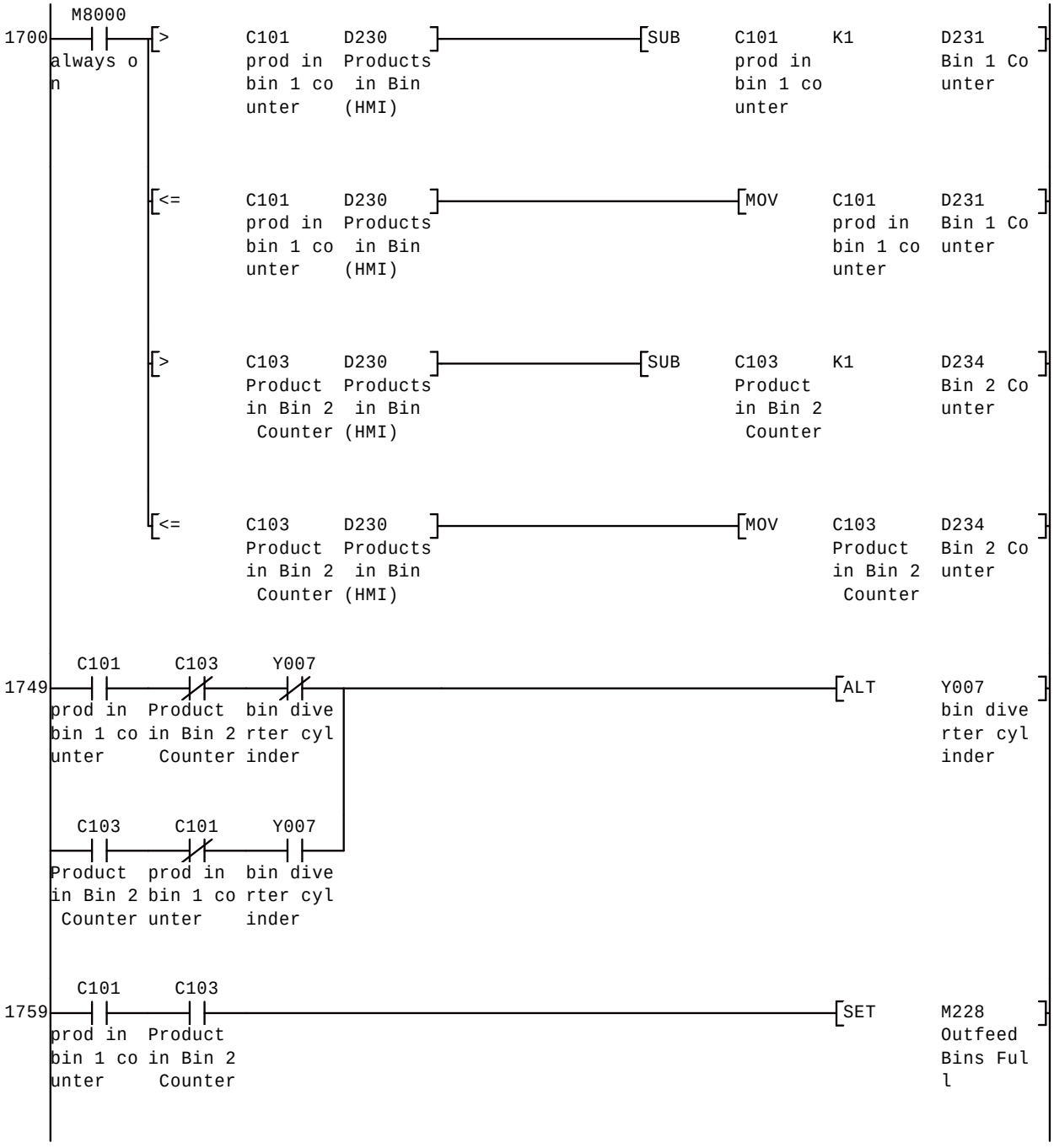

Main System Program (LSI Serial Number 14-0554)
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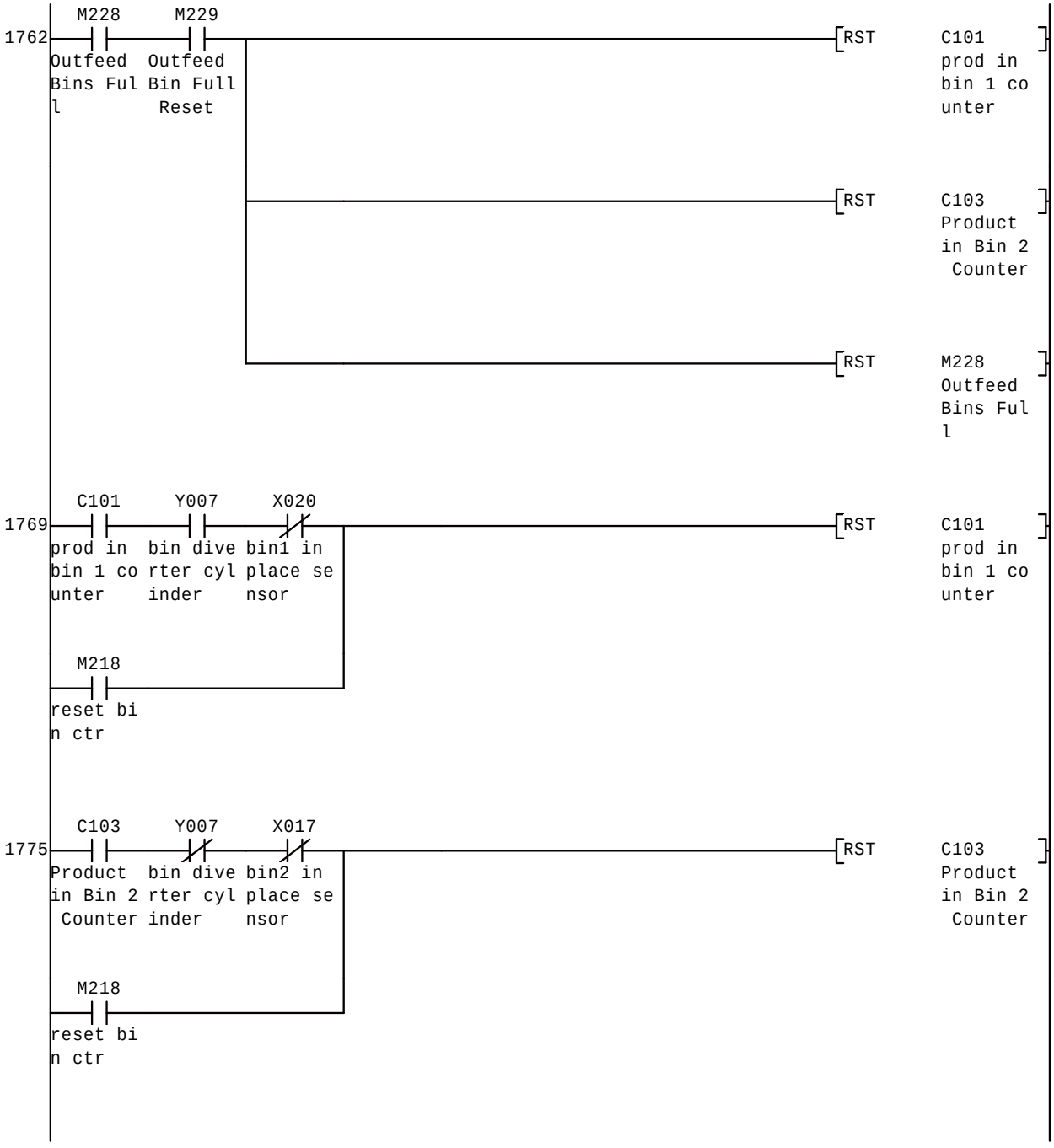

Main System Program (LSI Serial Number 14-0554)
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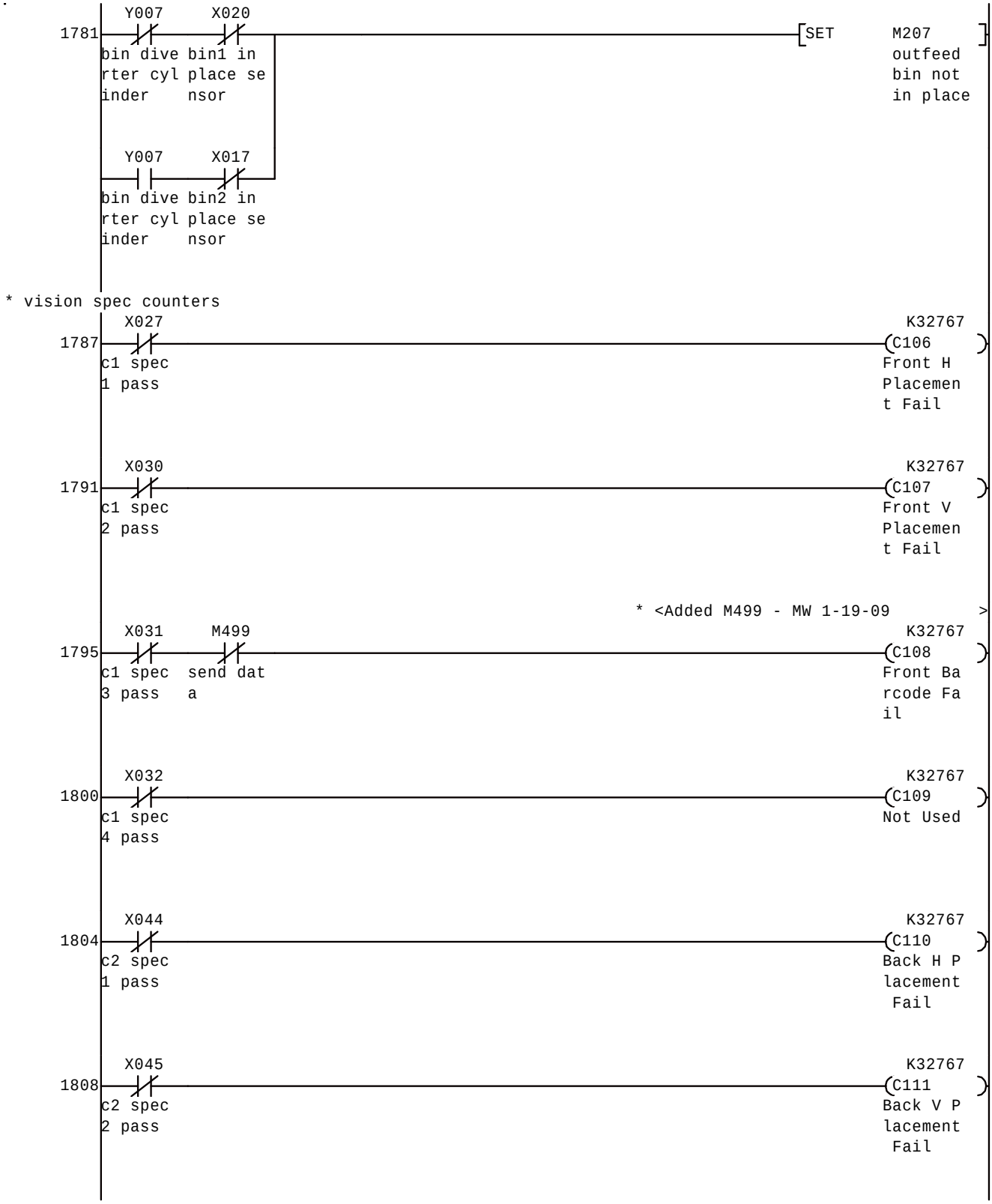
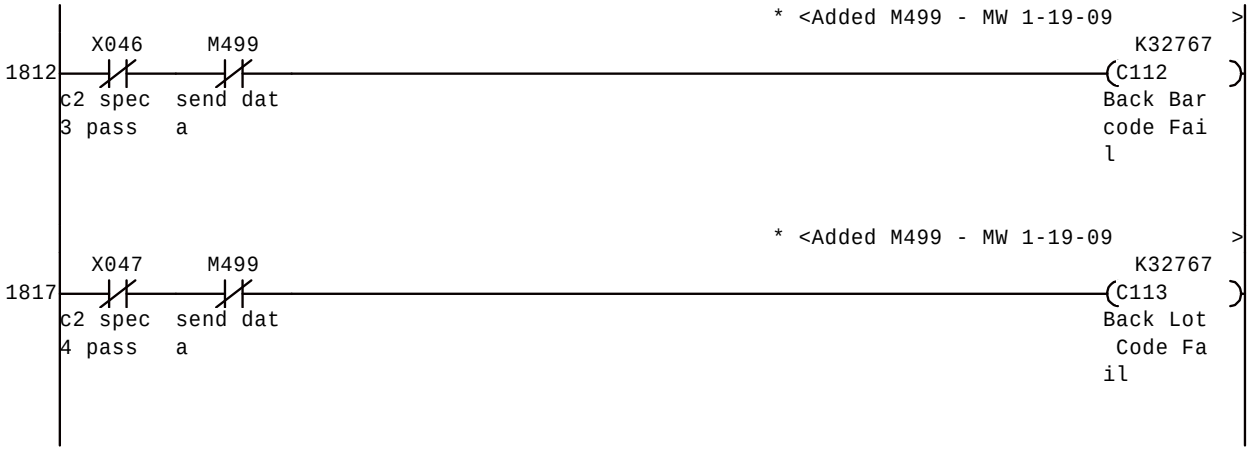
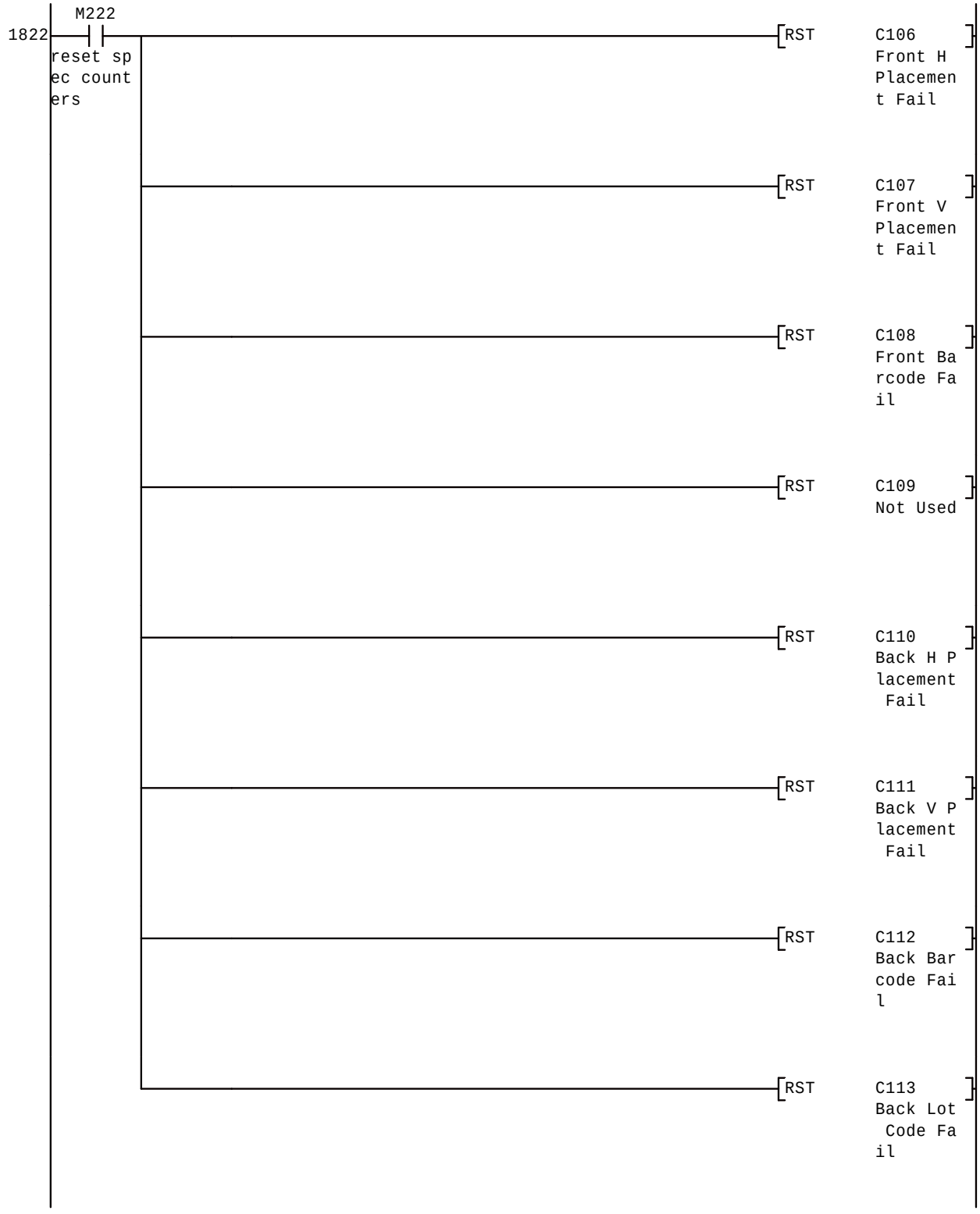


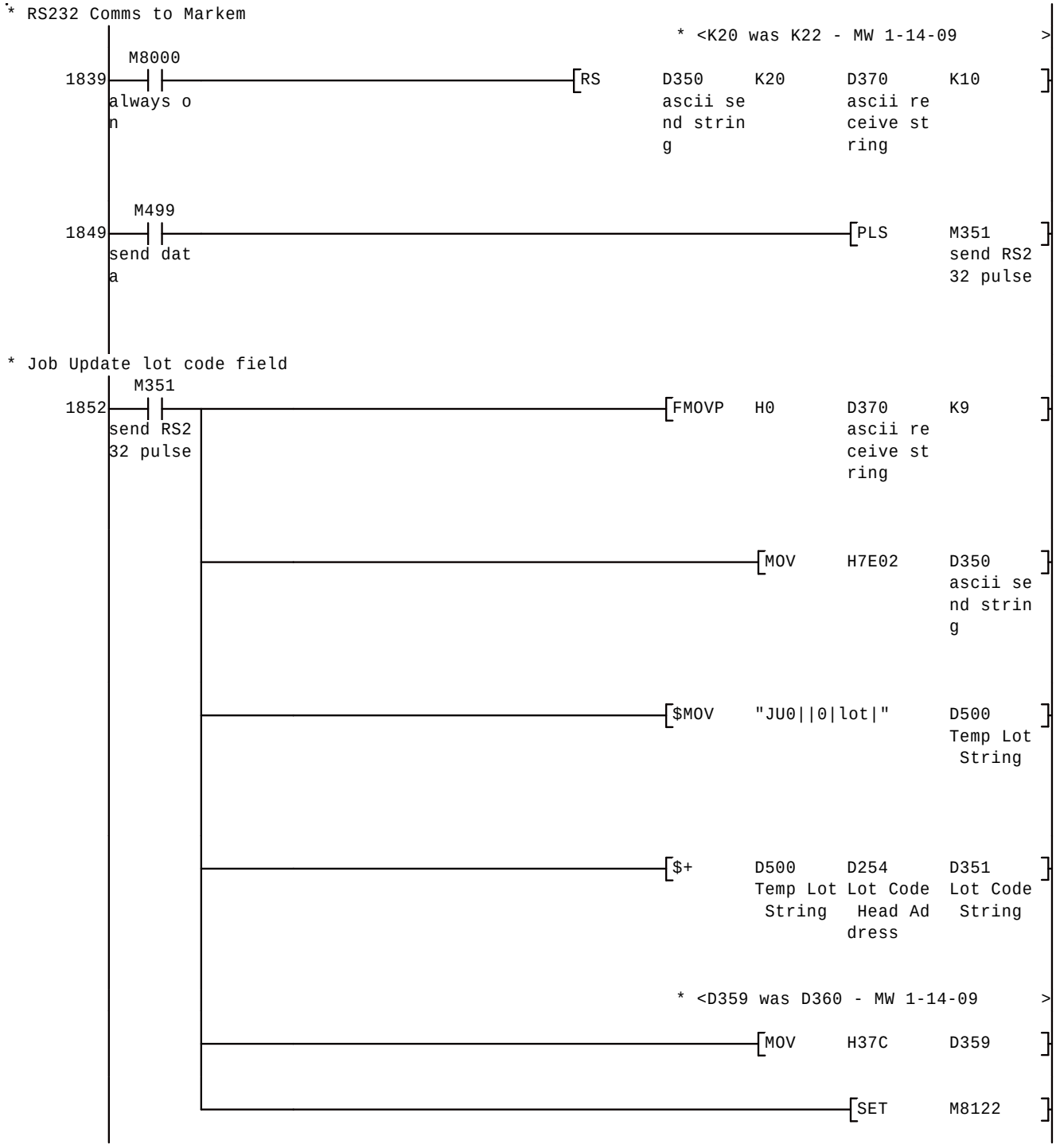
Main System Program (LSI Serial Number 14-0554)
Version: 14-0554K



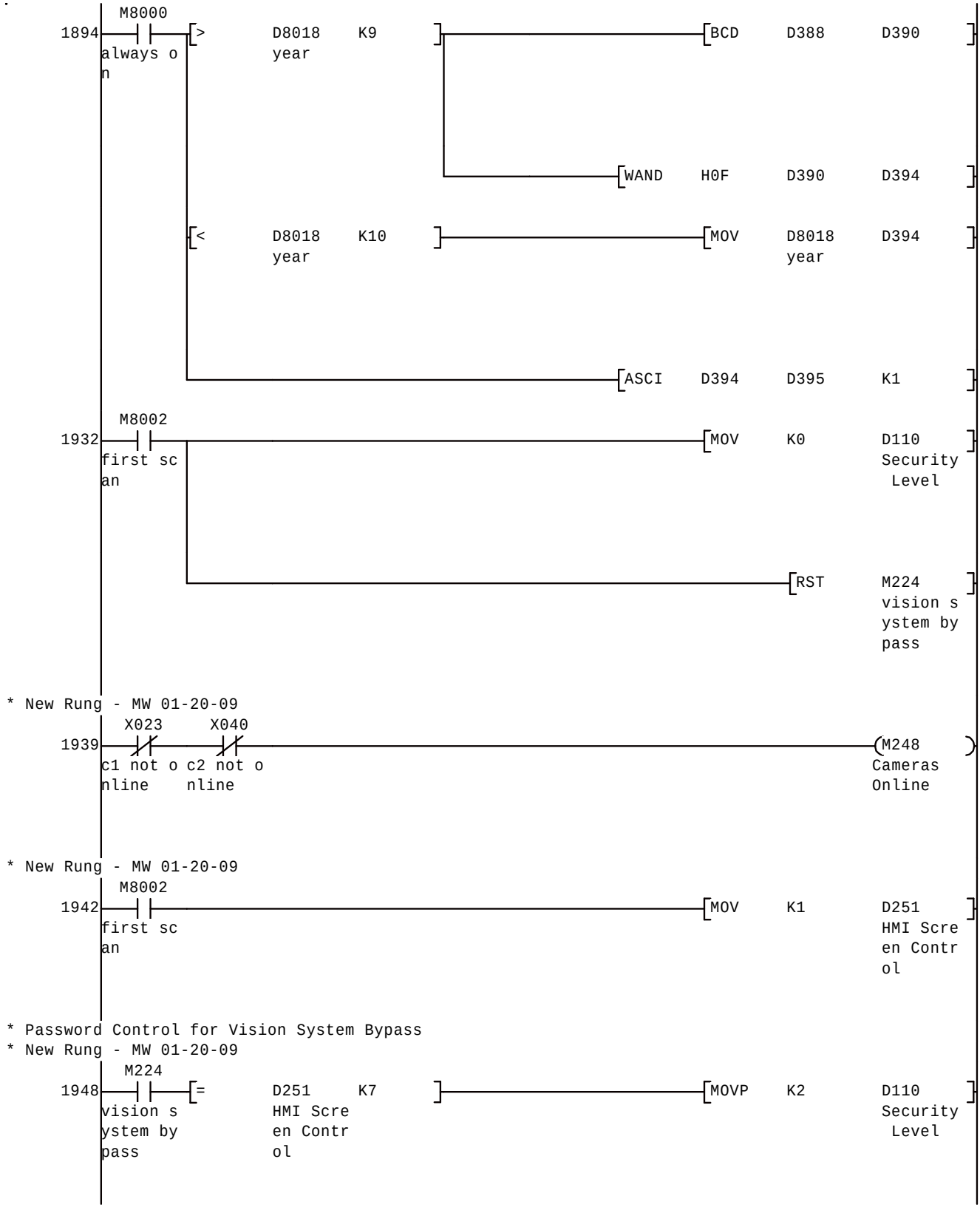
Main System Program (LSI Serial Number 14-0554)
Version: 14-0554K



Main System Program (LSI Serial Number 14-0554)
Version: 14-0554K

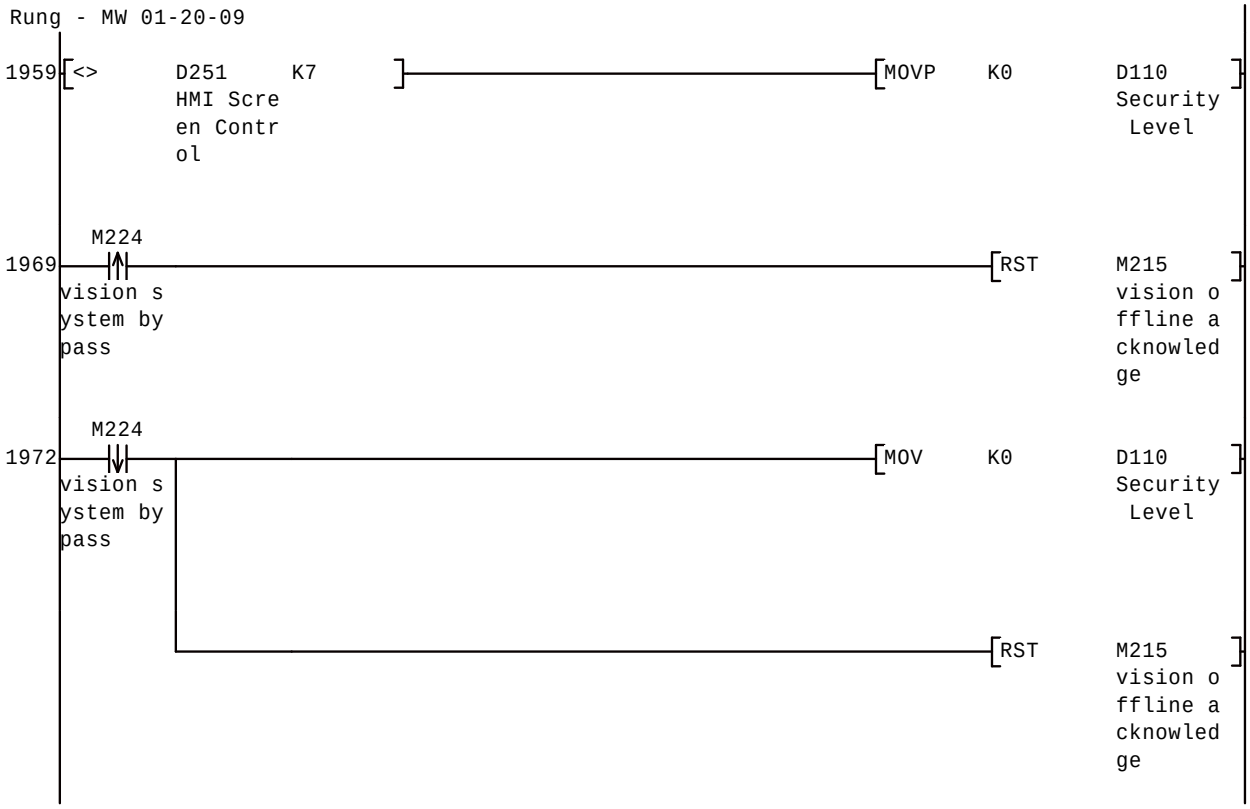


Main System Program (LSI Serial Number 14-0554)
Version: 14-0554K



Main System Program (LSI Serial Number 14-0554)
Version: 14-0554K

* New Rung - MW 01-20-09



Main System Program (LSI Serial Number 14-0554)
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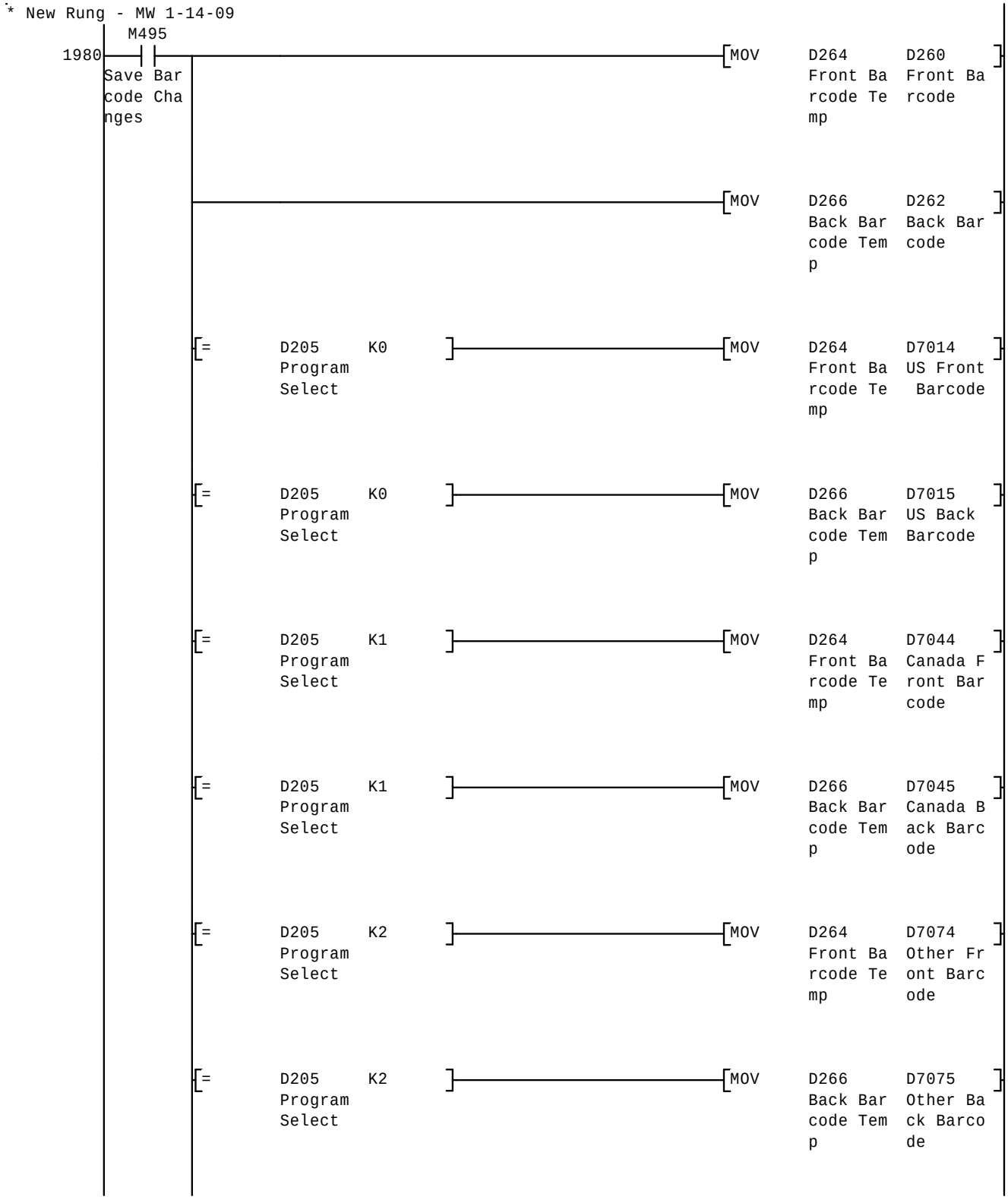

Main System Program (LSI Serial Number 14-0554)
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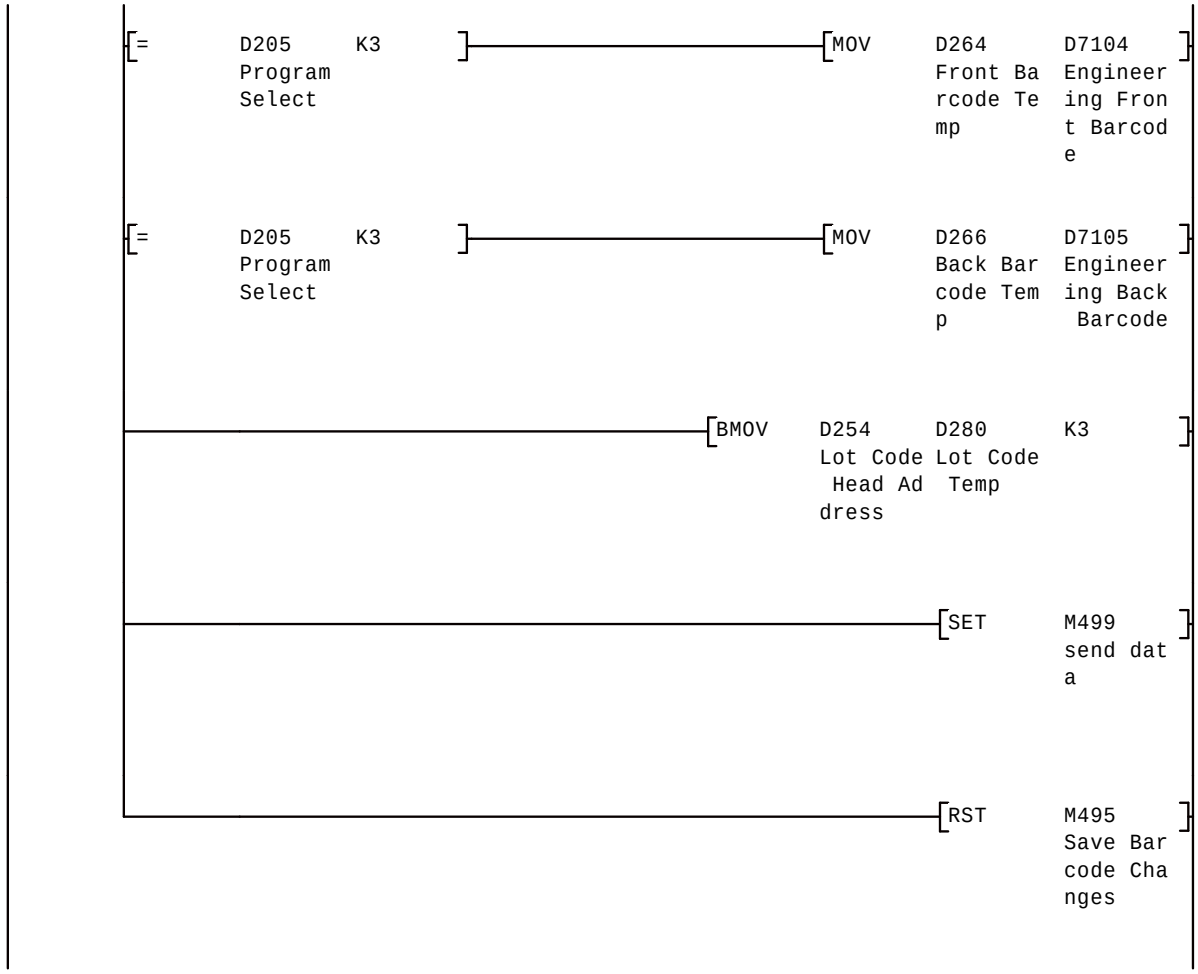
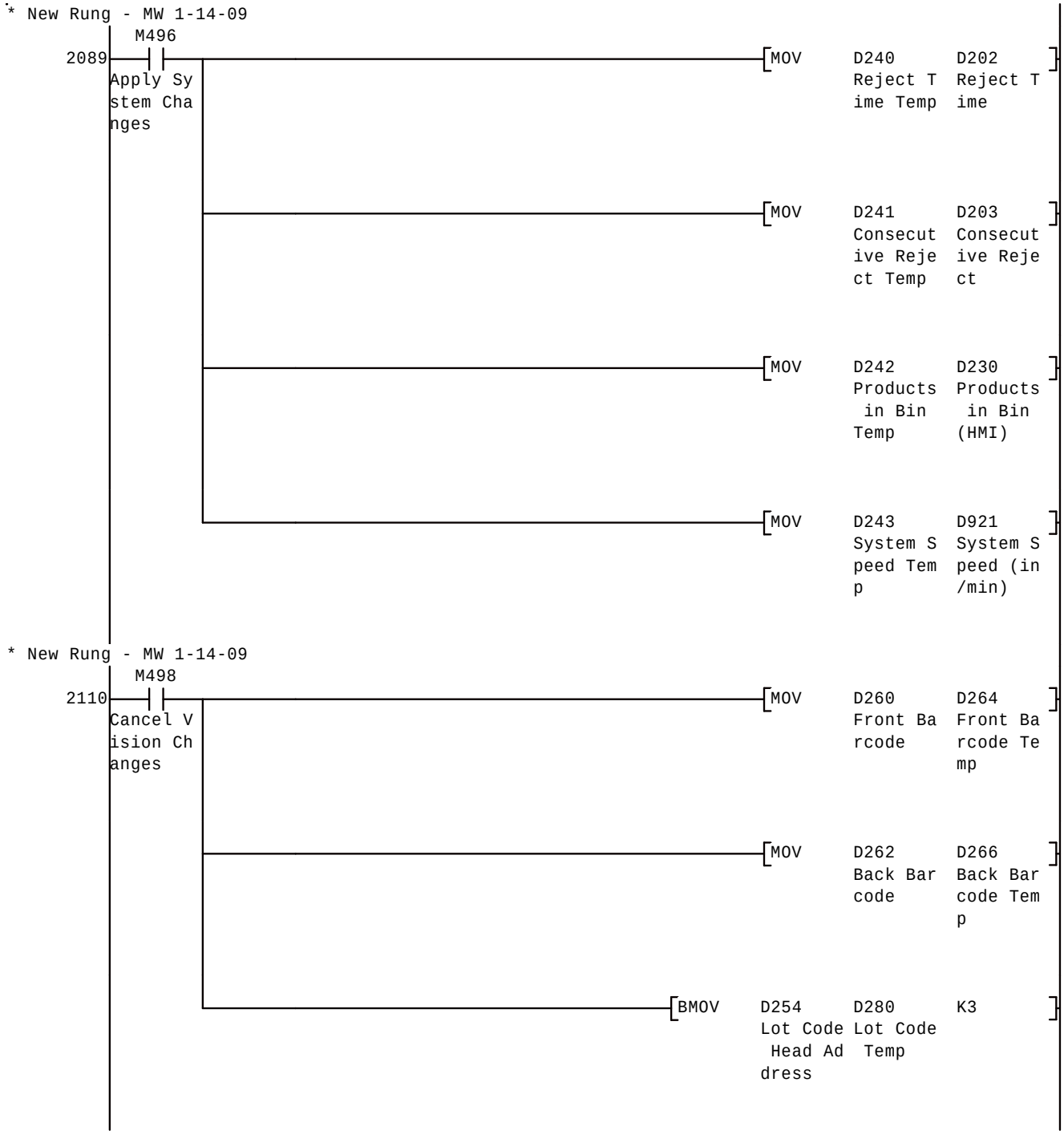
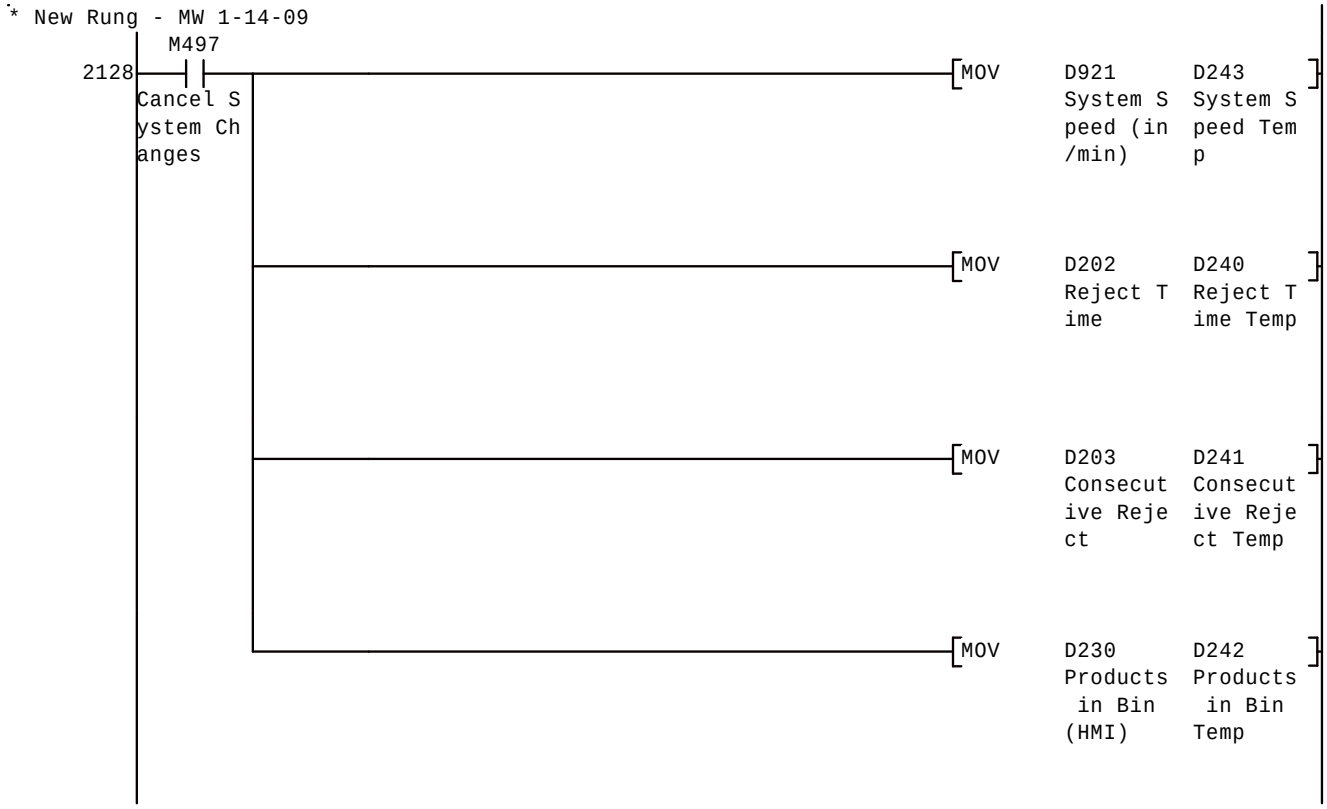


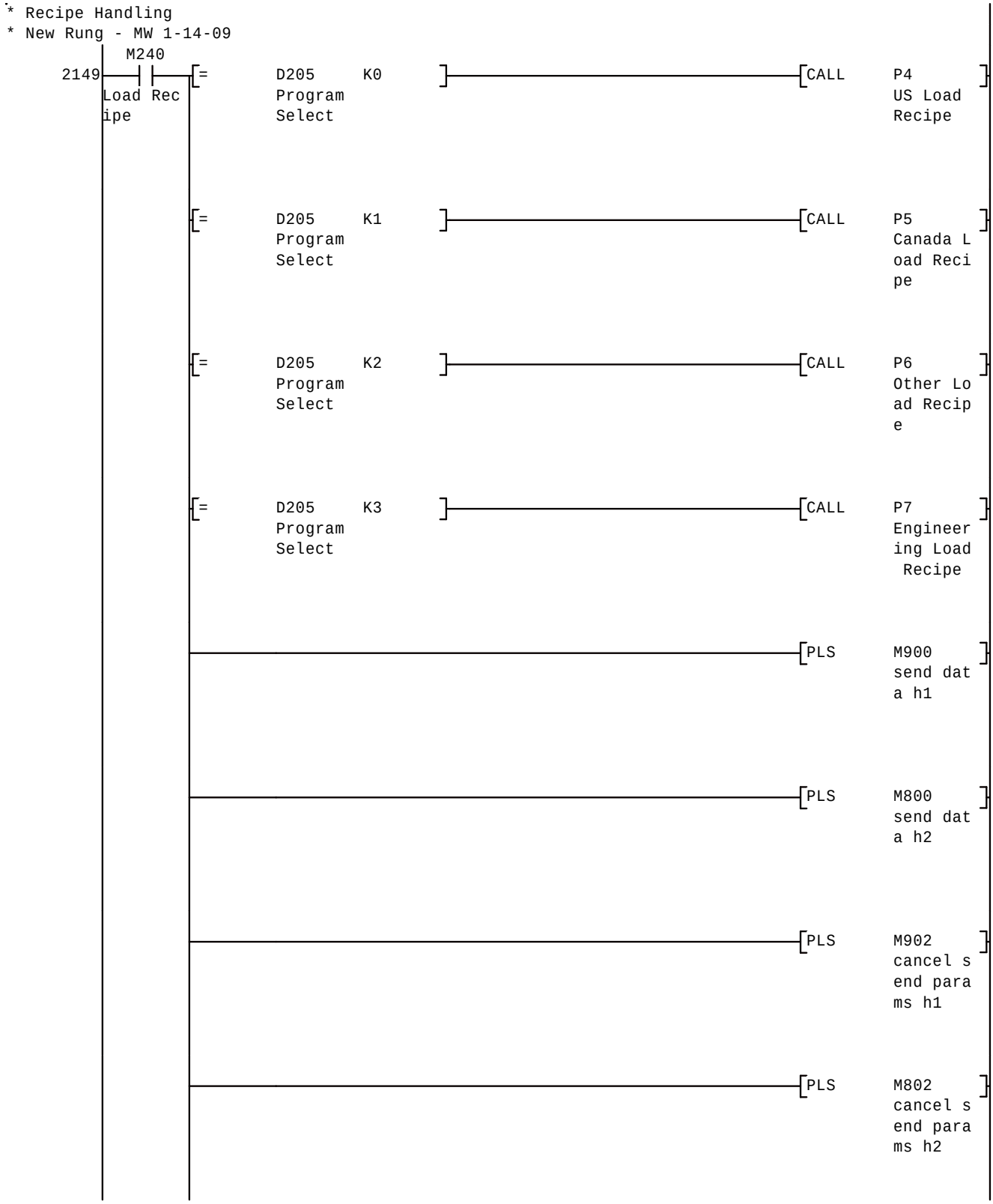
Main System Program (LSI Serial Number 14-0554)
Version: 14-0554K



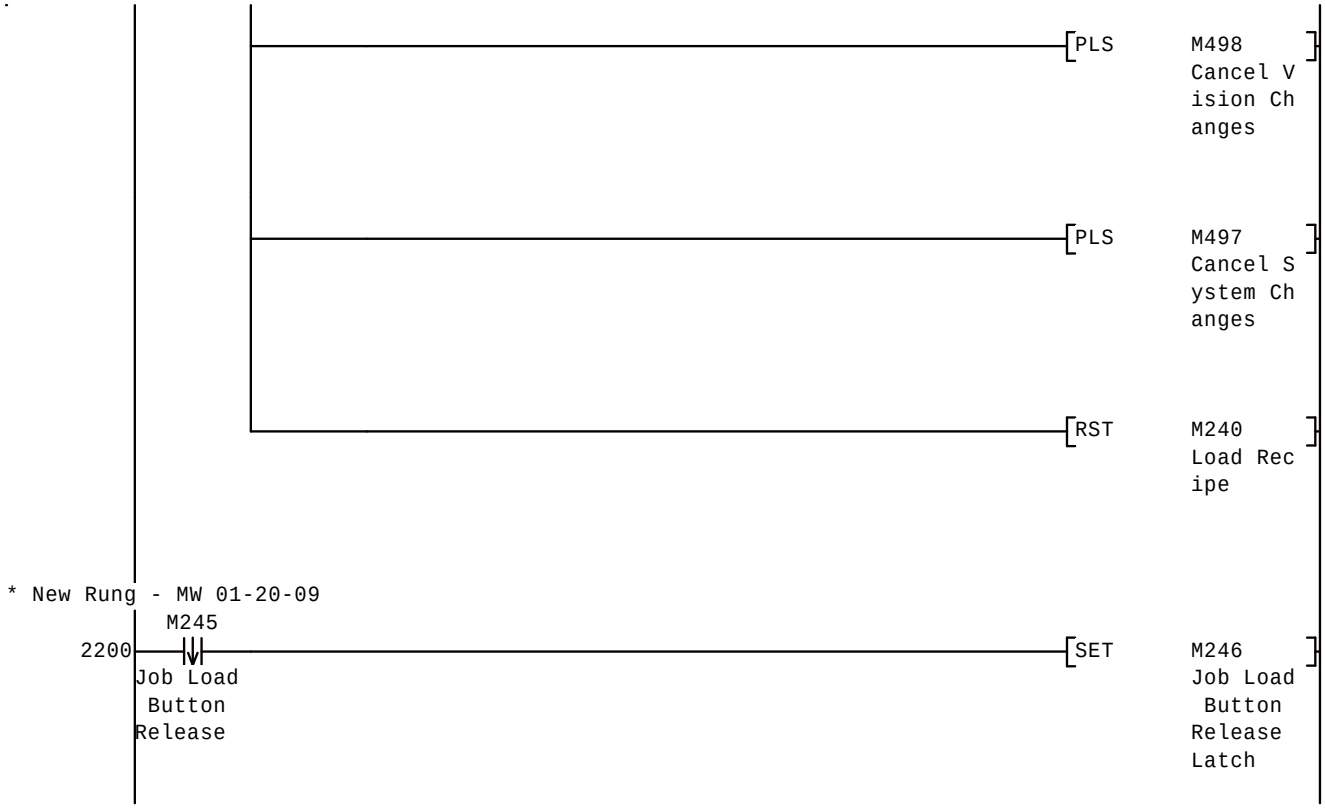
Main System Program (LSI Serial Number 14-0554)
Version: 14-0554K



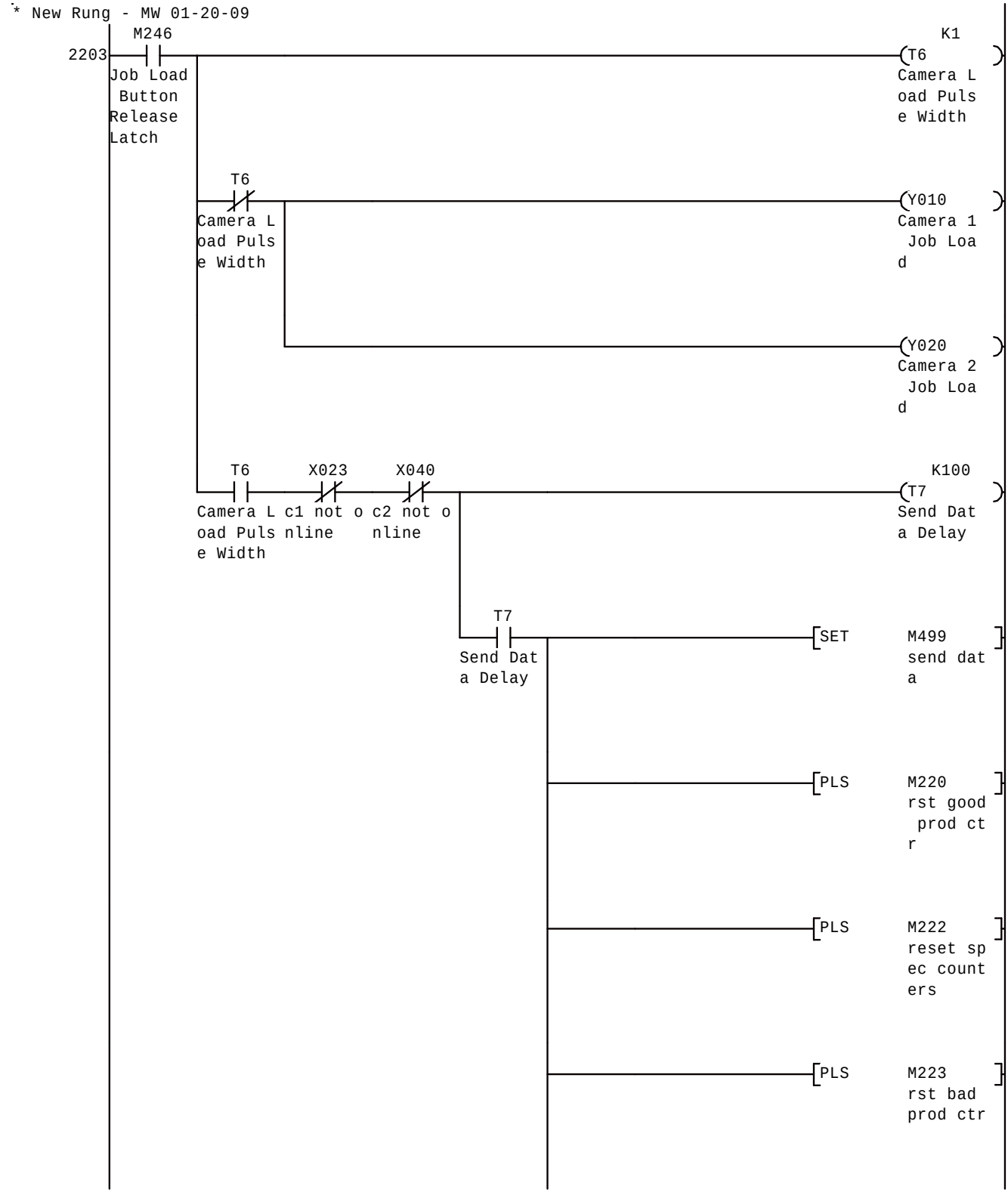
Main System Program (LSI Serial Number 14-0554)
Version: 14-0554K



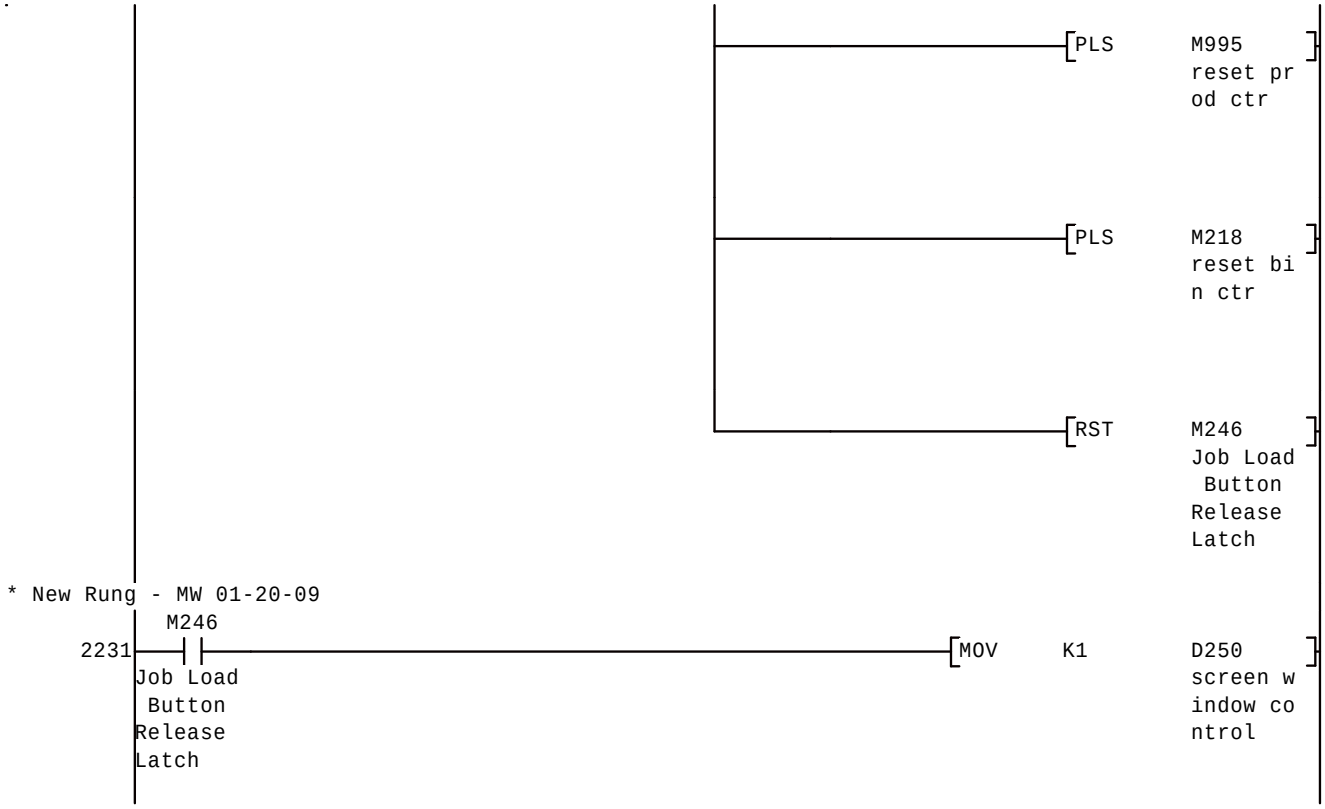
Main System Program (LSI Serial Number 14-0554)
Version: 14-0554K



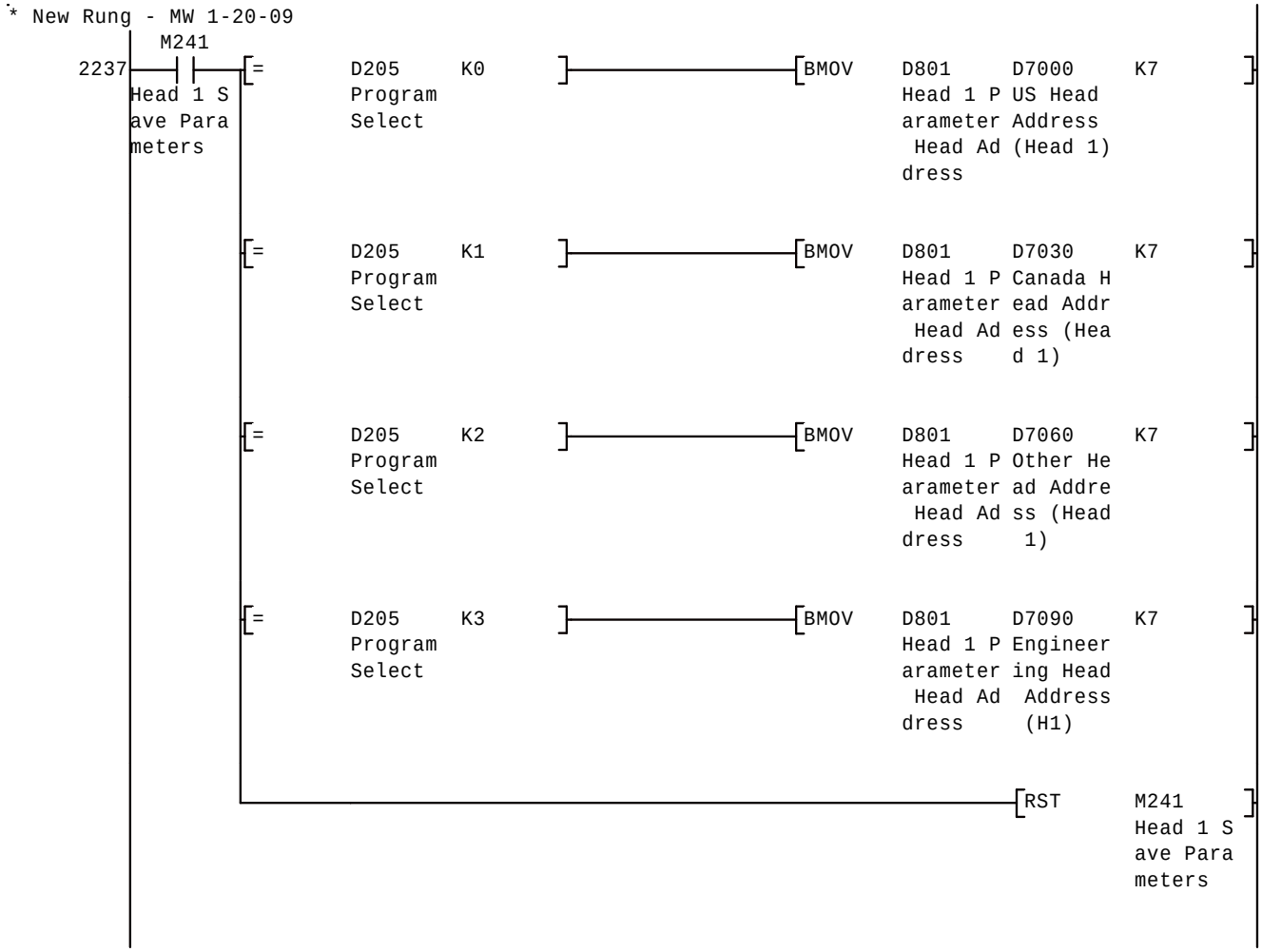
Main System Program (LSI Serial Number 14-0554)
Version: 14-0554K



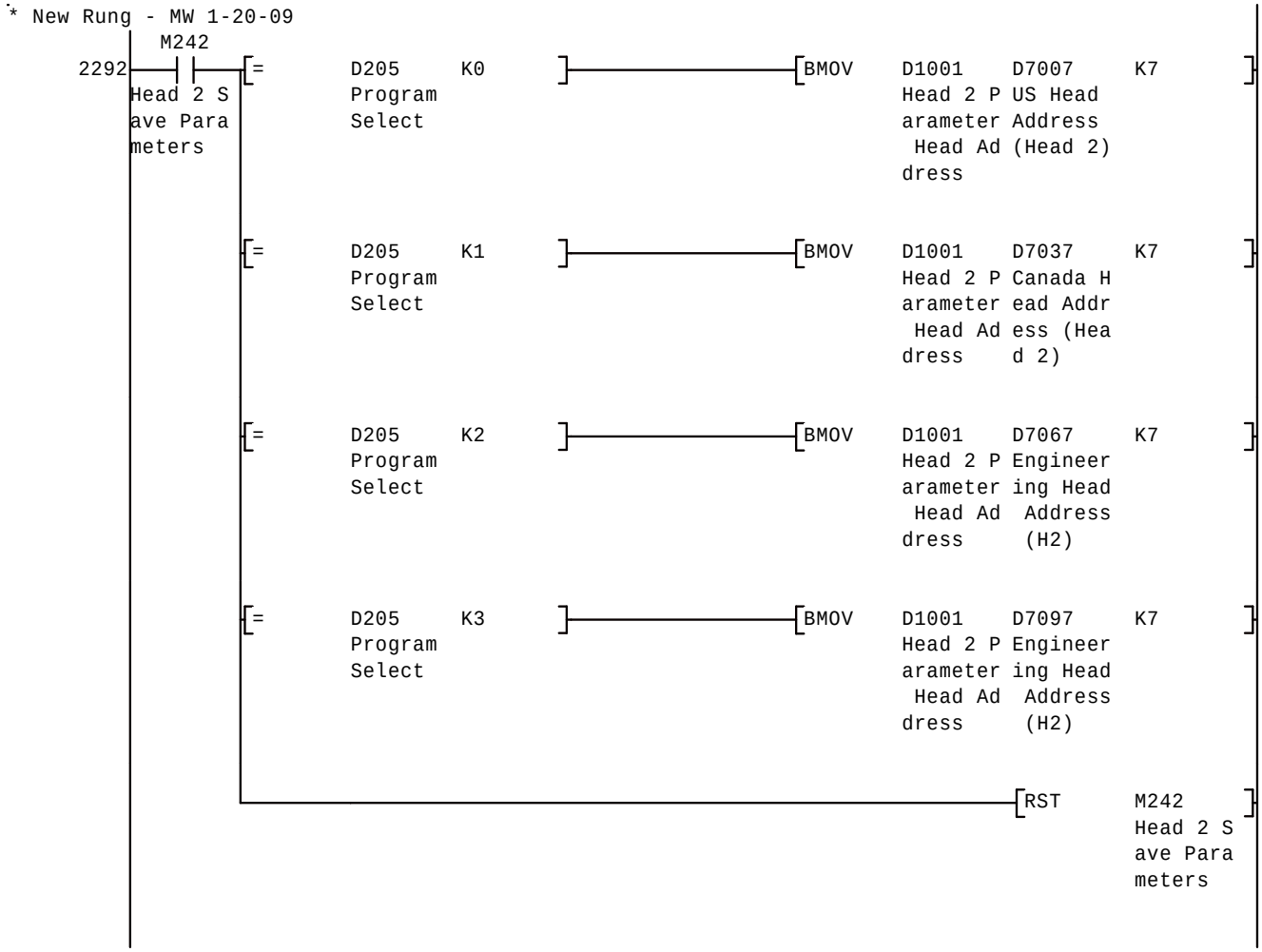
Main System Program (LSI Serial Number 14-0554)
Version: 14-0554K



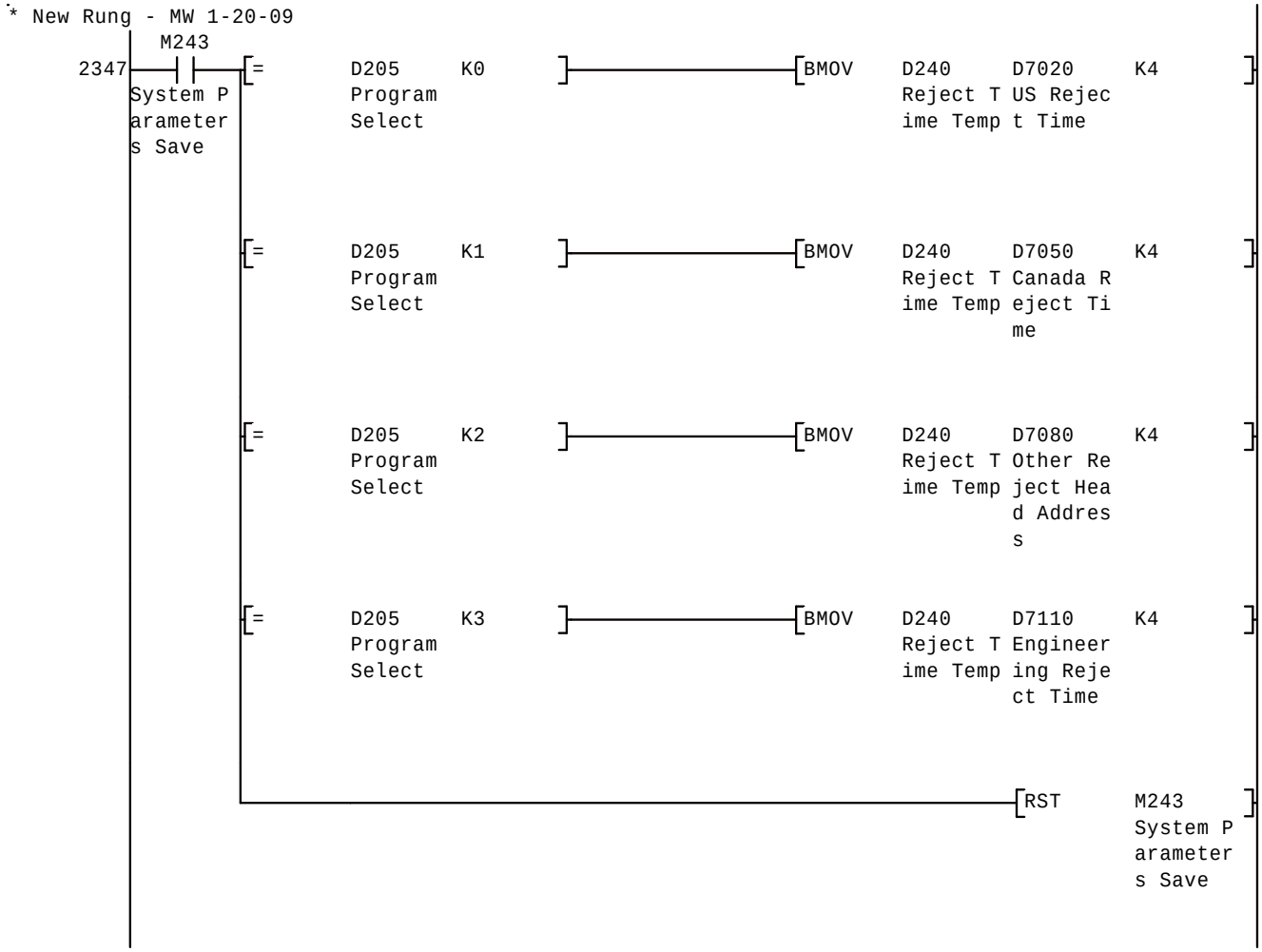
Main System Program (LSI Serial Number 14-0554)
Version: 14-0554K



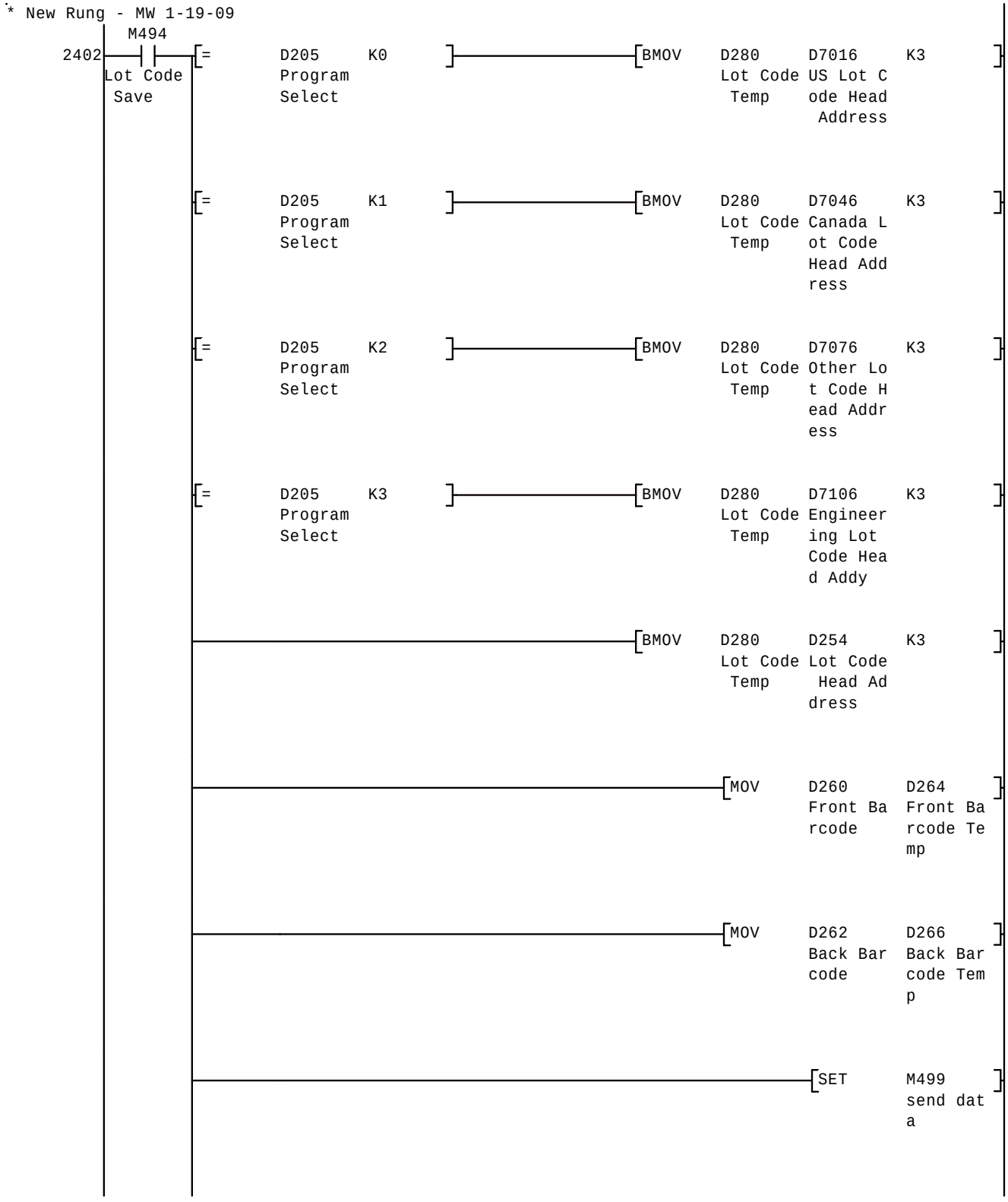
Main System Program (LSI Serial Number 14-0554)
Version: 14-0554K



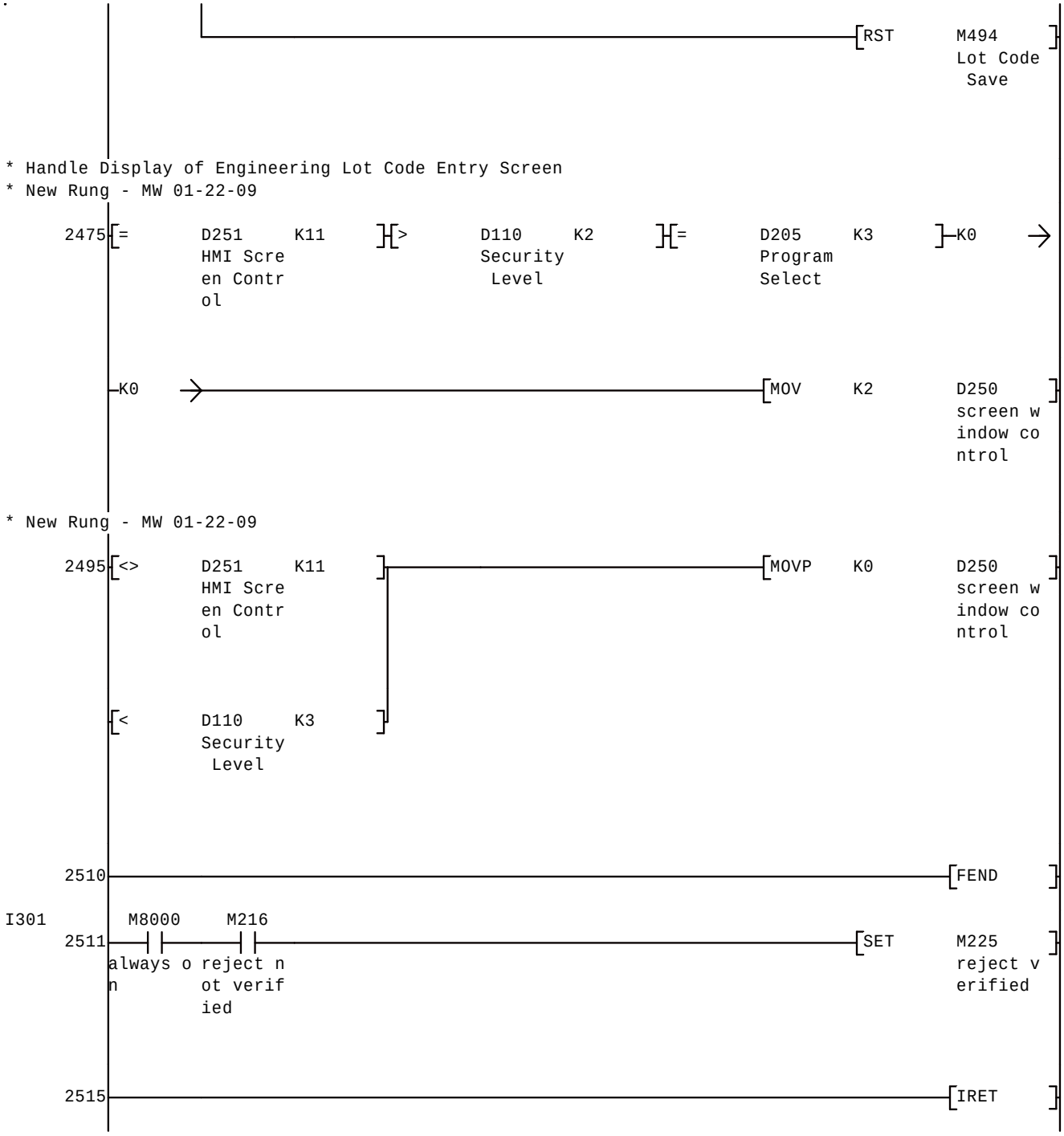
Main System Program (LSI Serial Number 14-0554)
Version: 14-0554K



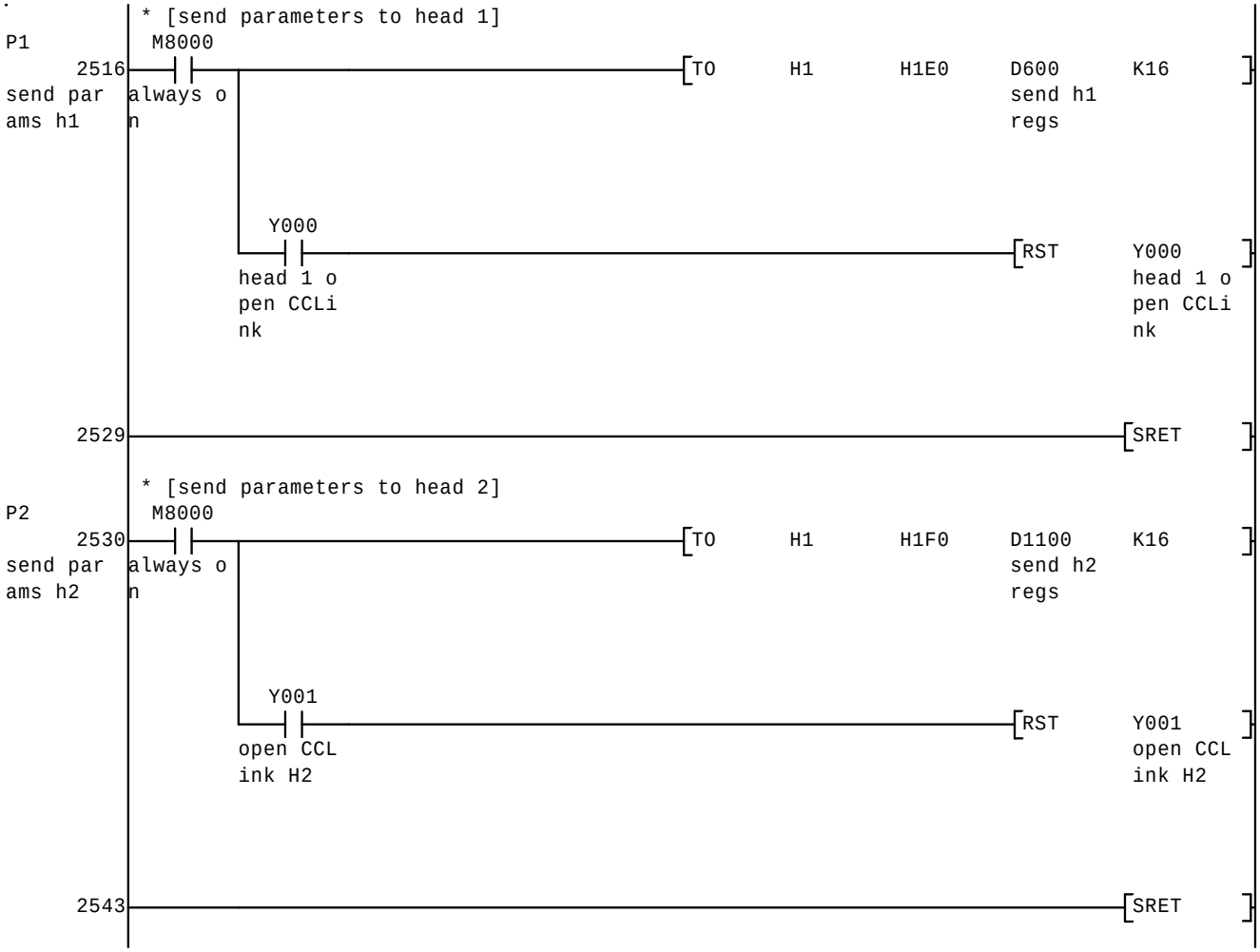
Main System Program (LSI Serial Number 14-0554)
Version: 14-0554K



Main System Program (LSI Serial Number 14-0554)
Version: 14-0554K



Main System Program (LSI Serial Number 14-0554)
Version: 14-0554K



Main System Program (LSI Serial Number 14-0554)
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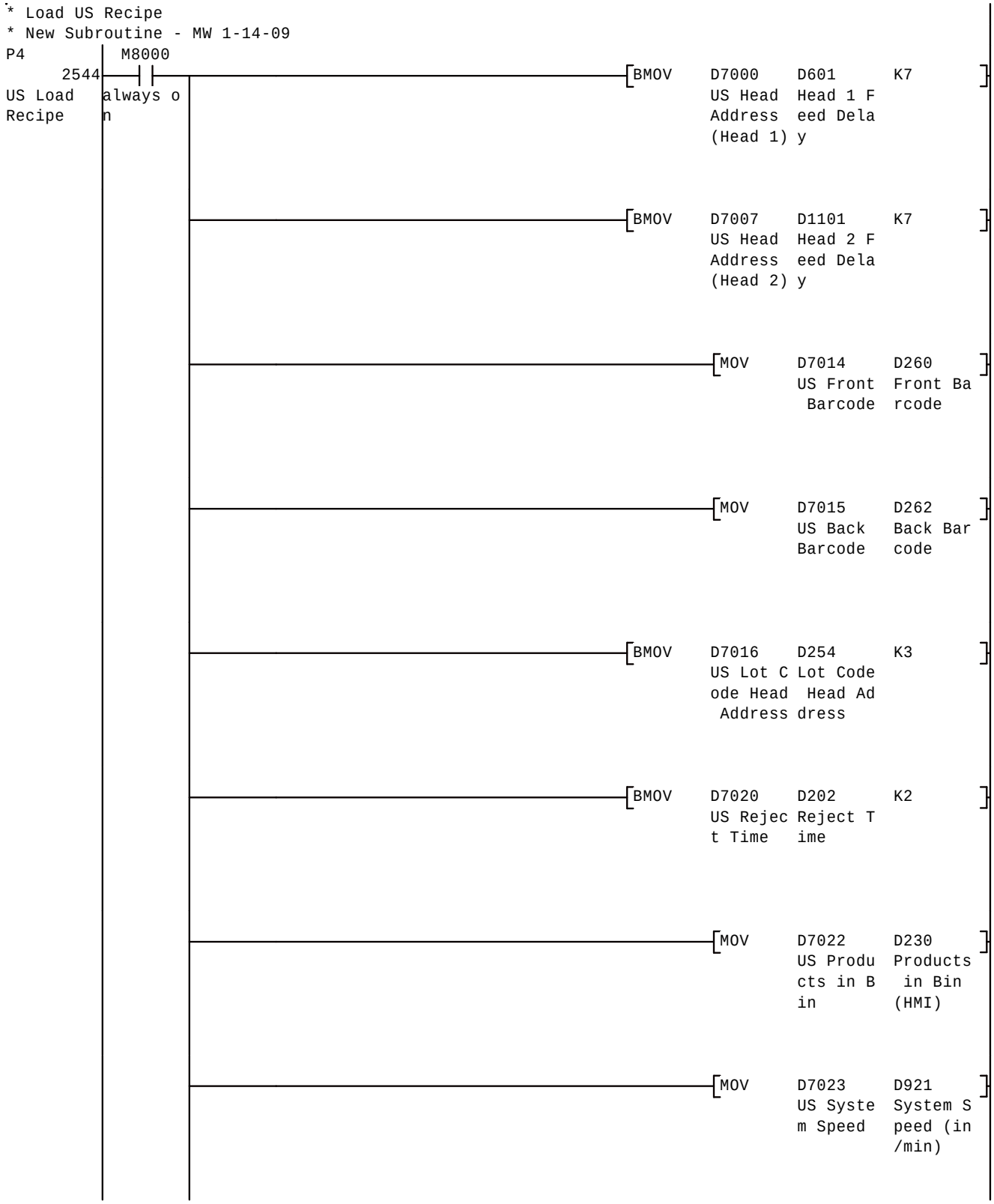

Main System Program (LSI Serial Number 14-0554)
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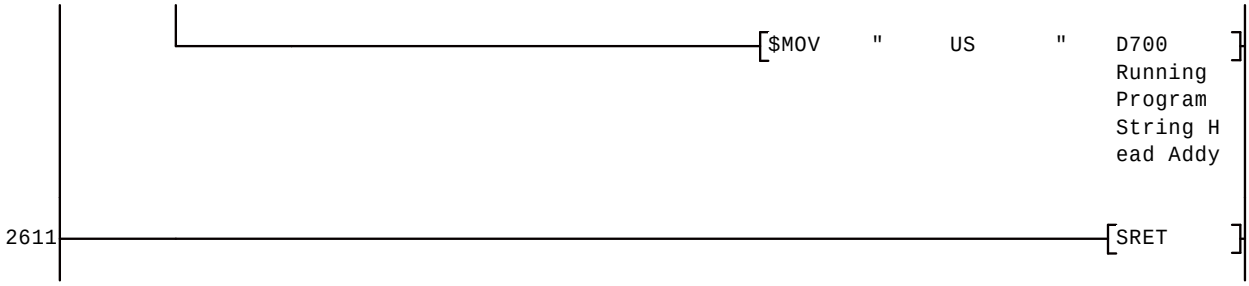

Main System Program (LSI Serial Number 14-0554)
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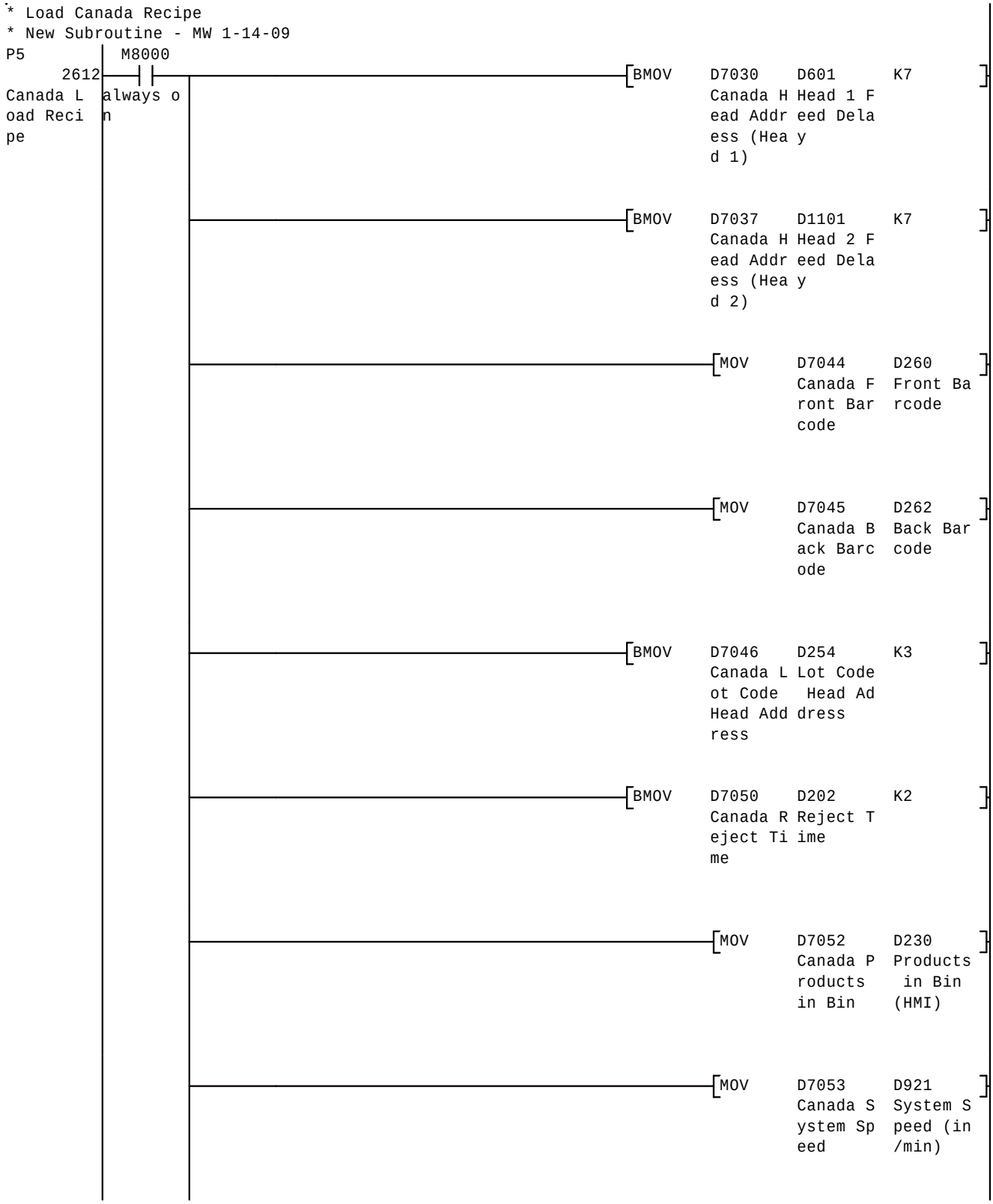

Main System Program (LSI Serial Number 14-0554)
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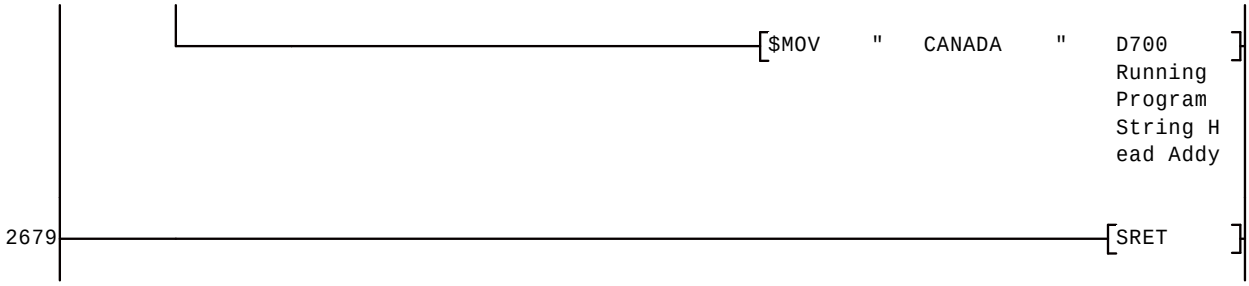
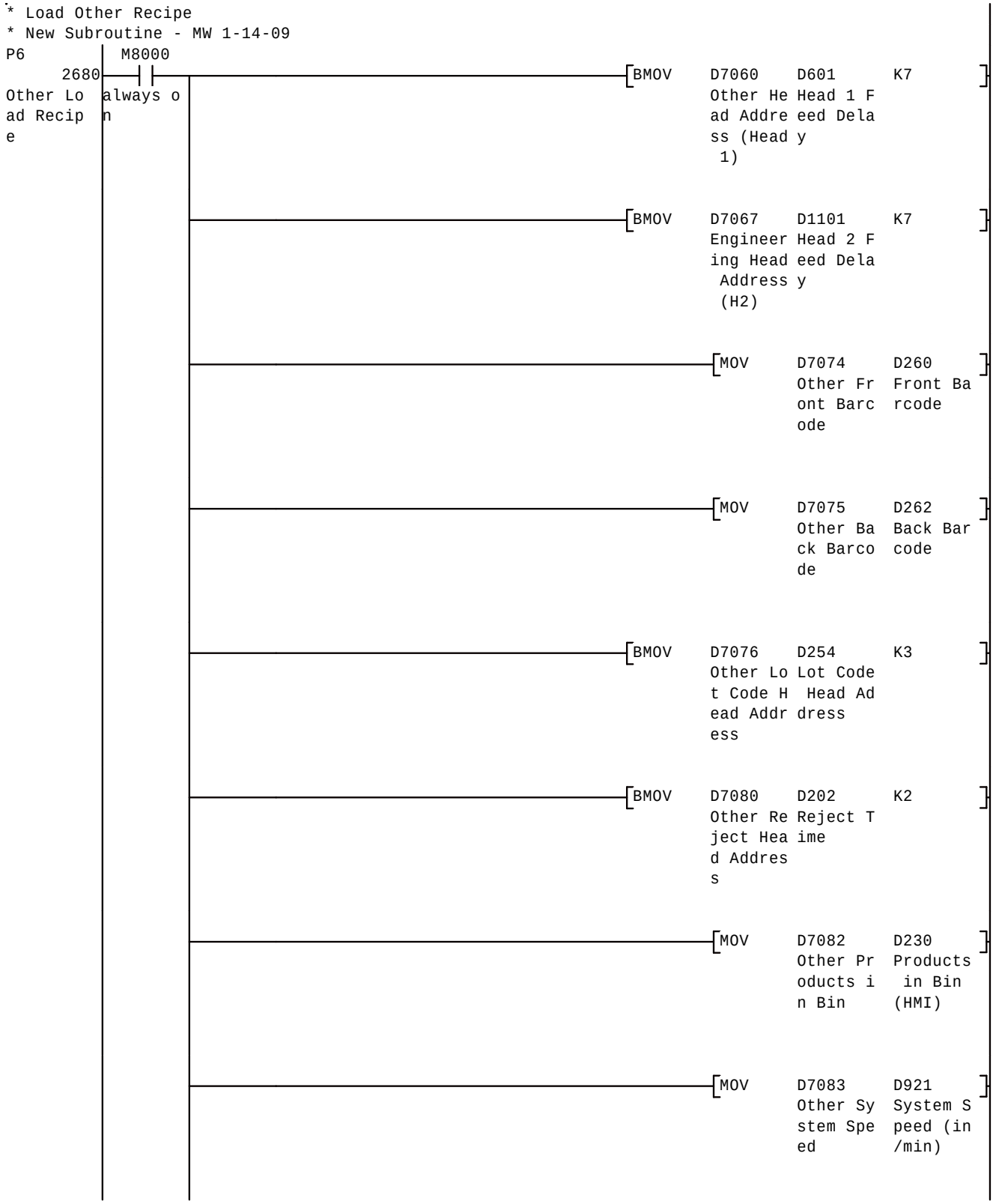
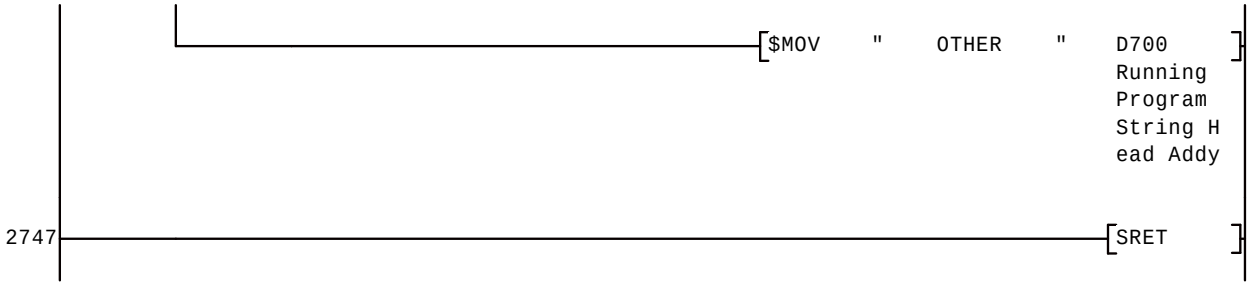


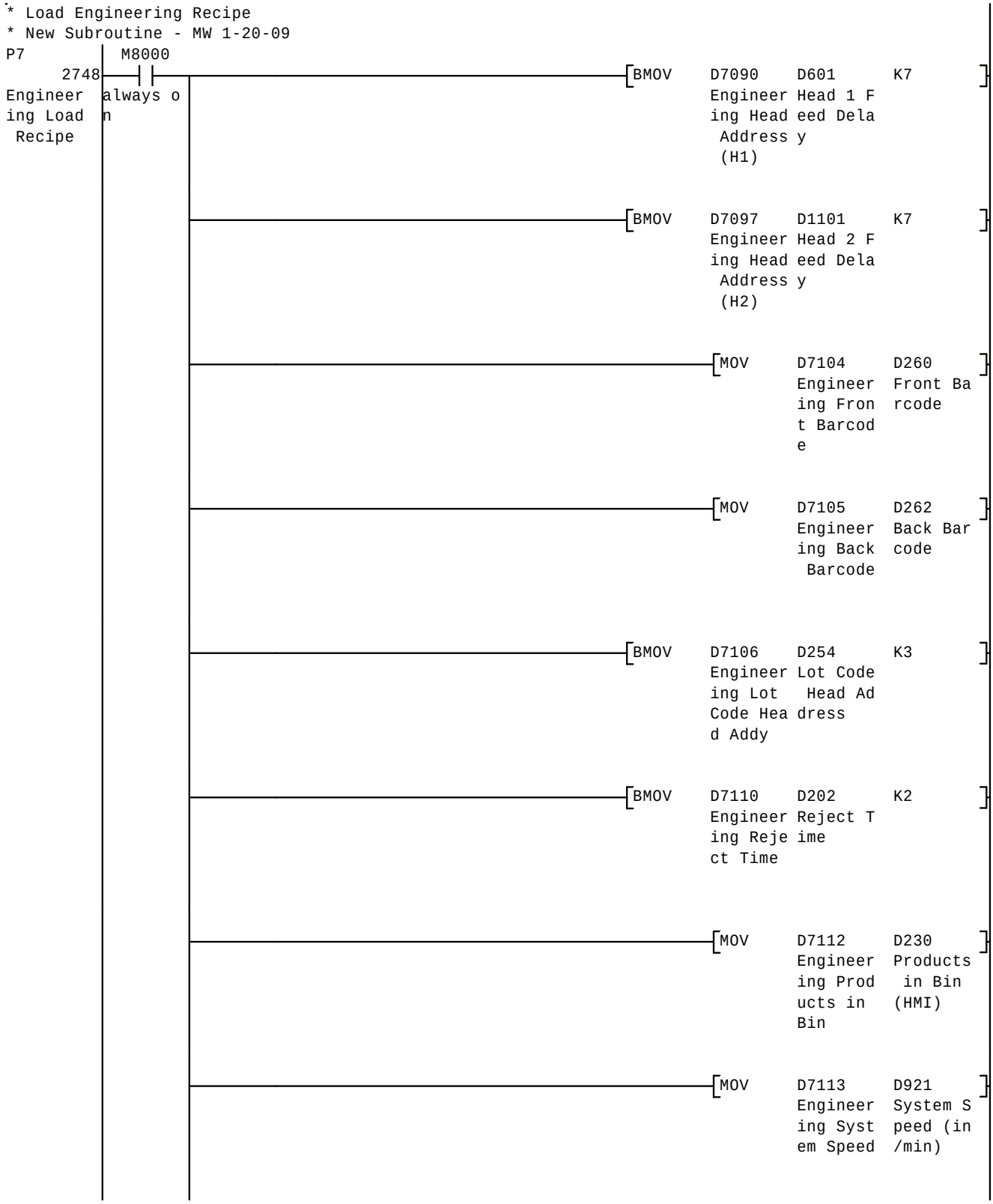
Main System Program (LSI Serial Number 14-0554)
Version: 14-0554K



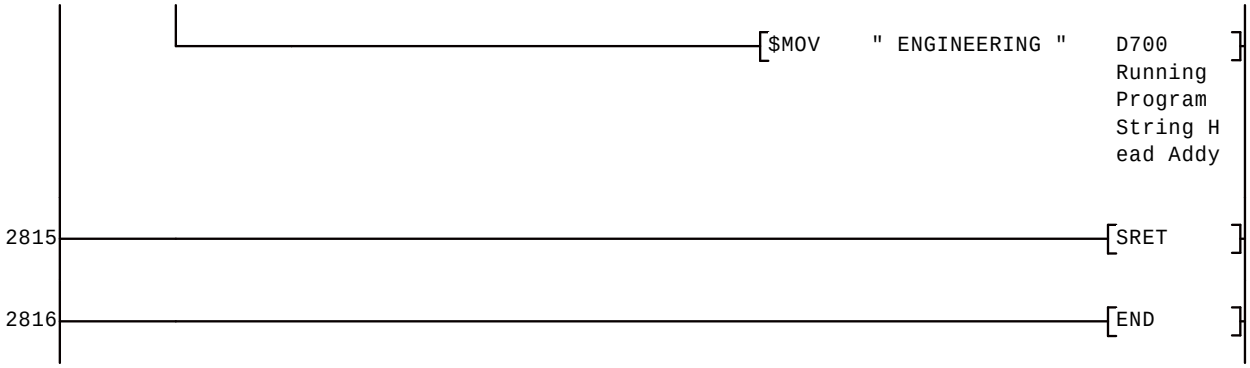
Main System Program (LSI Serial Number 14-0554)
Version: 14-0554K



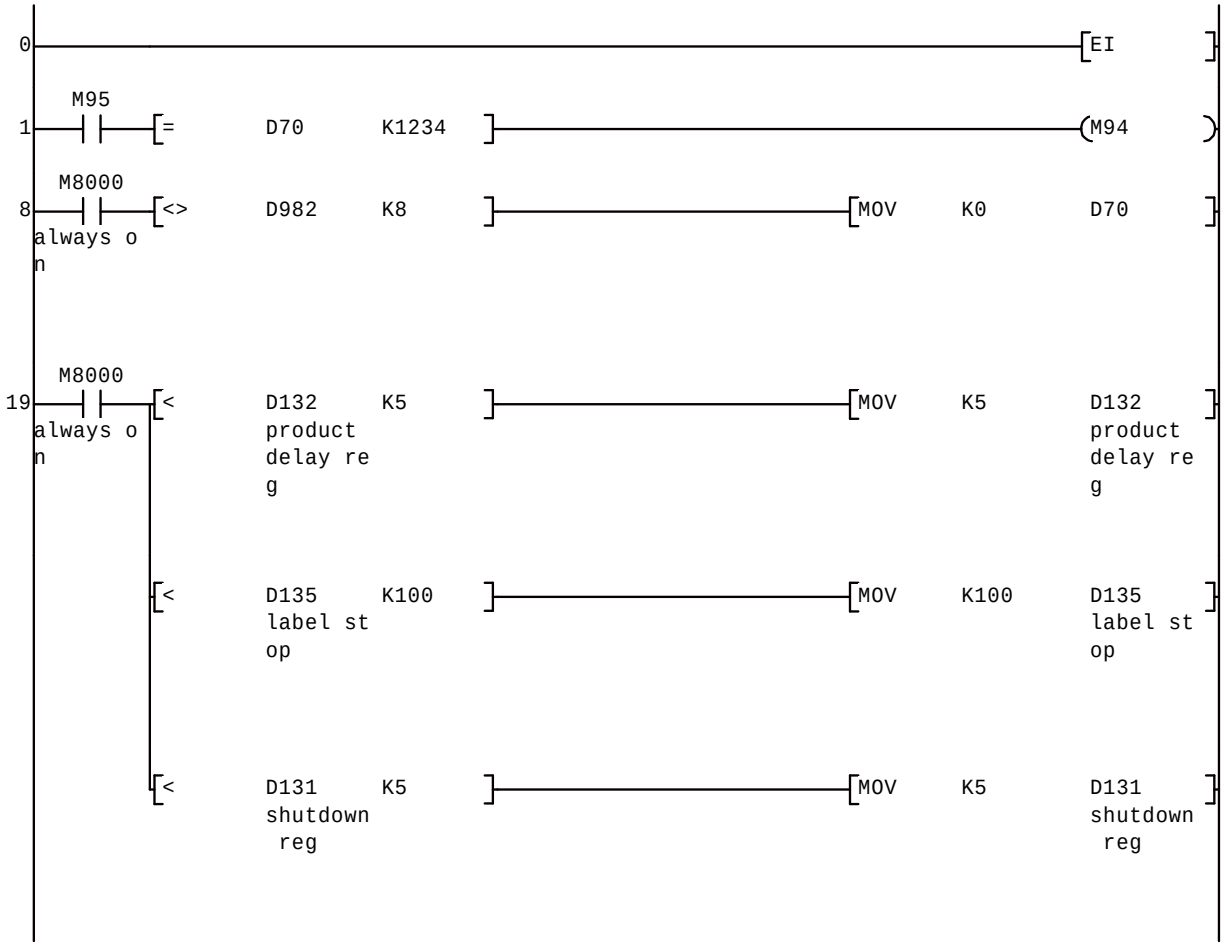
Main System Program (LSI Serial Number 14-0554)
Version: 14-0554K



Main System Program (LSI Serial Number 14-0554)
Version: 14-0554K



Labeling Head Program (LSI Serial Numbers 40-0334R & 40-0335L)
Both Labeling Heads run an Identical Program
Version: 14-0554 Head Rev D



Labeling Head Program (LSI Serial Numbers 40-0334R & 40-0335L)
Both Labeling Heads run an Identical Program
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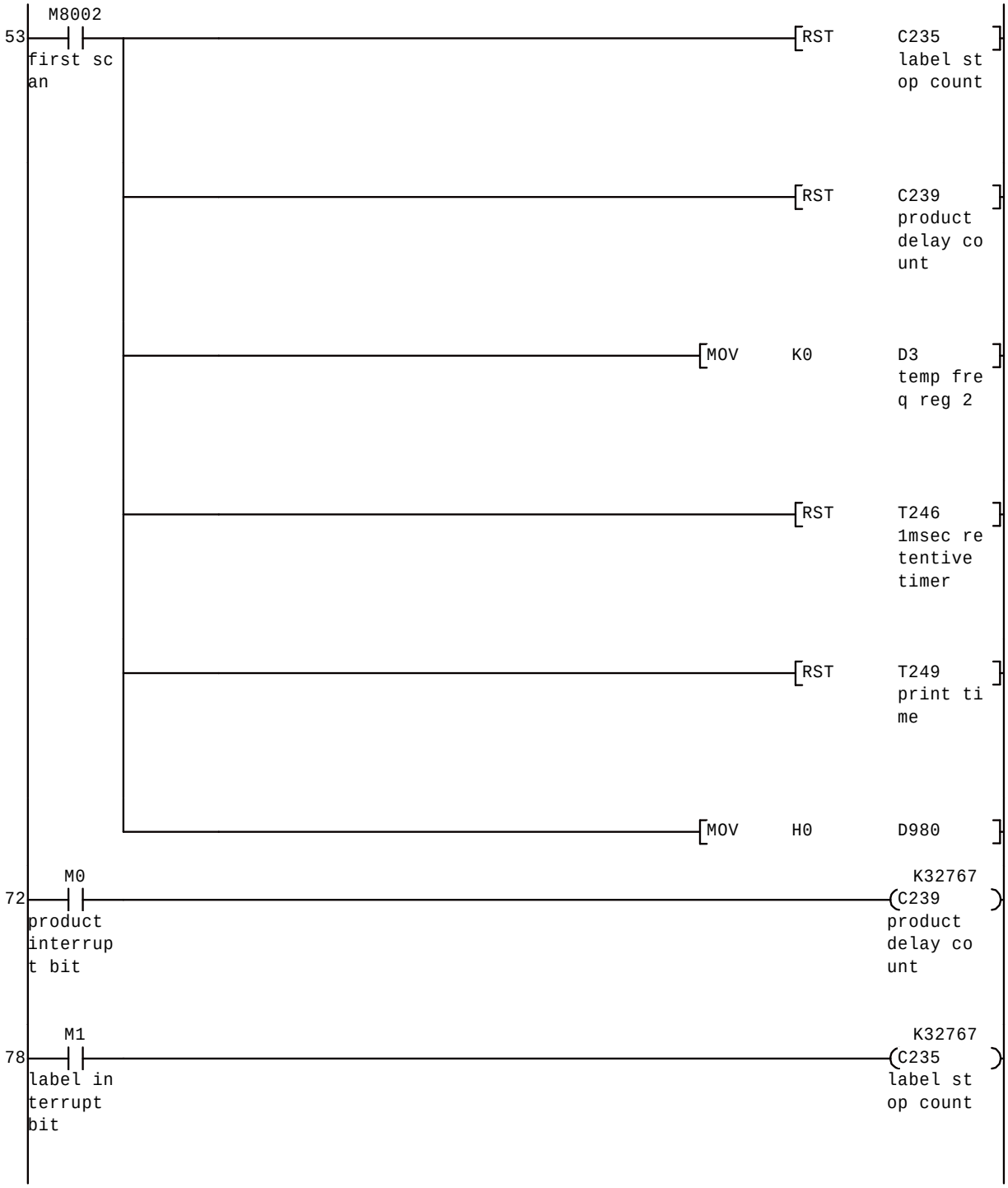
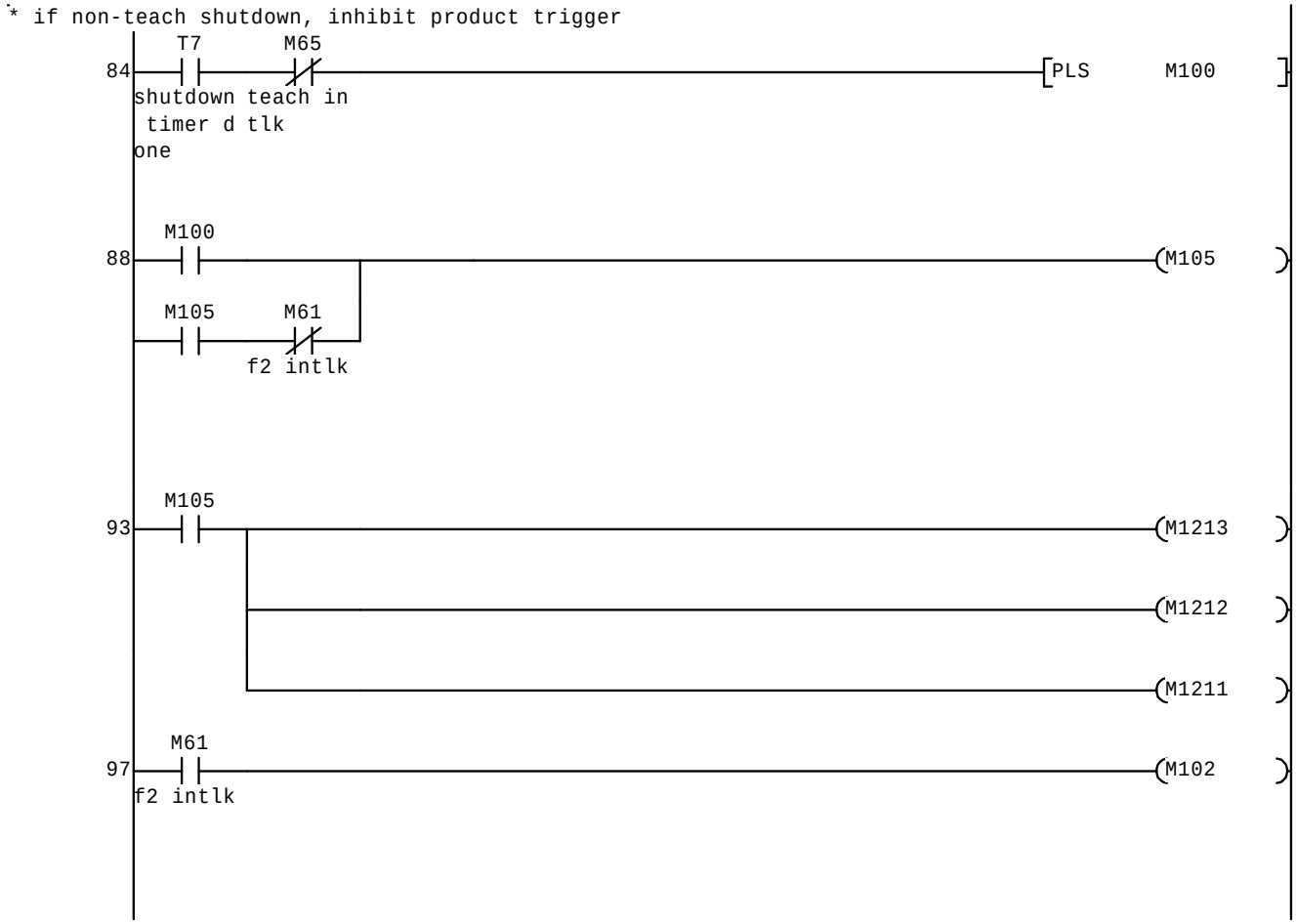
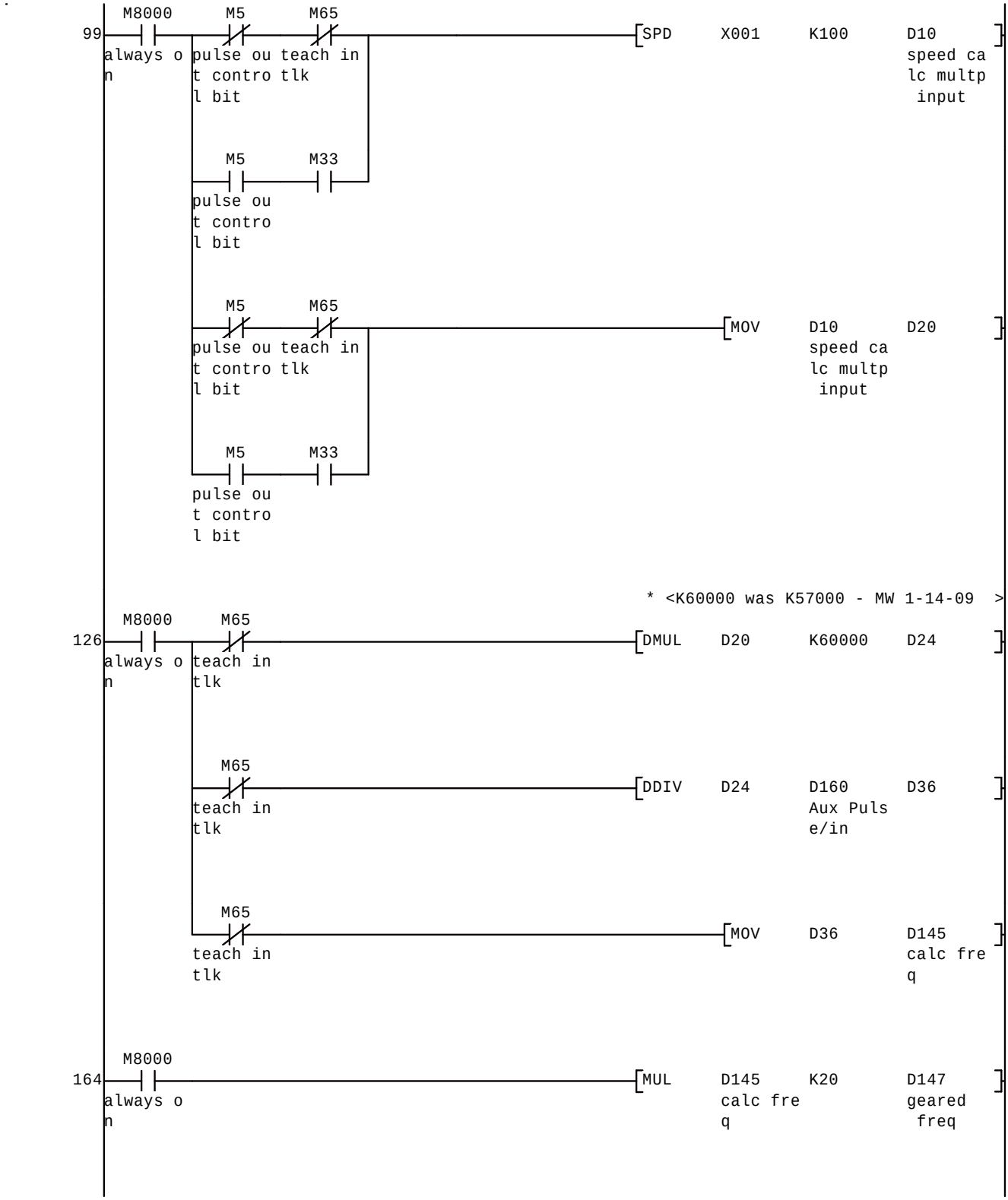


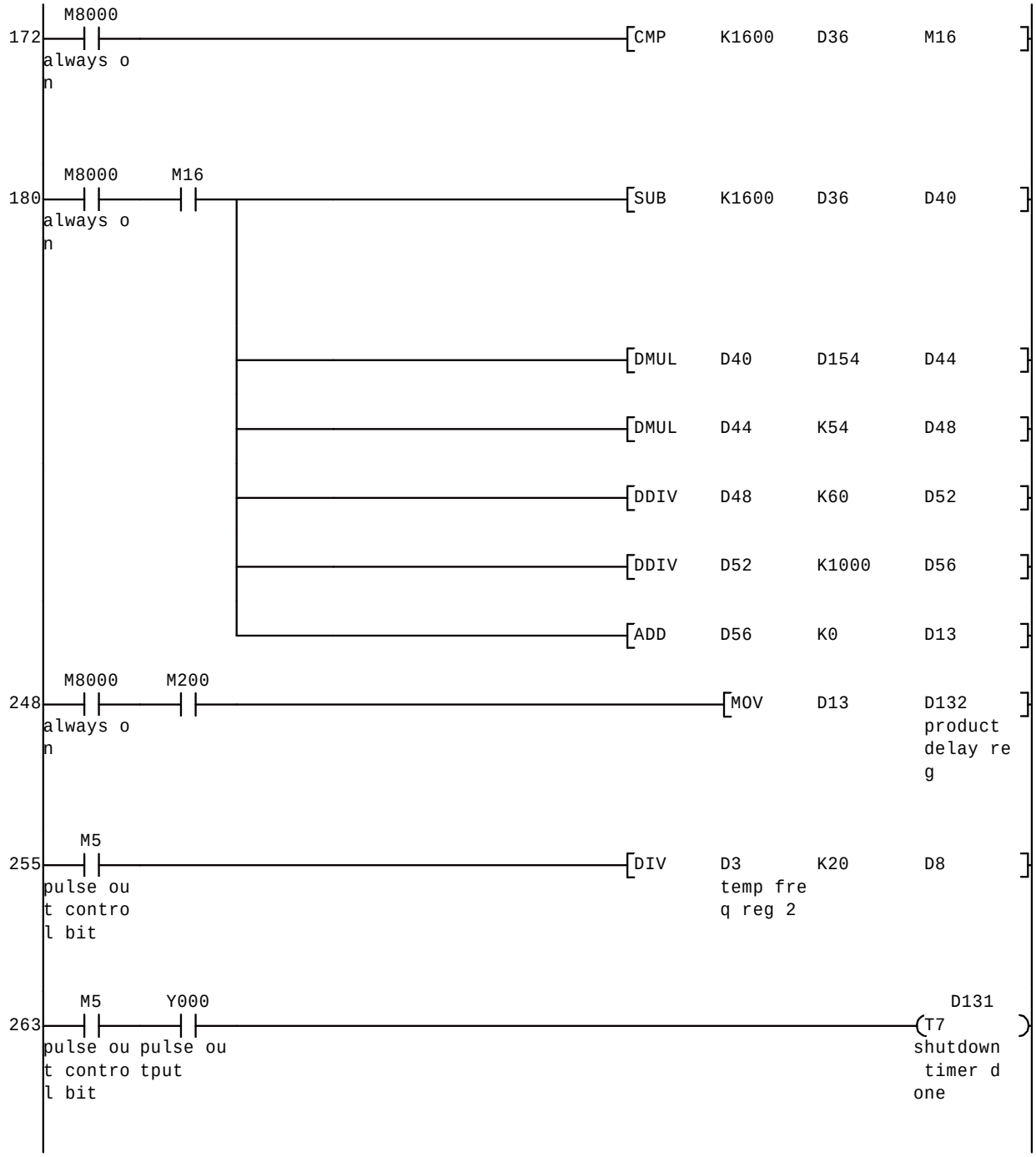
Labeling Head Program (LSI Serial Numbers 40-0334R & 40-0335L)
Both Labeling Heads run an Identical Program
Version: 14-0554 Head Rev D



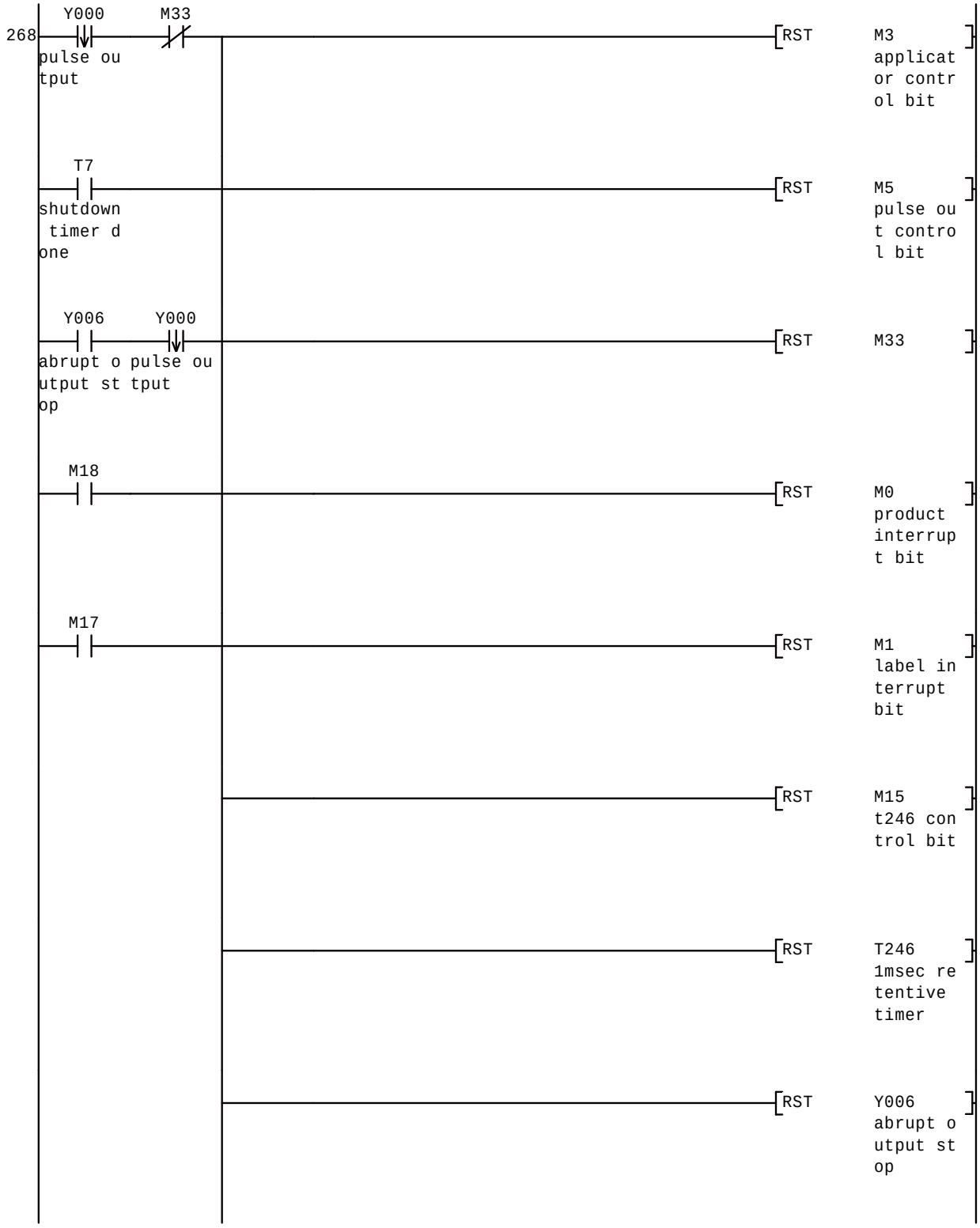
Labeling Head Program (LSI Serial Numbers 40-0334R & 40-0335L)
Both Labeling Heads run an Identical Program
Version: 14-0554 Head Rev D



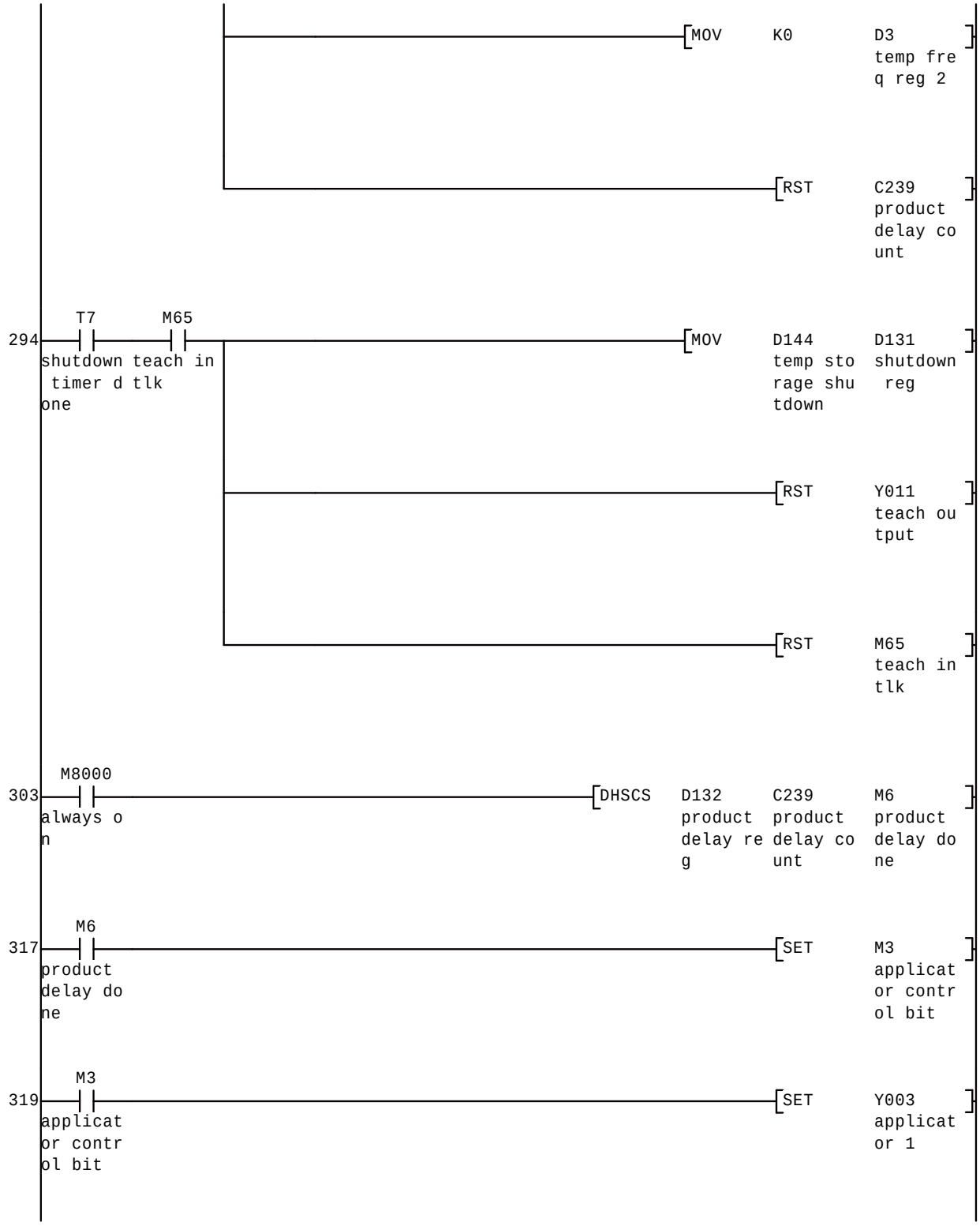
Labeling Head Program (LSI Serial Numbers 40-0334R & 40-0335L)
Both Labeling Heads run an Identical Program
Version: 14-0554 Head Rev D



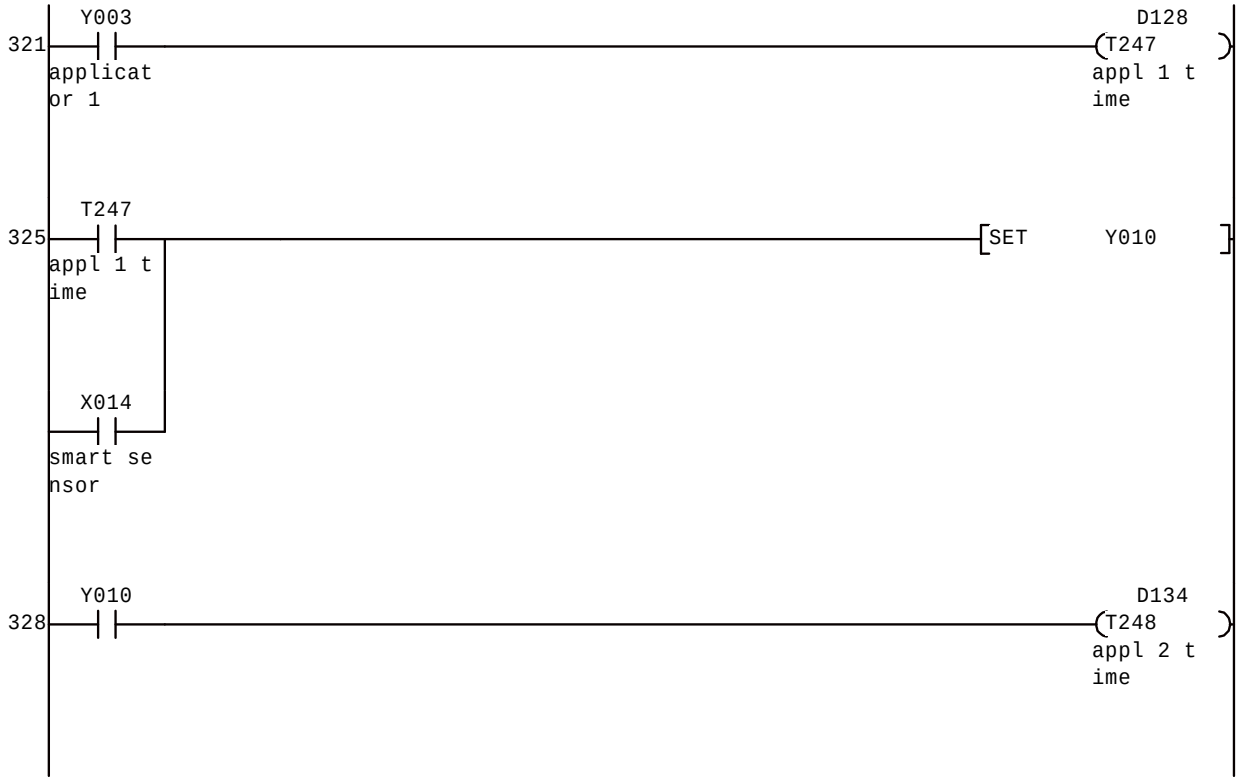
Labeling Head Program (LSI Serial Numbers 40-0334R & 40-0335L)
Both Labeling Heads run an Identical Program
Version: 14-0554 Head Rev D



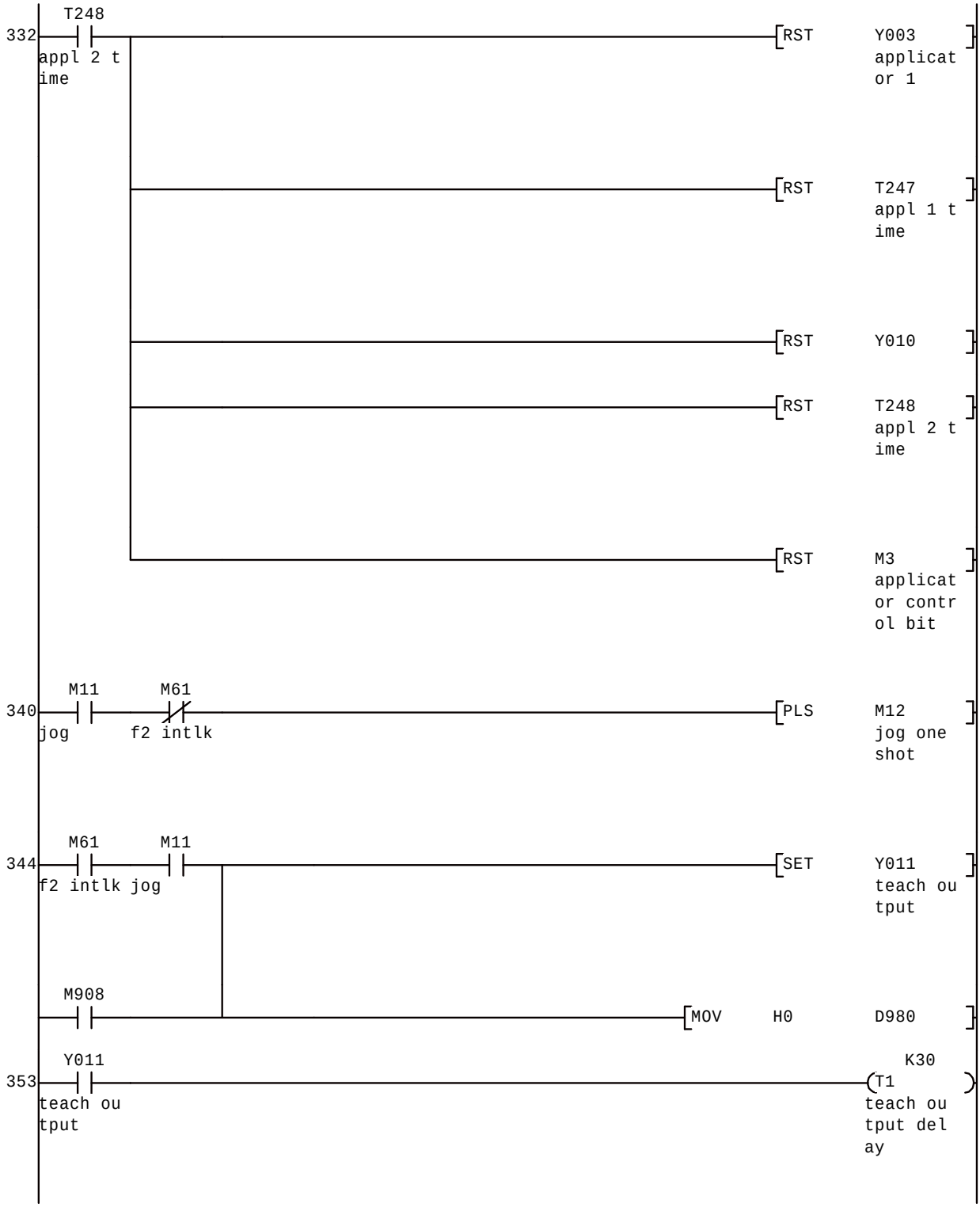
Labeling Head Program (LSI Serial Numbers 40-0334R & 40-0335L)
Both Labeling Heads run an Identical Program
Version: 14-0554 Head Rev D



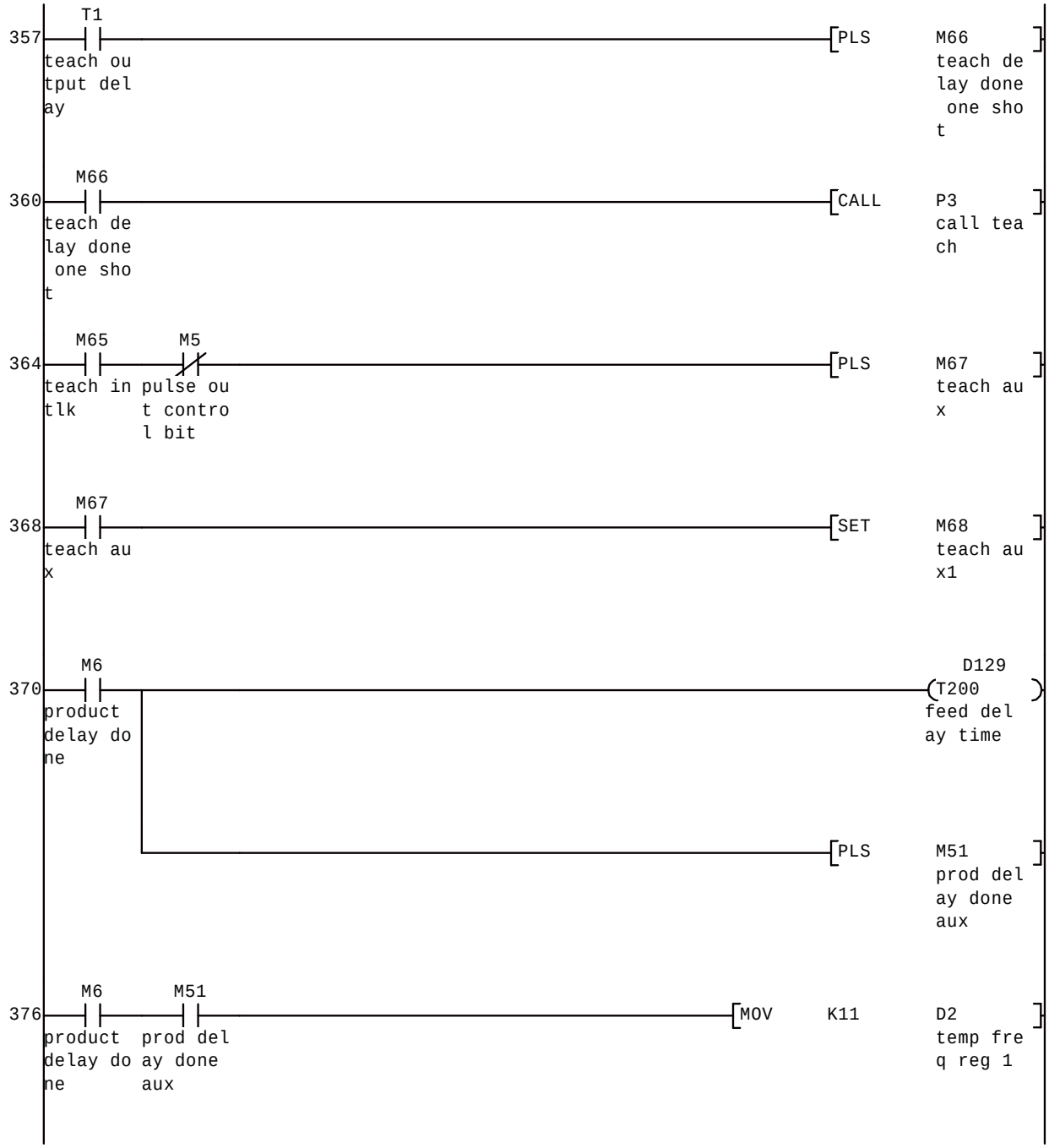
Labeling Head Program (LSI Serial Numbers 40-0334R & 40-0335L)
Both Labeling Heads run an Identical Program
Version: 14-0554 Head Rev D



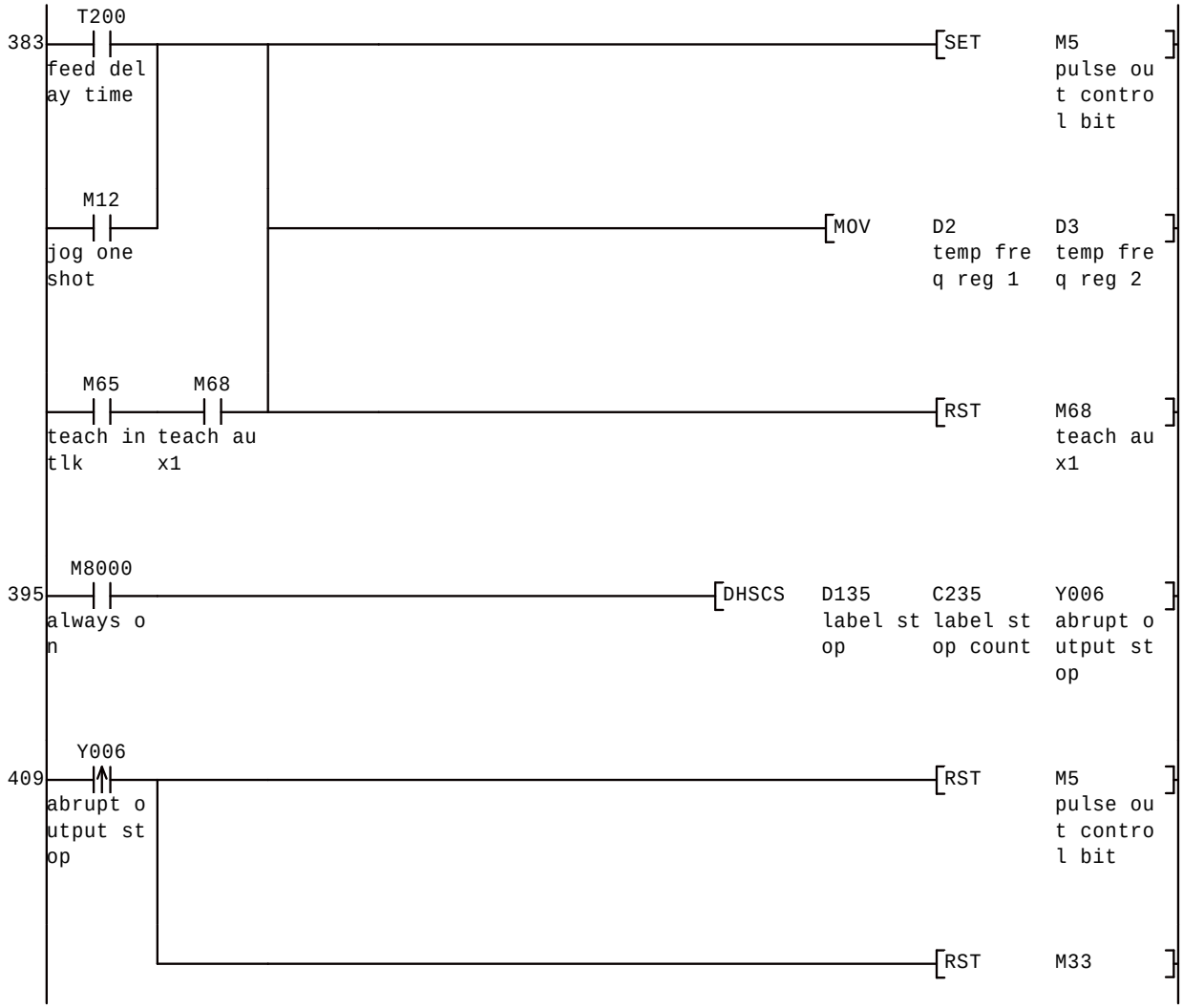
Labeling Head Program (LSI Serial Numbers 40-0334R & 40-0335L)
Both Labeling Heads run an Identical Program
Version: 14-0554 Head Rev D



Labeling Head Program (LSI Serial Numbers 40-0334R & 40-0335L)
Both Labeling Heads run an Identical Program
Version: 14-0554 Head Rev D



Labeling Head Program (LSI Serial Numbers 40-0334R & 40-0335L)
Both Labeling Heads run an Identical Program
Version: 14-0554 Head Rev D



Labeling Head Program (LSI Serial Numbers 40-0334R & 40-0335L)
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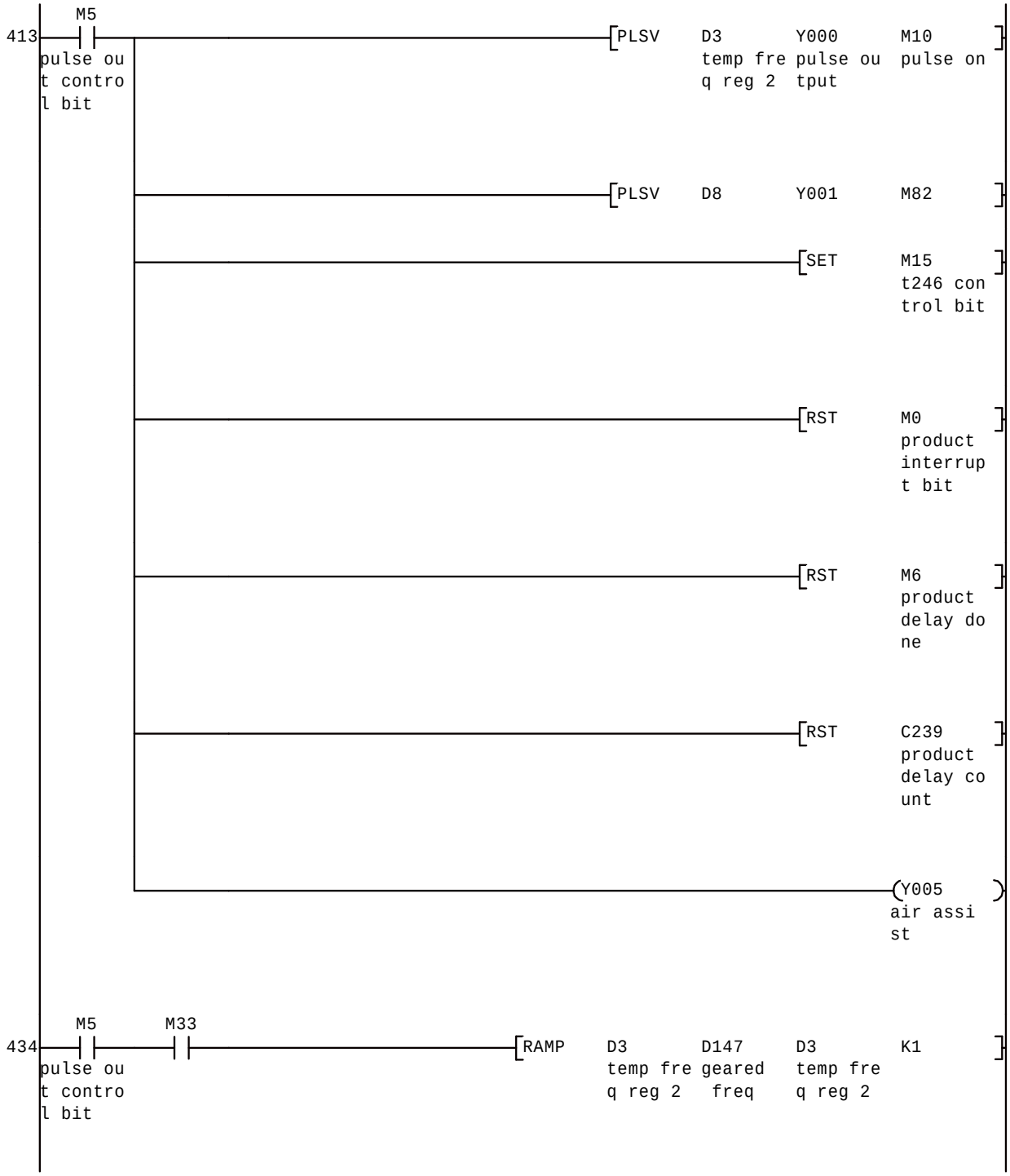
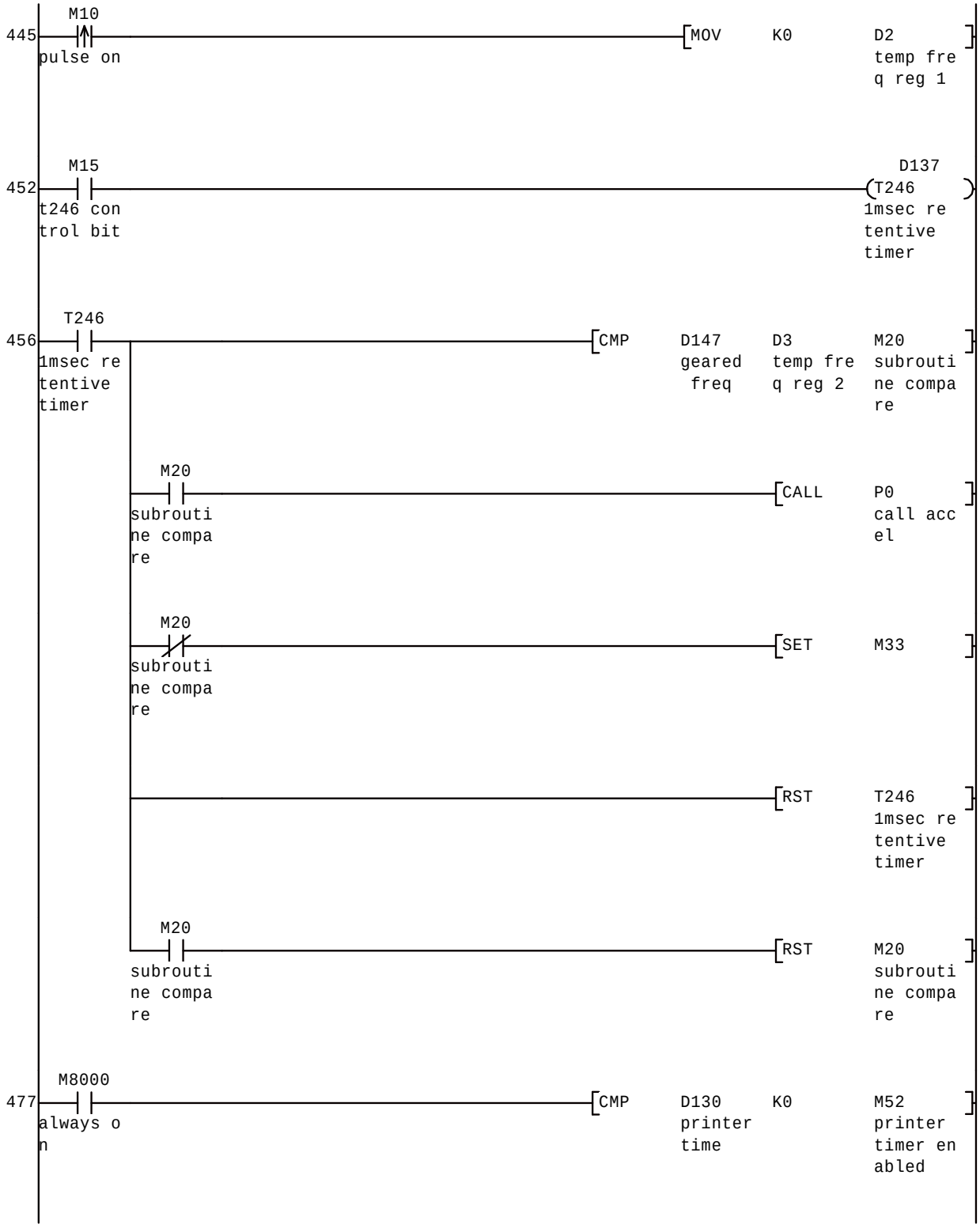
Version: 14-0554 Head Rev D



Labeling Head Program (LSI Serial Numbers 40-0334R & 40-0335L)
Both Labeling Heads run an Identical Program
Version: 14-0554 Head Rev D



Labeling Head Program (LSI Serial Numbers 40-0334R & 40-0335L)
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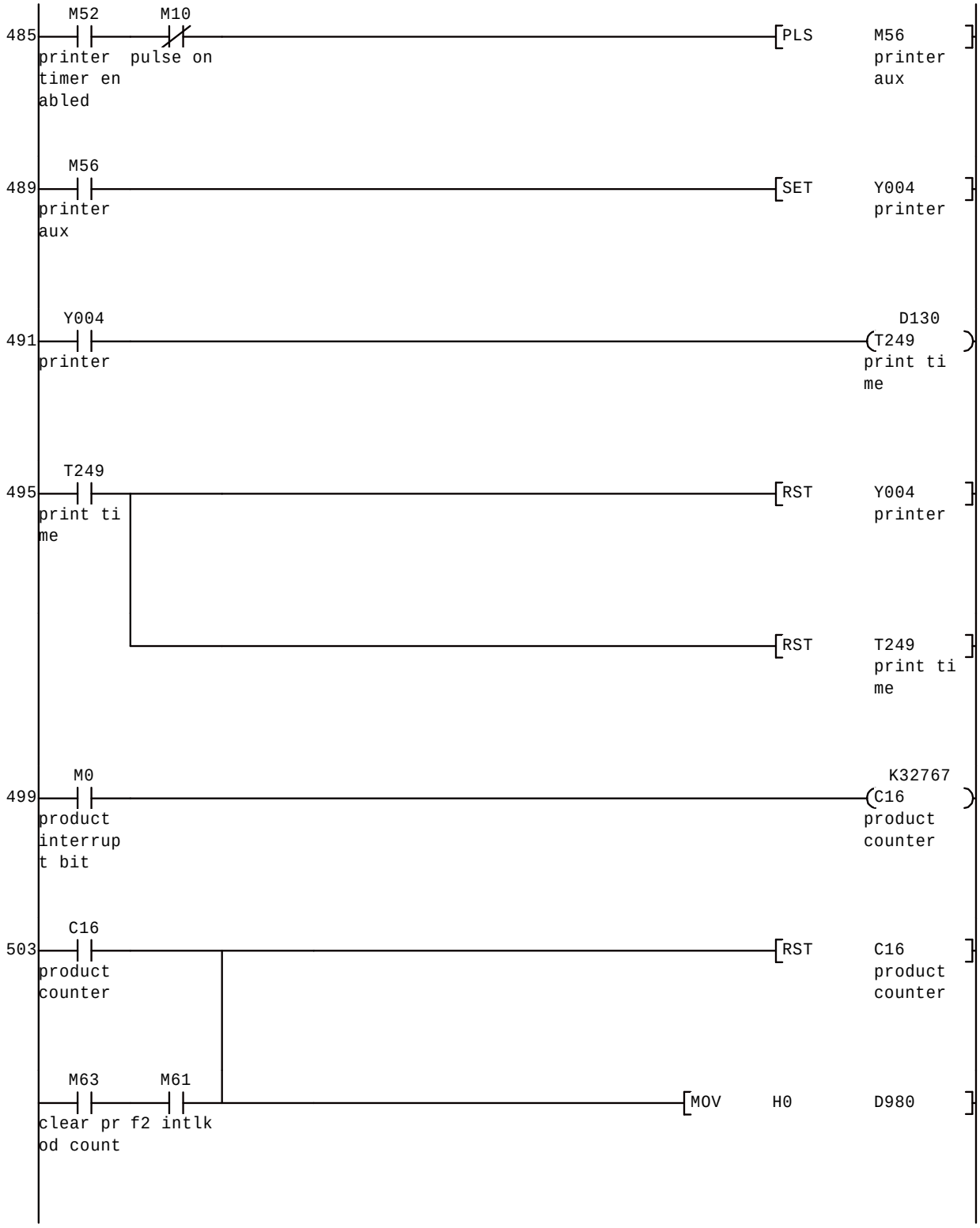
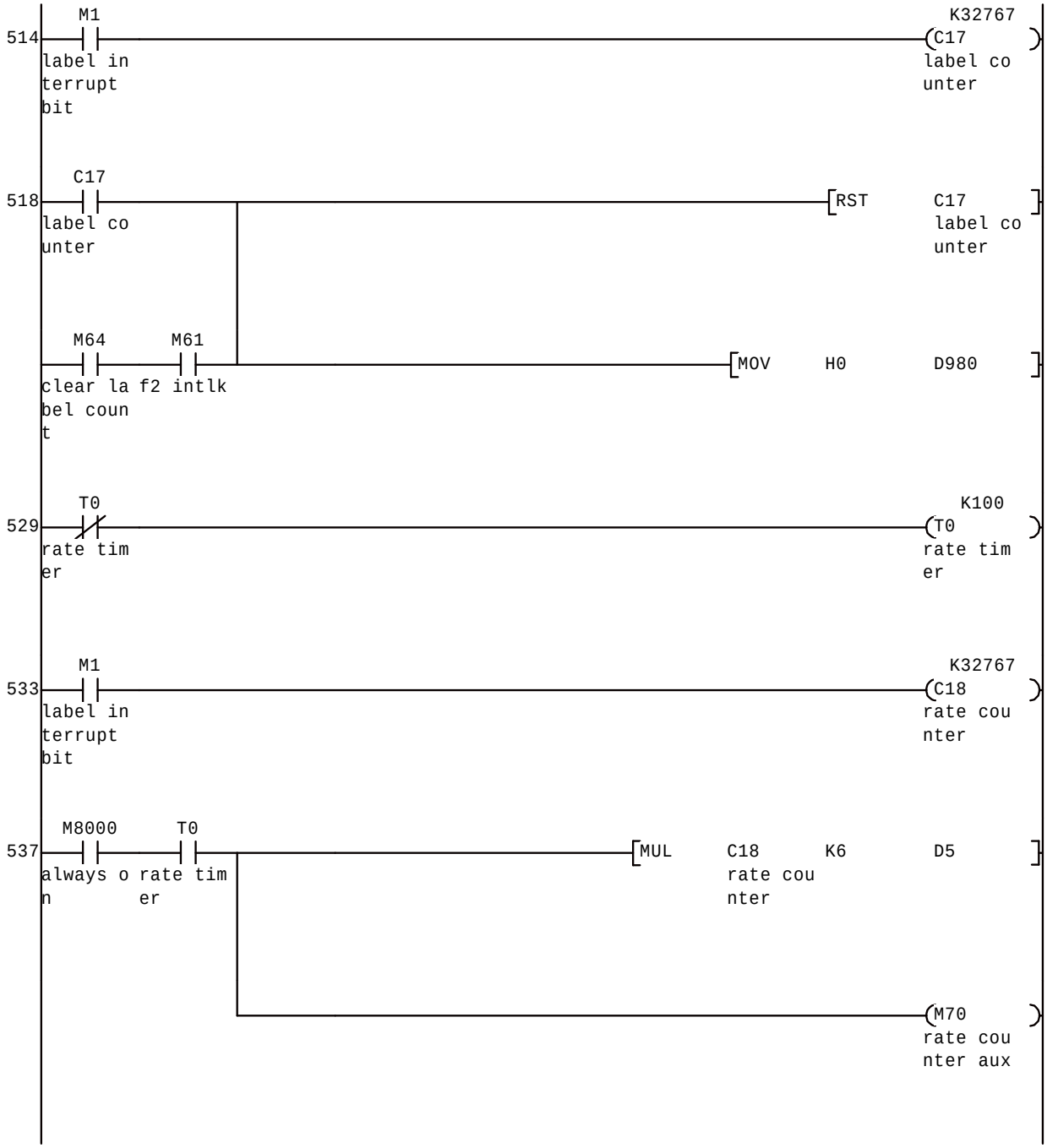
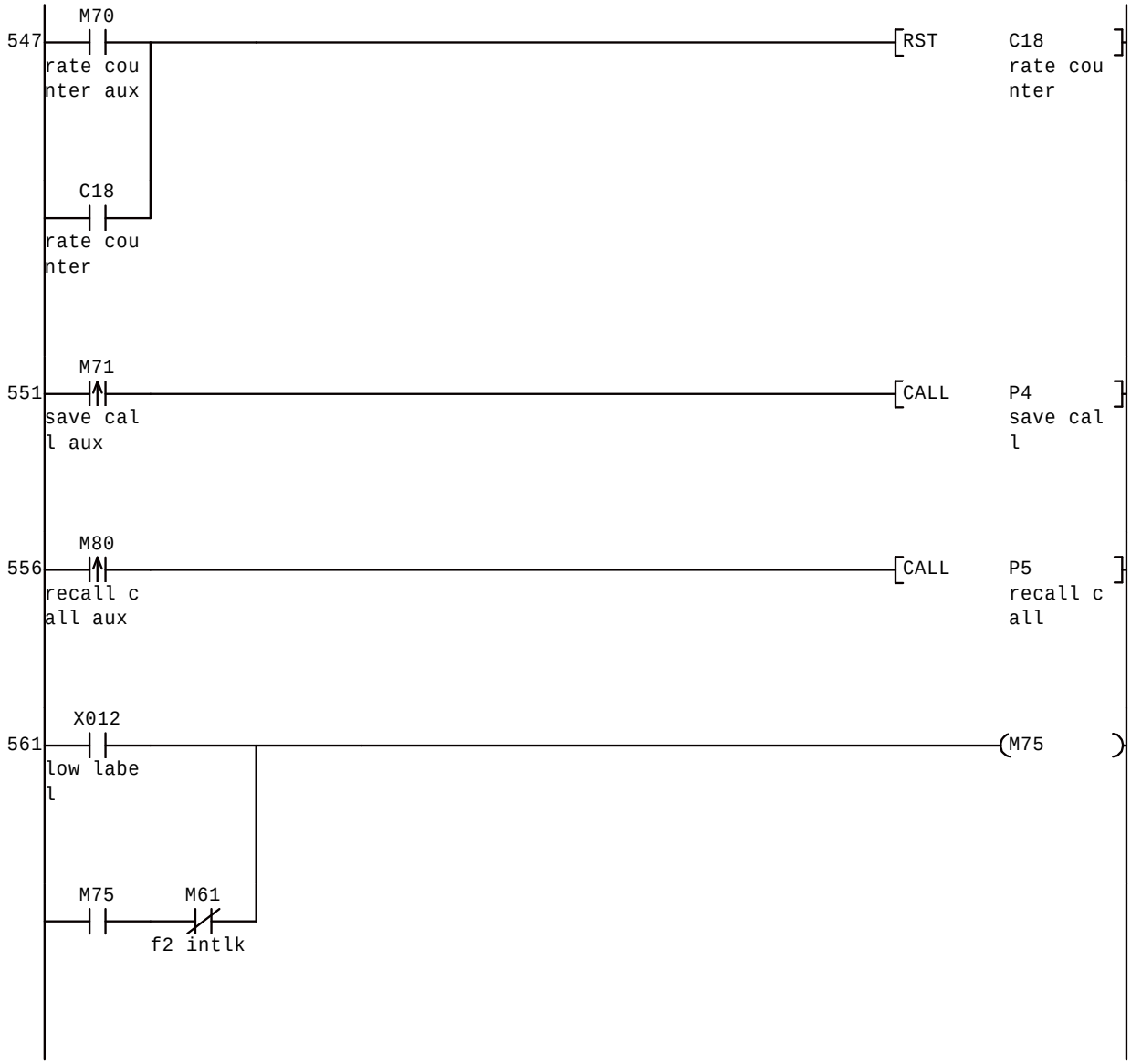
Version: 14-0554 Head Rev D



Labeling Head Program (LSI Serial Numbers 40-0334R & 40-0335L)
Both Labeling Heads run an Identical Program
Version: 14-0554 Head Rev D



Labeling Head Program (LSI Serial Numbers 40-0334R & 40-0335L)
Both Labeling Heads run an Identical Program
Version: 14-0554 Head Rev D



Labeling Head Program (LSI Serial Numbers 40-0334R & 40-0335L)
Both Labeling Heads run an Identical Program
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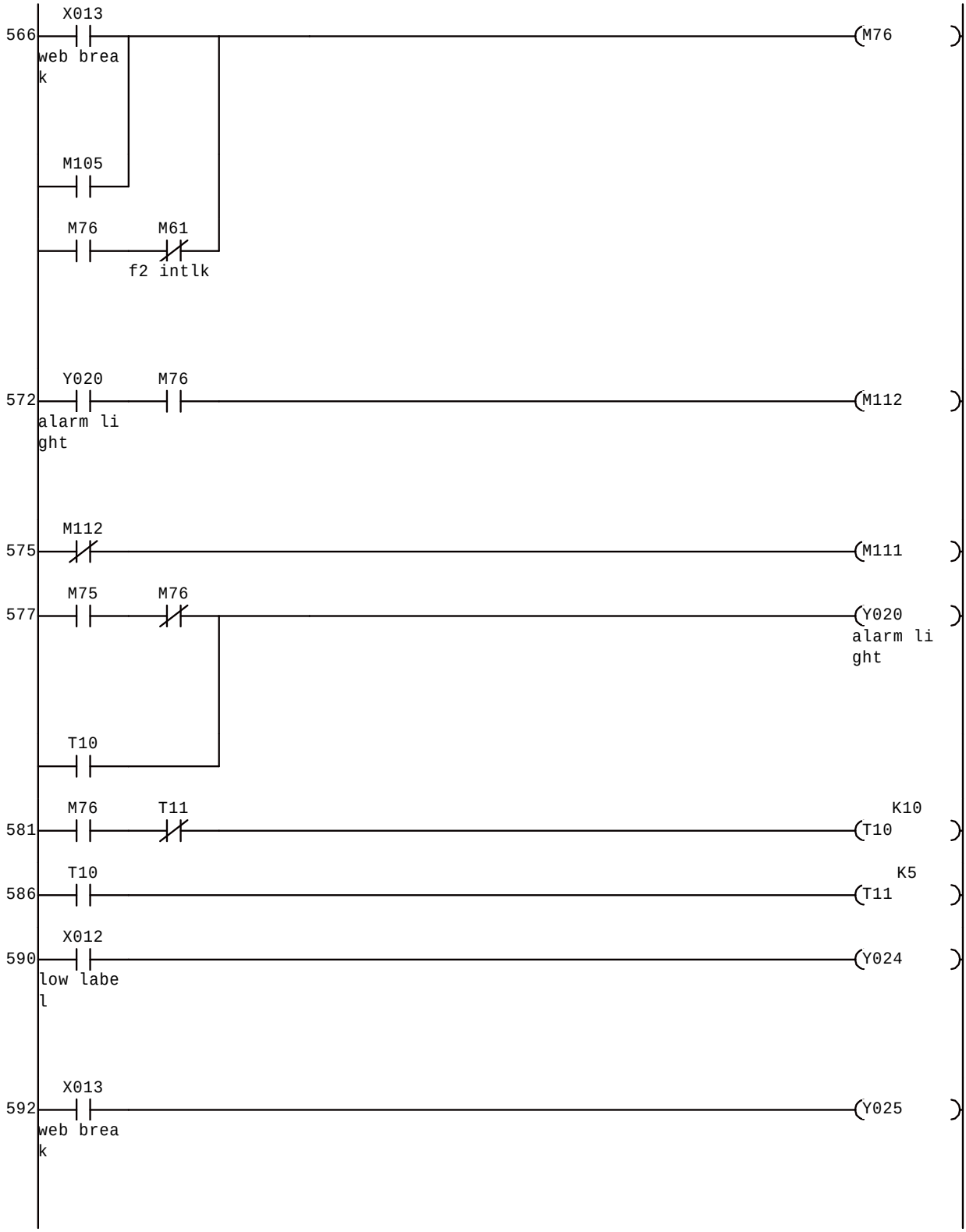

Labeling Head Program (LSI Serial Numbers 40-0334R & 40-0335L)
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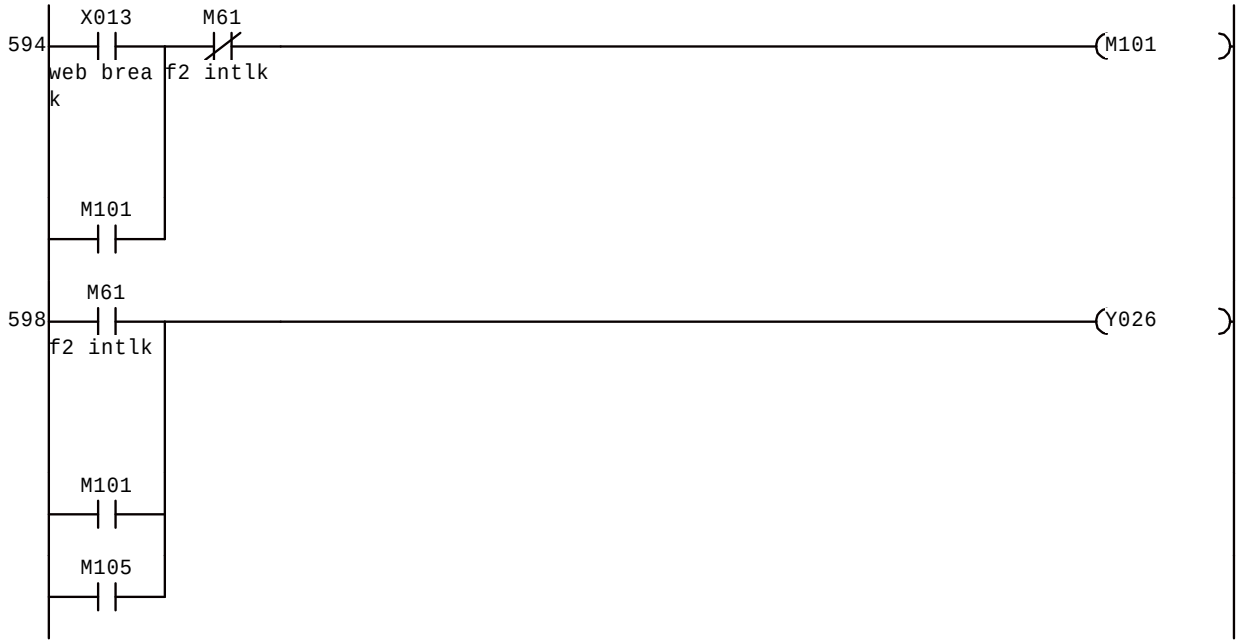
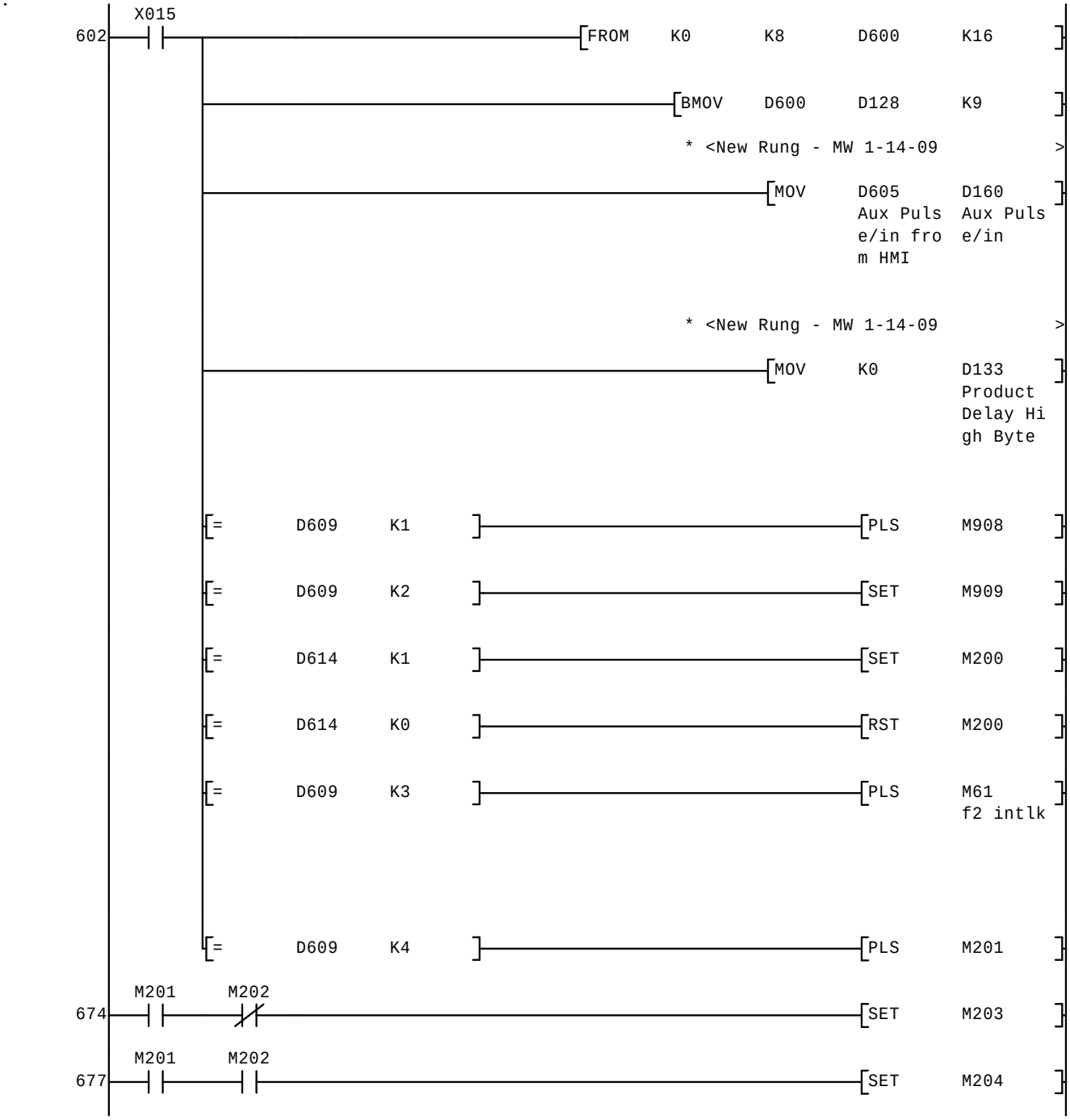
Version: 14-0554 Head Rev D



Labeling Head Program (LSI Serial Numbers 40-0334R & 40-0335L)
Both Labeling Heads run an Identical Program
Version: 14-0554 Head Rev D



Labeling Head Program (LSI Serial Numbers 40-0334R & 40-0335L)
Both Labeling Heads run an Identical Program
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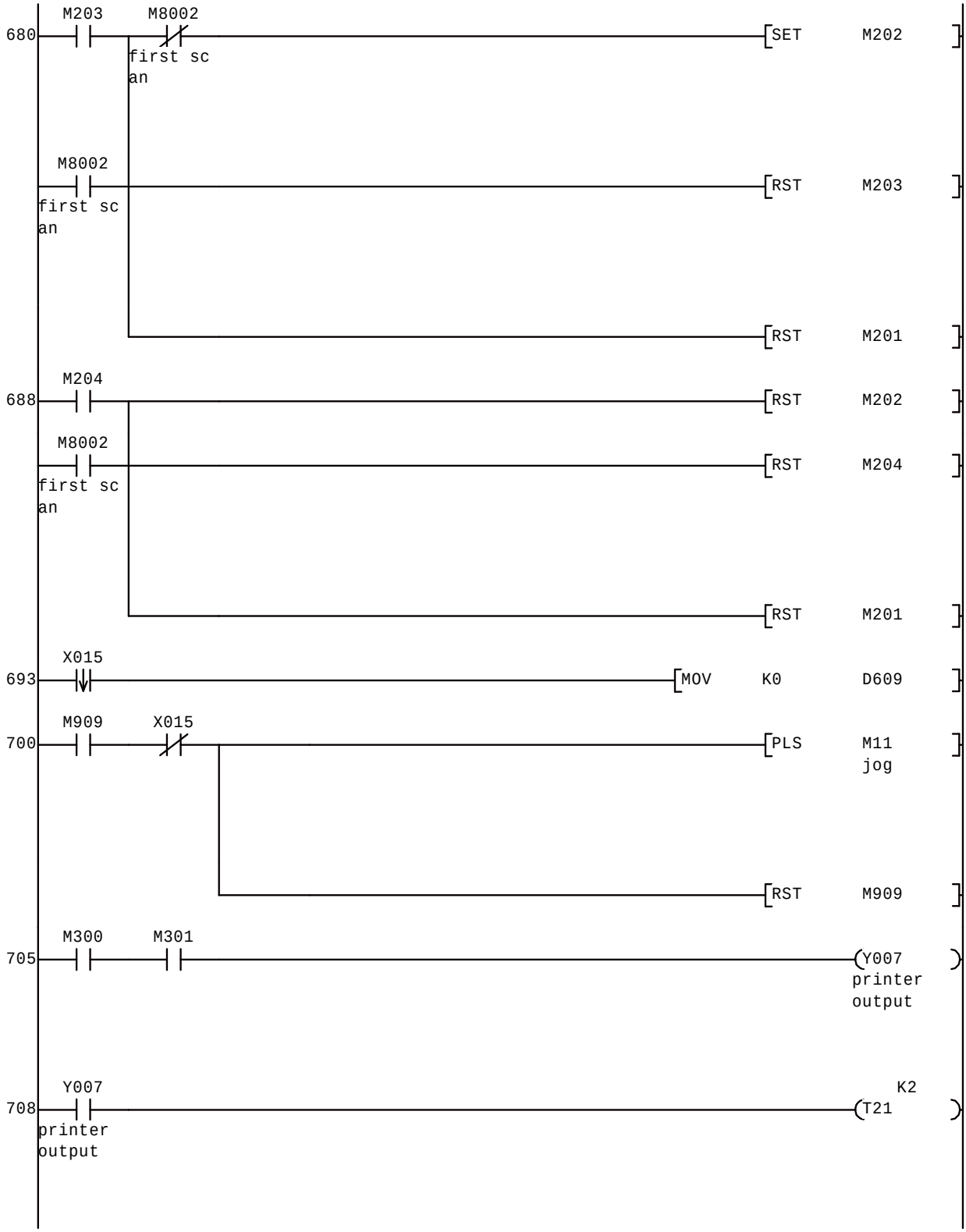

Labeling Head Program (LSI Serial Numbers 40-0334R & 40-0335L)
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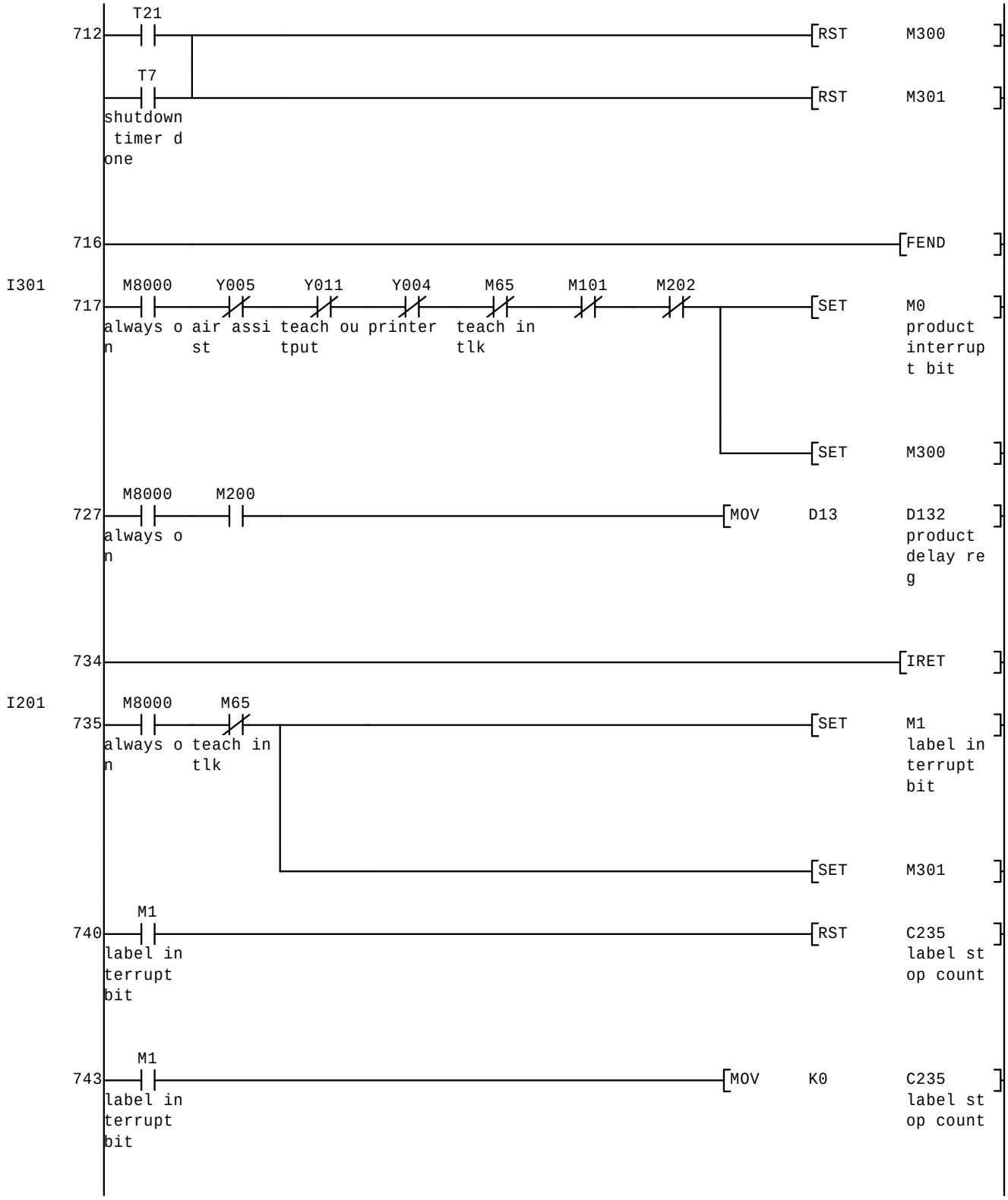

Labeling Head Program (LSI Serial Numbers 40-0334R & 40-0335L)
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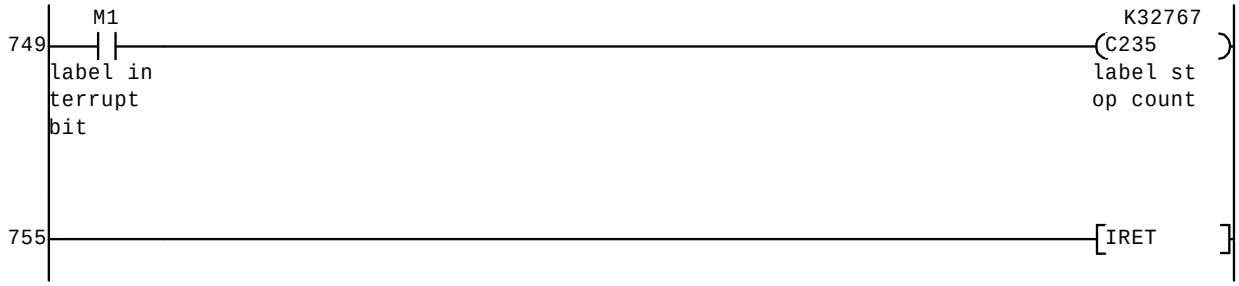

Labeling Head Program (LSI Serial Numbers 40-0334R & 40-0335L)
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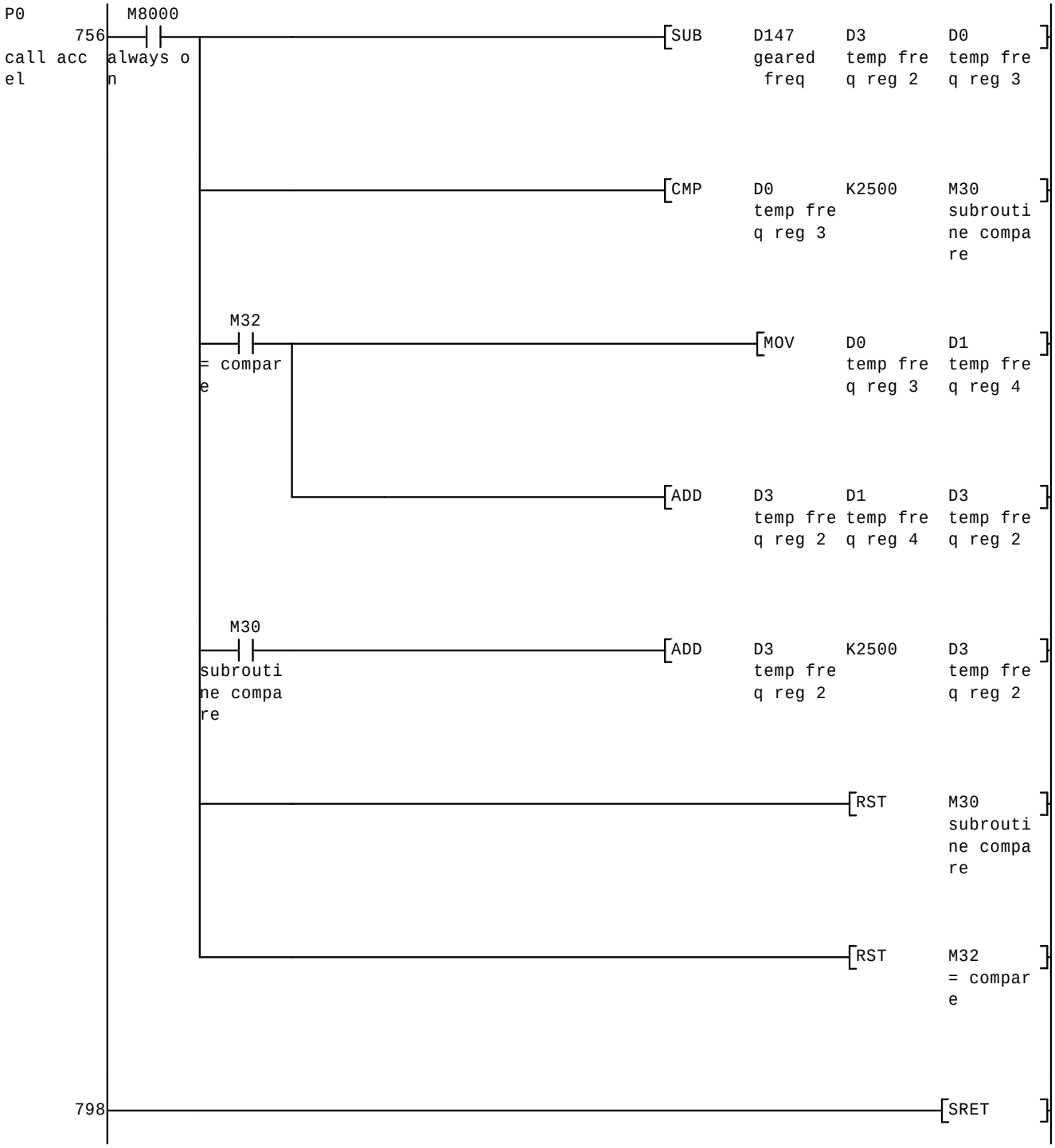

Labeling Head Program (LSI Serial Numbers 40-0334R & 40-0335L)
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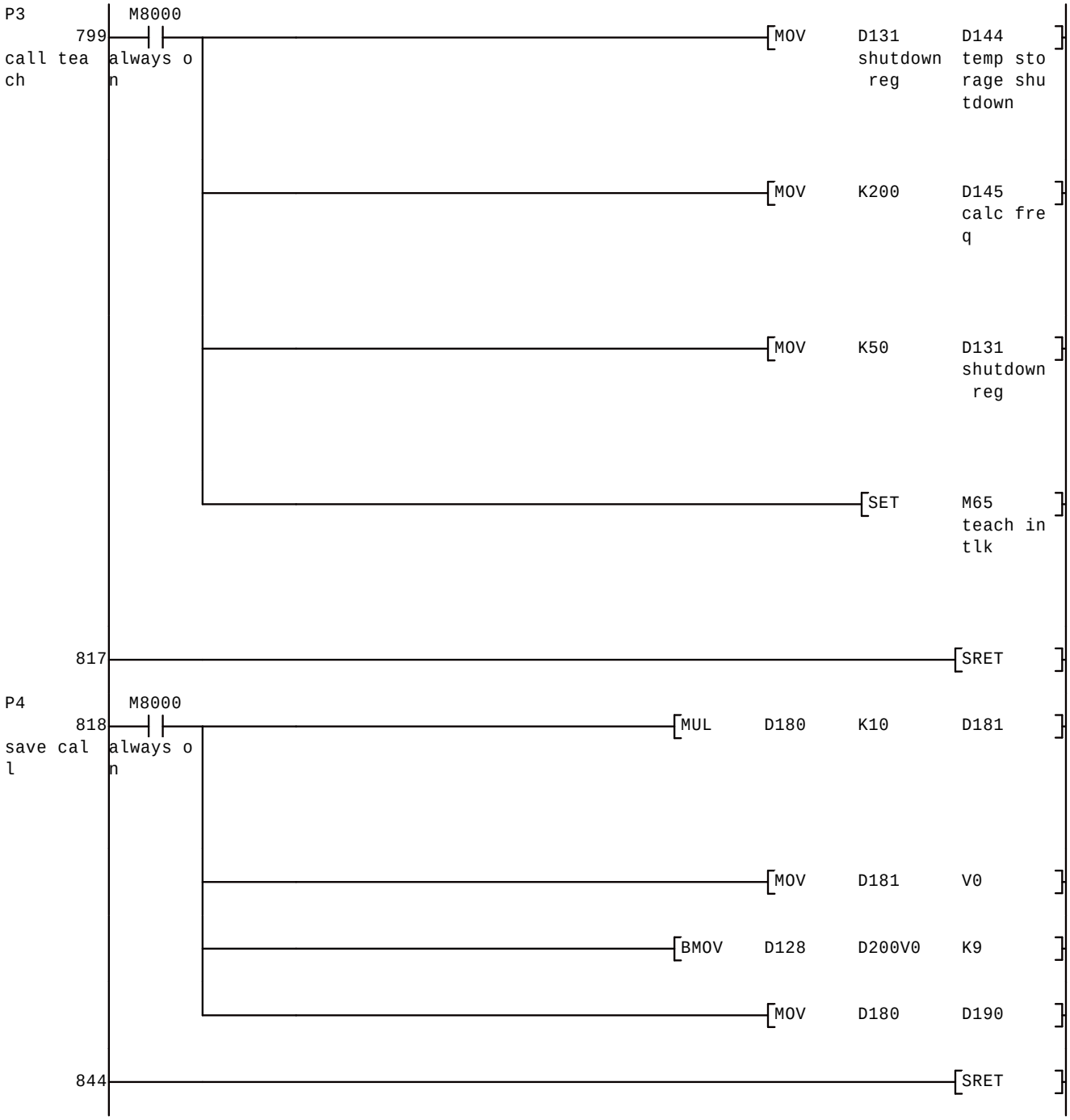
Version: 14-0554 Head Rev D



Labeling Head Program (LSI Serial Numbers 40-0334R & 40-0335L)
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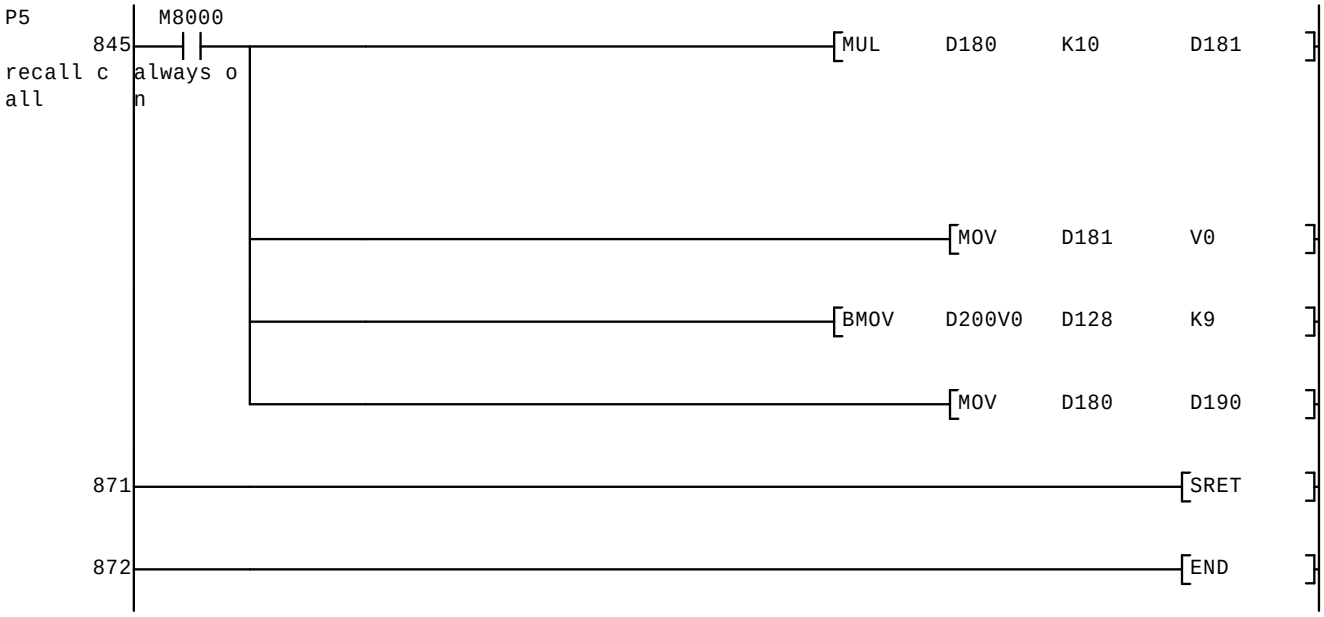
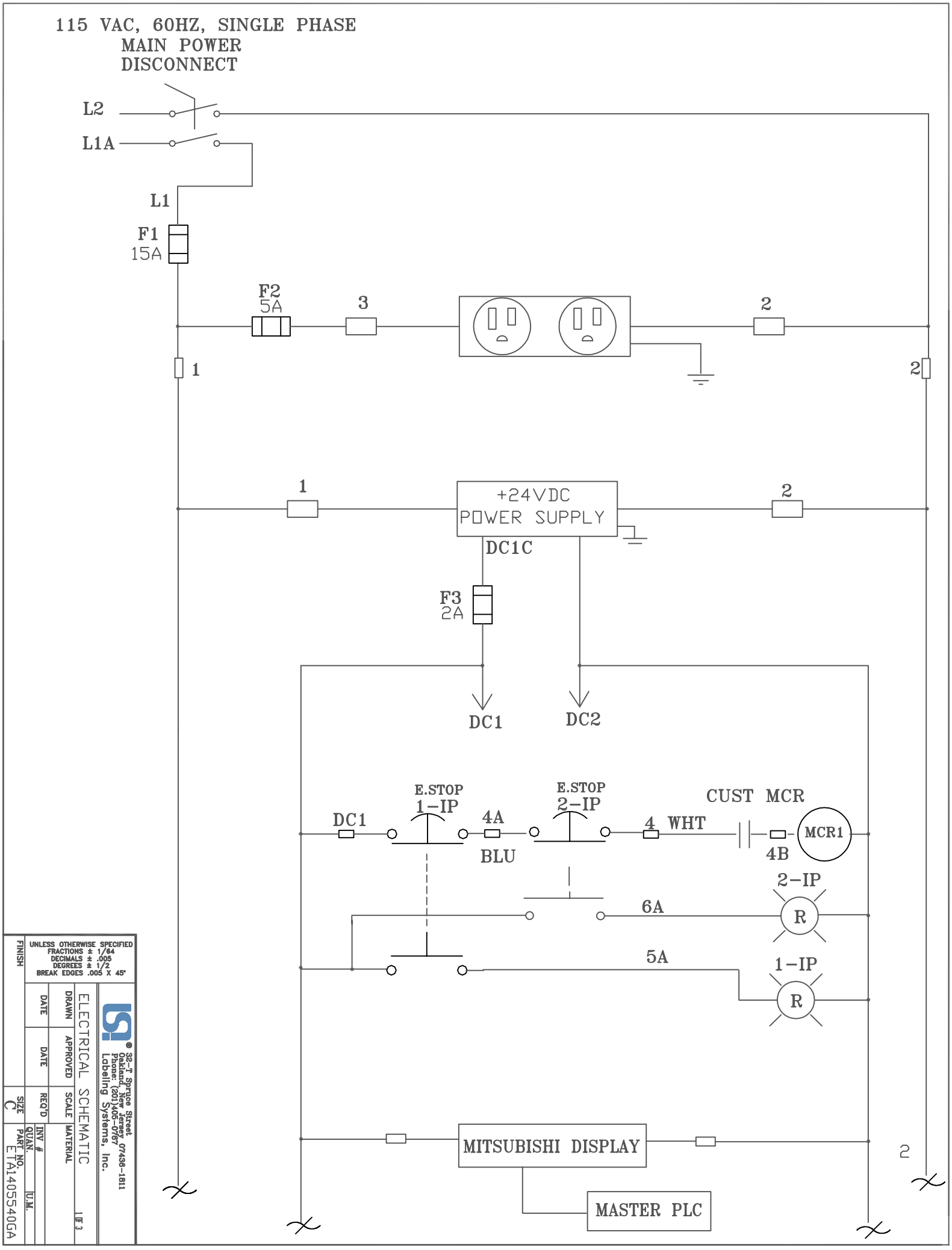
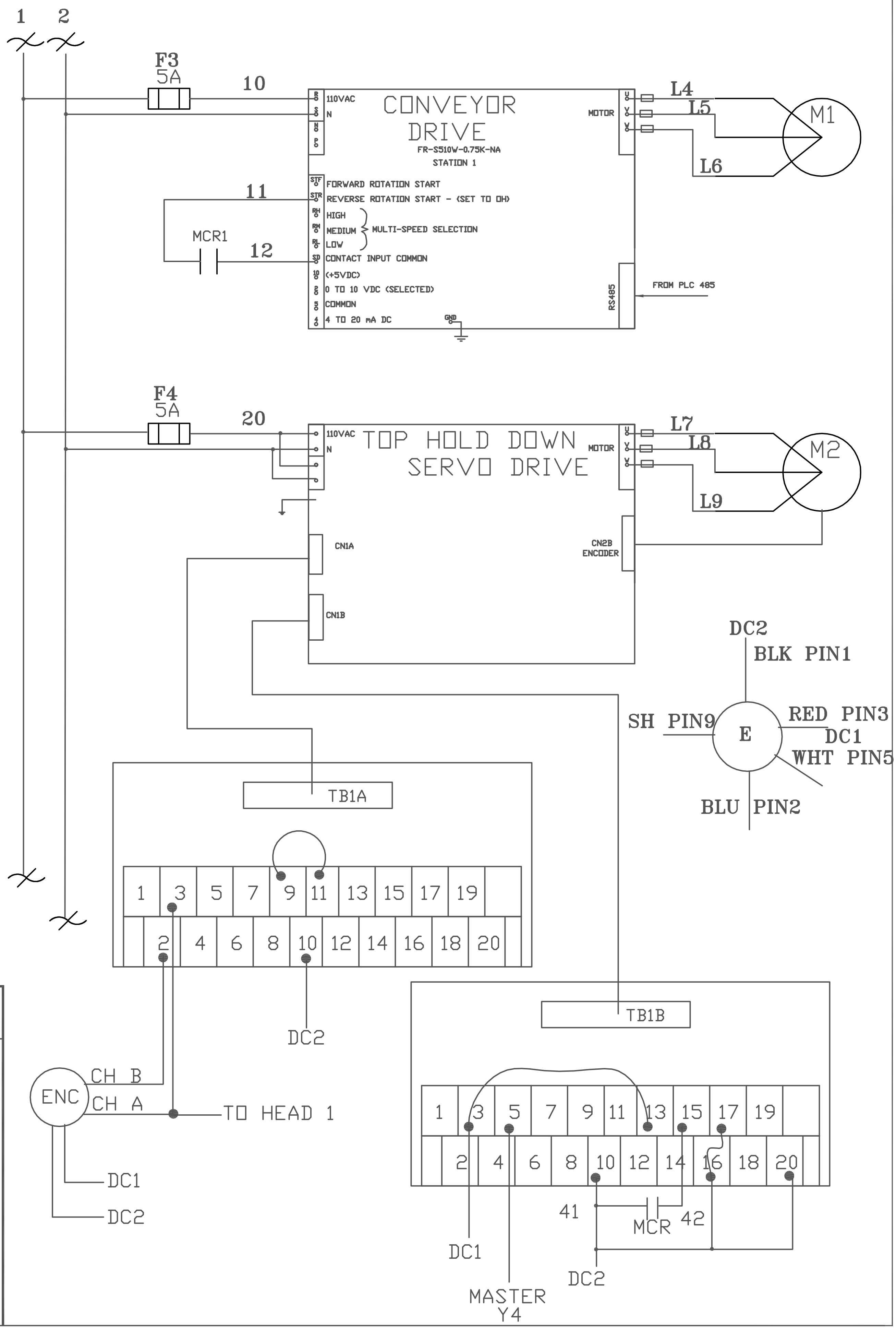
Version: 14-0554 Head Rev D



Appendix B

Schematics


115 VAC, 60HZ, SINGLE PHASE
MAIN POWER
DISCONNECT
L2
L1A
L1
F1
15A
F2
5A
3
2
1
2
1
+24VDC
POWER SUPPLY
2
DC1C
F3
2A
DC1
DC2
E.STOP
1-IP
E.STOP
2-IP
CUST MCR
DC1
4A
4 WHT
MCR1
4B
BLU
2-IP
6A
R
5A
1-IP
R
MITSUBISHI DISPLAY
MASTER PLC
2
UNLESS OTHERWISE SPECIFIED
FRACTIONS ± 1/64
DECIMALS ± .005
DEGREES ± 1/2
BREAK EDGES .005 X 45°
FINISH
DRAWN
DATE
APPROVED
DATE
ELECTRICAL SCHEMATIC
SIZE
C
REQ'D
SCALE
MATERIAL
INV #
QUAN.
PART NO.
ETA14055400A
U.M.
1 OF 3
32-T Spruce Street
Oakland, New Jersey 07436-1811
Phone: (201)405-0767
Labeling Systems, Inc.



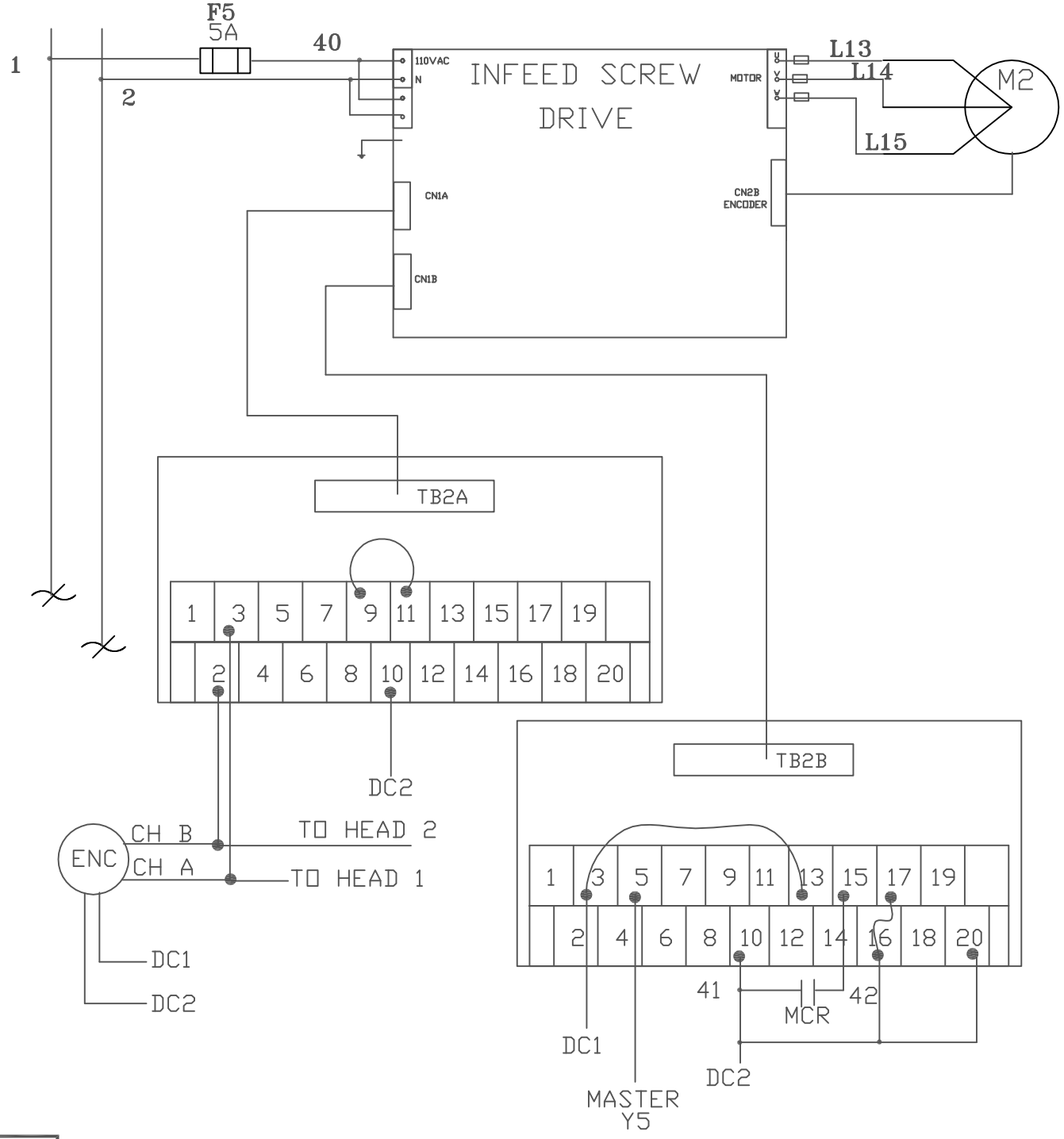
UNLESS OTHERWISE SPECIFIED
FRACTIONS ± 1/64
DECIMALS ± .005
DEGREES ± 1/2
BREAK EDGES .005 X 45°

FINISH | SIZE | PART NO

DATE | DRAWN | DATE | APPROVED | REQ'D | SCALE | INV # | QUAN. | U.M. | MATERIAL

ELECTRICAL SCHEMATIC VFD 2 OF 3

® 32-T Spruce Street
Oakland, New Jersey 07436-1811
Phone: (201)405-0767
Labeling Systems, Inc.



VFD PARAMETERS:

PARAM	SETTING	COMMENT
P7:	_	ACCEL TIME
P8:	_	DECEL TIME
P9:	_	OVERLOAD
P30:	1	EXTENDED FUNC DISP (ON)
P63:	7	STR TERM FUNCTION (OH)
n1:	#	STATION # (1~4)
n10:	1	LINK START MODE SELECT

UNLESS OTHERWISE SPECIFIED
FRACTIONS ± 1/64
DECIMALS ± .005
DEGREES ± 1/2
BREAK EDGES .005 X 45°

FINISH

DRAWN DATE

APPROVED DATE

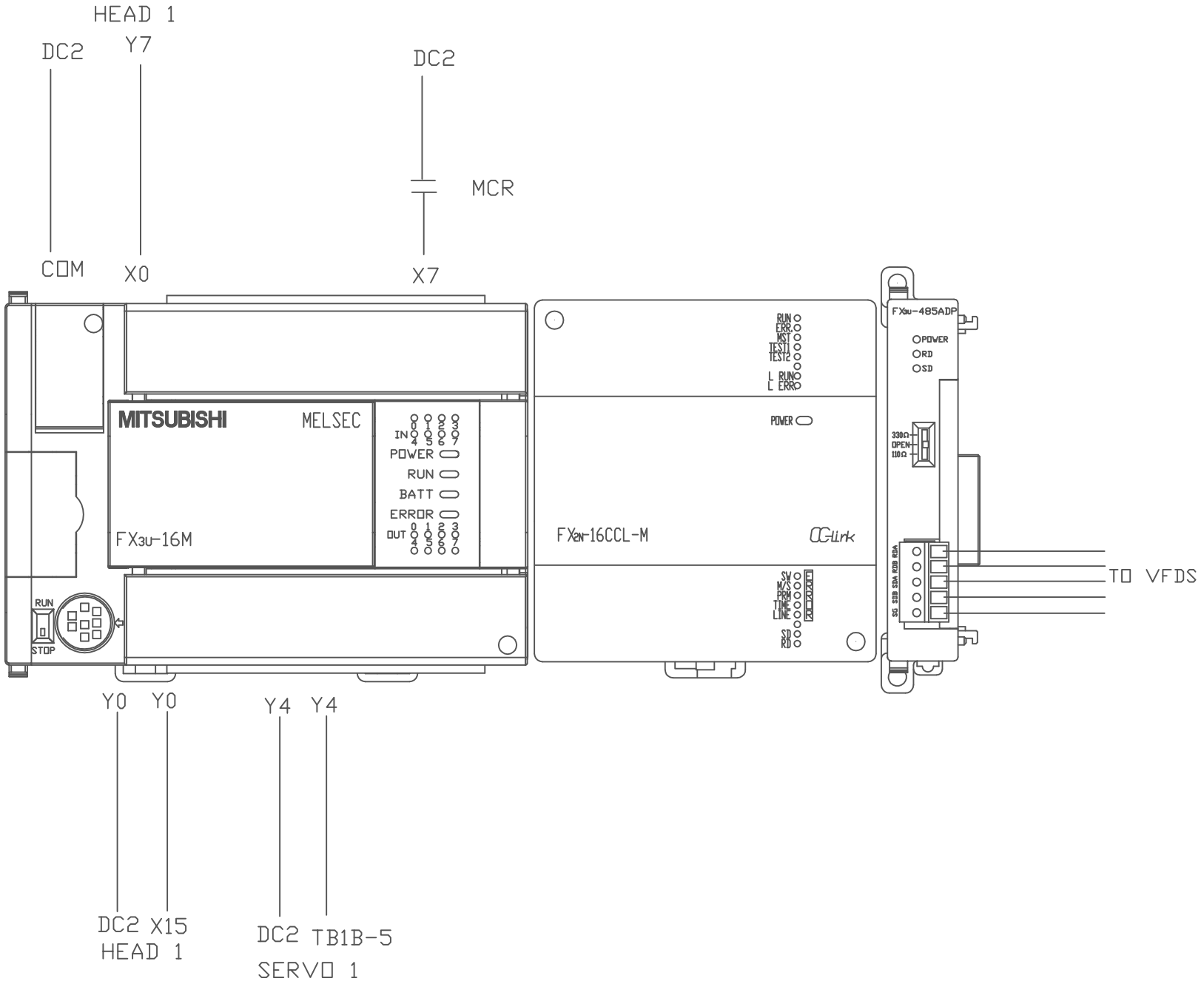
SIZE C | REQ'D | SCALE

QUAN. | INV # | MATERIAL

PART NO. ETA14055400A | U.M.

ELECTRICAL SCHEMATIC VFD 3 OF 3

© 32-T Spruce Street
Oakland, New Jersey 07436-1811
Phone: (201)405-0767
Labeling Systems, Inc.

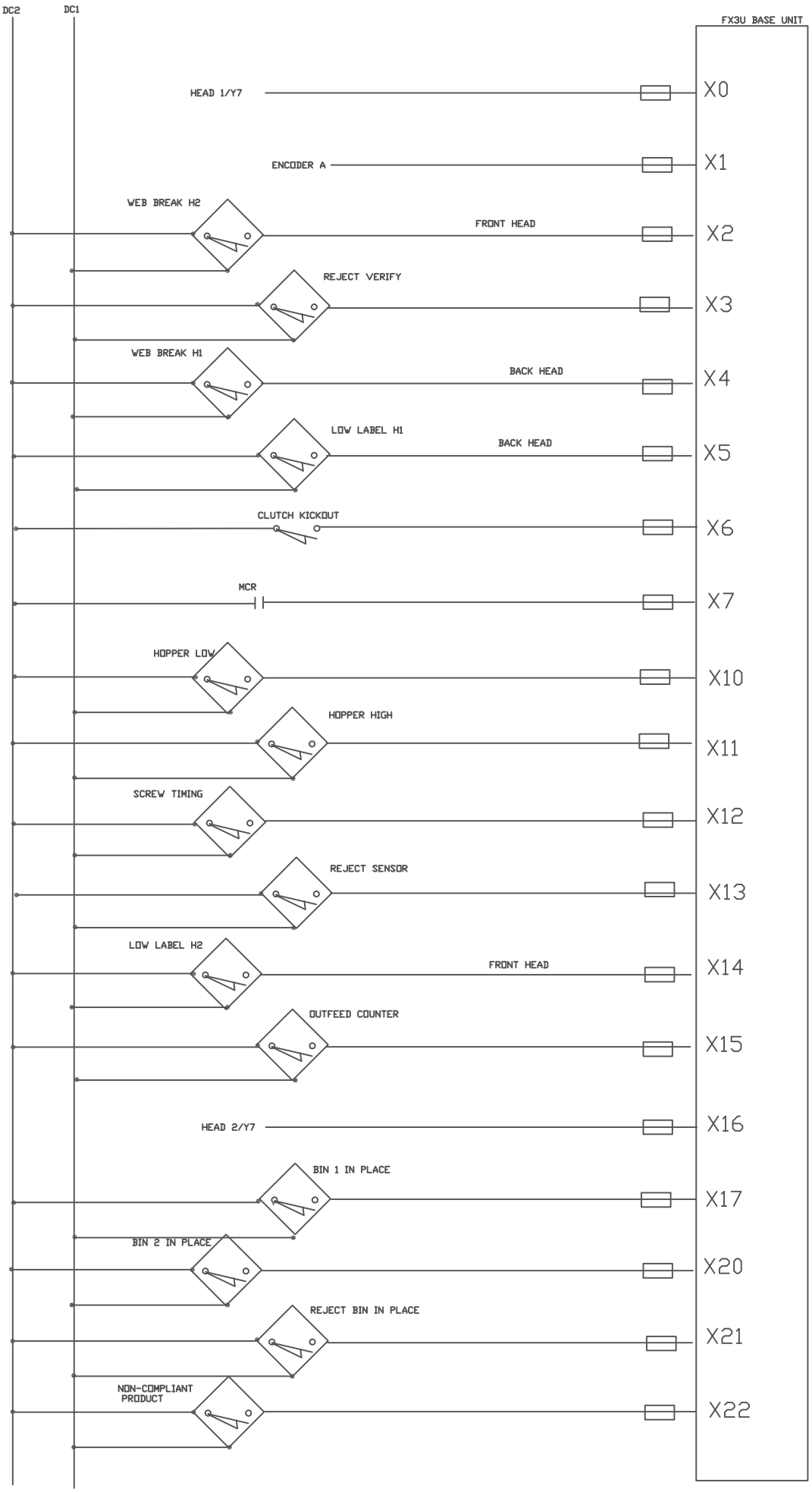


UNLESS OTHERWISE SPECIFIED
FRACTIONS ± 1/64
DECIMALS ± .005
ANGLES ± 1/2°
BREAK EDGES .005 X 45°

32-T Spruce Street
Oakland, New Jersey 07436-1811
Phone: (201)405-0767
Labeling Systems, Inc.

MASTER PLC

DRAWN	APPROVED	SCALE	MATERIAL
DATE	DATE	REQ'D	INV #
			QUAN. U.M.
FINISH		SIZE C	PART NO. ETA1405540GA



UNLESS OTHERWISE SPECIFIED
FRACTIONS ± 1/64
DECIMALS ± .005
DEGREES ± 1/2
BREAK EDGES .005 X 45°

FINISH

DRAWN | DATE

APPROVED | DATE

SCALE | REQ'D

MATERIAL | INV #

QUAN. | U.M.

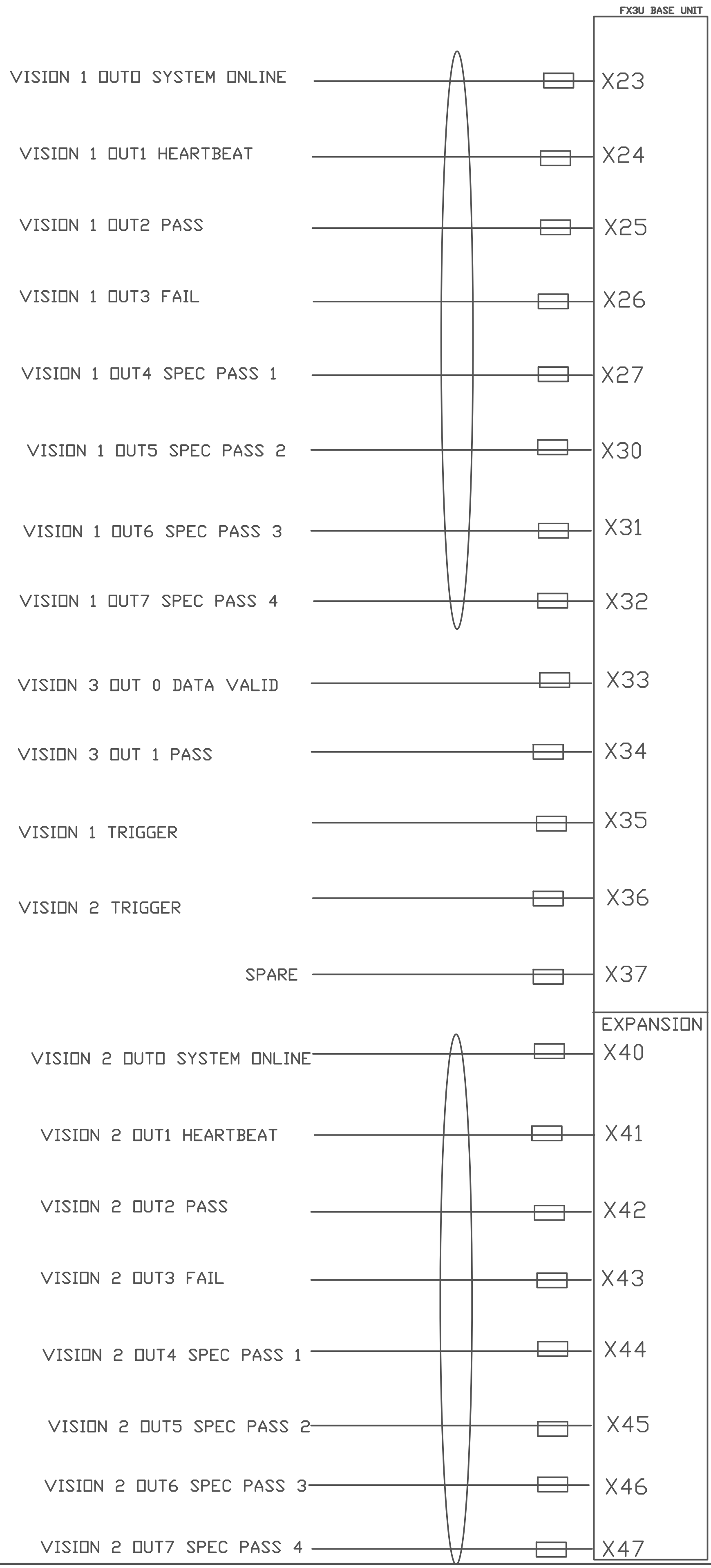
PART NO. ETA14055400A

SIZE C

ELECTRICAL SCHEMATIC VFD 3 OF 3

Labeling Systems, Inc.
32-T Spruce Street
Oakland, New Jersey 07436-1811
Phone: (201)405-0767

ADDED VISION 3
AND TRIGGERS
MW - 10-04-2016



FINISH

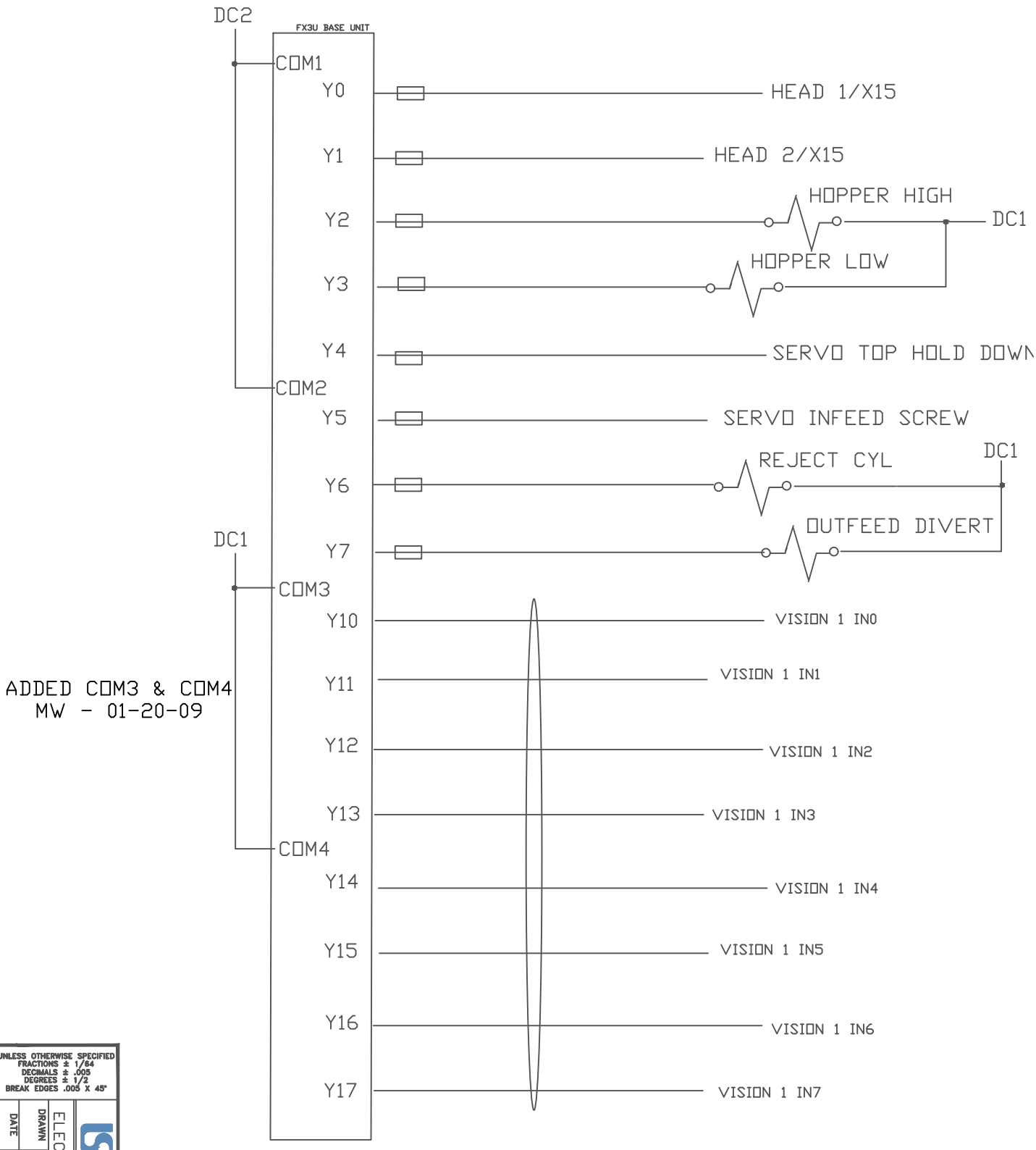
UNLESS OTHERWISE SPECIFIED
FRACTIONS ± 1/64
DECIMALS ± .005
DEGREES ± 1/2
BREAK EDGES .005 X 45°

DATE | DRAWN | DATE | APPROVED | REQ'D | SCALE | MATERIAL

ELECTRICAL SCHEMATIC VFD 3 OF 3

Labeling Systems, Inc.
32-T Spruce Street
Oakland, New Jersey 07436-1811
Phone: (201)405-0767

SIZE C
INV #
QUAN.
U.M.
PART NO.
ETA1405540GA



ADDED COM3 & COM4
MW - 01-20-09

ADDED VISION 3
MW - 10-04-2016

3 LABEL CAMERA – IP ADDRESS 172.16.73.57

		YELLOW	1	HS OUT 2
		WHITE/YELLOW	2	RS232 Tx
		BROWN	3	RS232 Rx
		WHITE/BROWN	4	HS OUT 3
		VIOLET	5	IN 0
DC1		WHITE/VIOLET	6	INPUT COMMON
DC1		RED	7	+24VDC
DC2		BLACK	8	GND
DC2		GREEN	9	OUTPUT COMMON
Y36	45	ORANGE	10	TRIGGER
X33	29	BLUE	11	HS OUT 0
X34	34	GREY	12	HS OUT 1

UNLESS OTHERWISE SPECIFIED
FRACTIONS ± 1/64
DECIMALS ± .005
DEGREES ± 1/2
BREAK EDGES .005 X 45°

FINISH

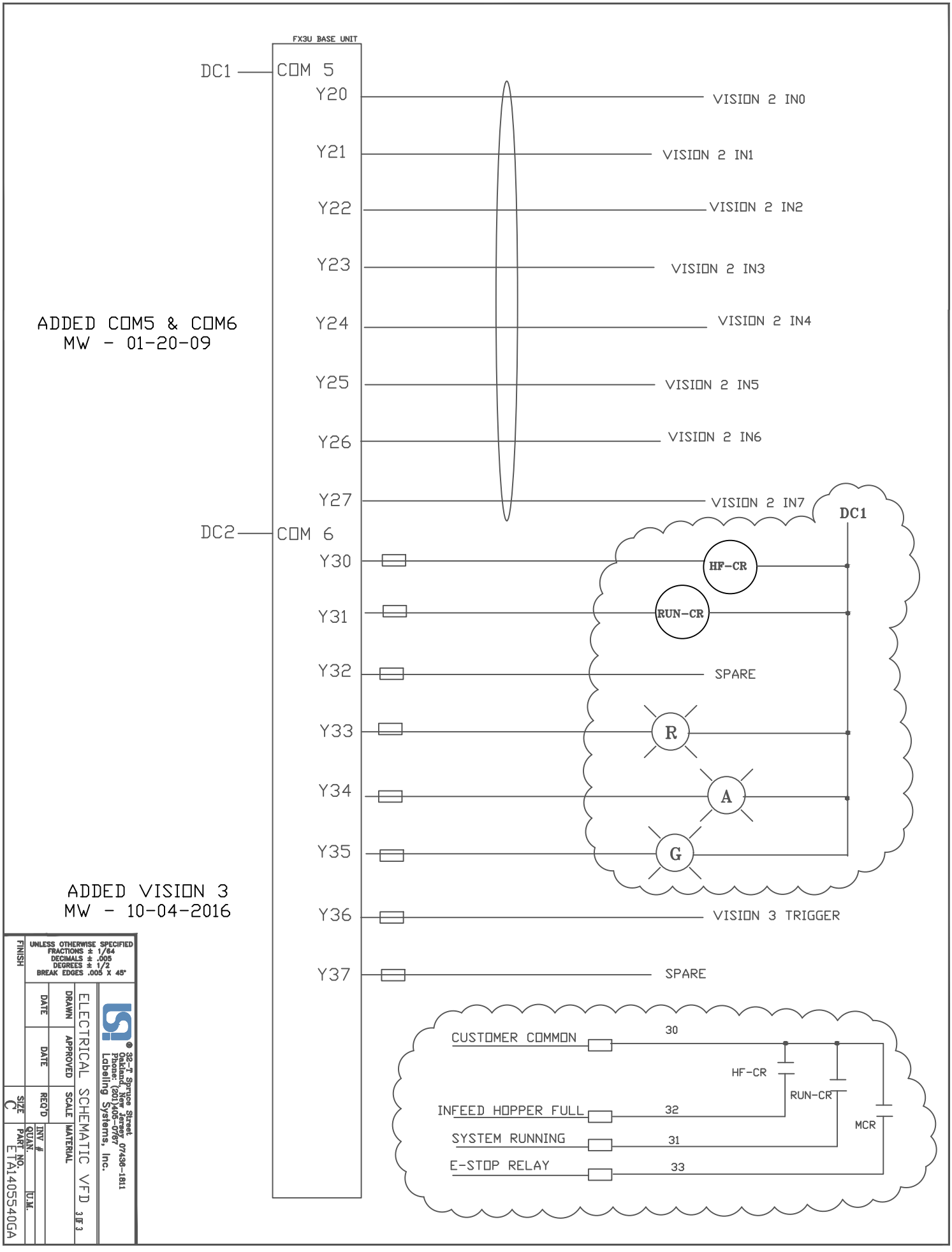
DRAWN DATE
APPROVED DATE

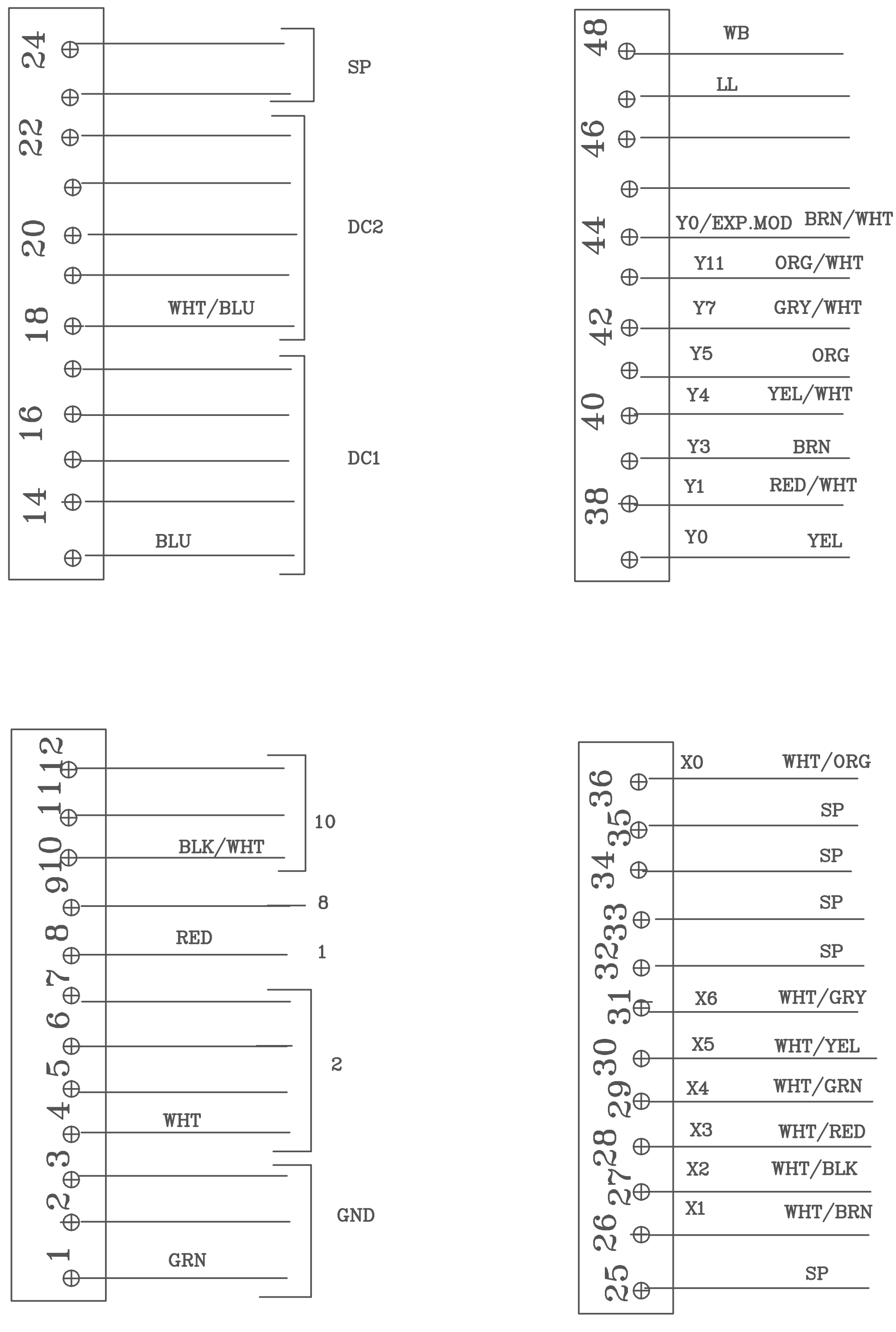
ELECTRICAL SCHEMATIC VFD 3 OF 3

SIZE C
REQ'D
SCALE
MATERIAL

INV #
QUAN.
U.M.
PART NO. ETA140554OGA

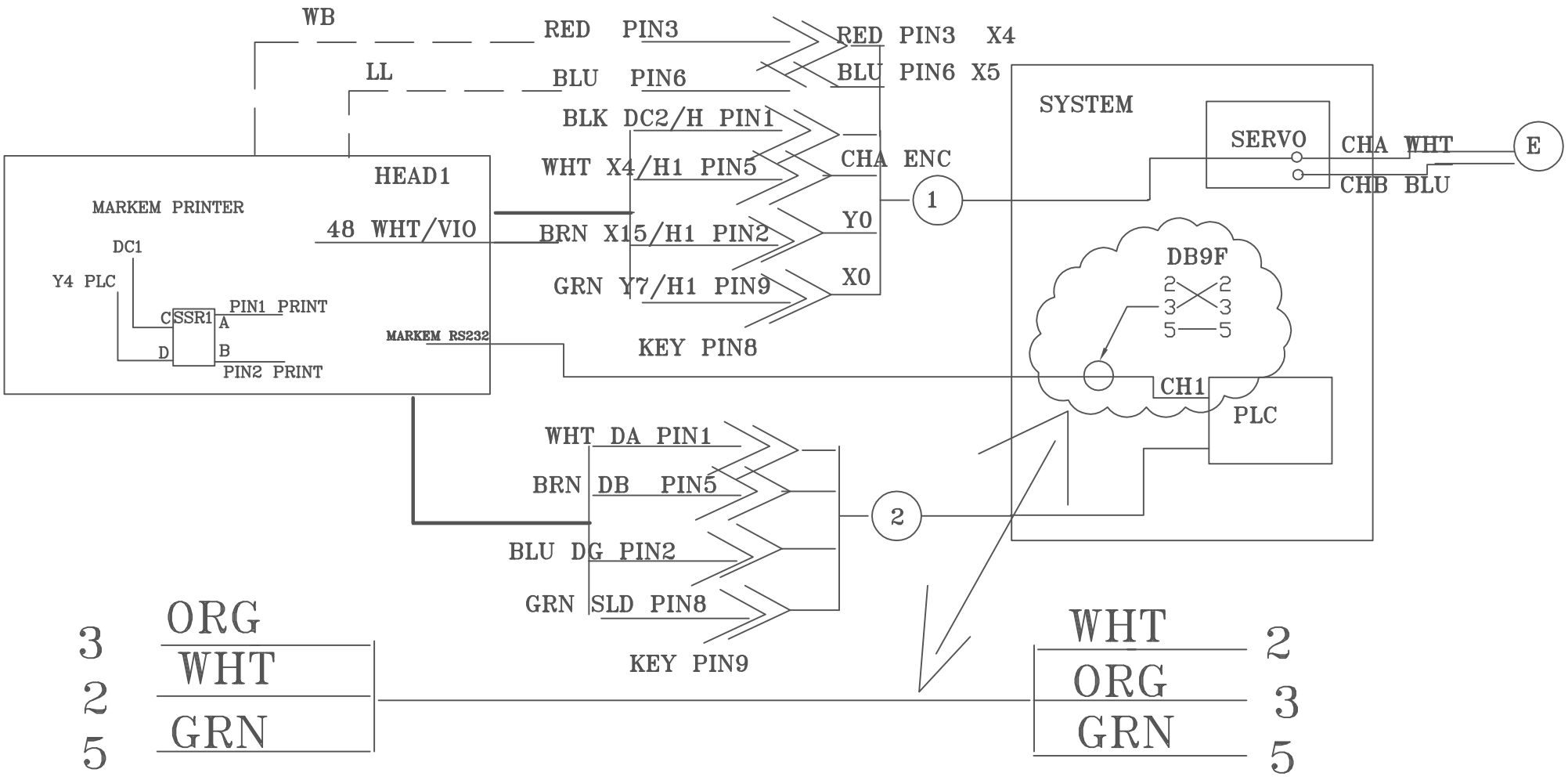
32-T Spruce Street
Oceanport, NJ 07757-0907 07436-1811
Phone: (201) 405-0707
Labeling Systems, Inc.


FX3U BASE UNIT
DC1
COM 5
Y20
VISION 2 IN0
Y21
VISION 2 IN1
Y22
VISION 2 IN2
Y23
VISION 2 IN3
ADDED COM5 & COM6
MW - 01-20-09
Y24
VISION 2 IN4
Y25
VISION 2 IN5
Y26
VISION 2 IN6
Y27
VISION 2 IN7
DC2
COM 6
DC1
Y30
HF-CR
Y31
RUN-CR
Y32
SPARE
Y33
R
Y34
A
Y35
G
ADDED VISION 3
MW - 10-04-2016
Y36
VISION 3 TRIGGER
Y37
SPARE
CUSTOMER COMMON
30
HF-CR
RUN-CR
INFEED HOPPER FULL
32
MCR
SYSTEM RUNNING
31
E-STOP RELAY
33
FINISH
UNLESS OTHERWISE SPECIFIED
FRACTIONS ± 1/64
DECIMALS ± .005
DEGREES ± 1/2
BREAK EDGES .005 X 45°
DRAWN
DATE
APPROVED
DATE
ELECTRICAL SCHEMATIC VFD
3 OF 3
SIZE
C
REQ'D
SCALE
MATERIAL
INV #
QUAN.
U.M.
PART NO.
ETA140554OGA
32-T Spruce Street
Oakland, New Jersey 07436-1811
Phone: (201)405-0767
Labeling Systems, Inc.



LSI®
32-T Spruce Street
Oakland, New Jersey 07436-1811
Phone: (201)405-0767
Labeling Systems, Inc.

TITLE	WIRE RUN LIST FOR MODEL 41
DRAWN LL	DATE 04/06
APPROVED AD	DATE 04/06
SCALE	REQ'D
MATERIAL	INV #
QUAN.	U.M.
SIZE C	PART NO. ETA1405540GA
FINISH	UNLESS OTHERWISE SPECIFIED FRACTIONS ± 1/64 DECIMALS ± .005 DEGREES ± 1/2 BREAK EDGES .005 X 45°



UNLESS OTHERWISE SPECIFIED
FRACTIONS ± 1/64
DECIMALS ± .005
DEGREES ± 1/2°
BREAK EDGES .005 X 45°

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Oakland, New Jersey 07436-1811
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Labeling Systems, Inc.

HEAD 1

DRAWN	APPROVED	SCALE	MATERIAL
DATE	DATE	REQ'D	INV #
		QUAN.	U.M.
FINISH		SIZE C	PART NO. ETA1405540GA

BOTT		TOP	BOTT		TOP
1	1	SP	X33	29	X22
1	2	3	X41	30	X24
1	3	4	X43	31	X26
2	4	4A	X45	32	X30
2	5	SP	X47	33	X32
2	6	12	SP	34	X34
SP	7	DC1	Y1	35	X40
L13	8	DC1	Y3	36	X42
L14	9	DC1	Y5	37	X44
L15	10	DC1	Y7	38	X46
DA	11	SP	SP	39	SP
DB	12	DC2	SP	40	Y0
DG	13	DC2	Y32	41	Y2
SLD	14	DC2	Y33	42	Y4
SP	15	DC2	Y34	43	Y6
X1	16	CHA	Y35	44	SP
X3	17	DIODE	Y36	45	DC1
X5	18	CHB	Y37	46	DC1
SP	19	X0	SP	47	DC1
X11	20	X2	L4	48	DC2
X13	21	X4	L5	49	DC2
X15	22	X6	L6	50	DC2
X17	23	SP	L7	51	Y30
X21	24	X10	L8	52	Y31
X23	25	X12	L9	53	30
X25	26	X14		54	31
X27	27	X16		55	32
X31	28	X20		56	33

UNLESS OTHERWISE SPECIFIED
FRACTIONS ± 1/64
DECIMALS ± .005
DEGREES ± 1/2
BREAK EDGES .005 X 45°

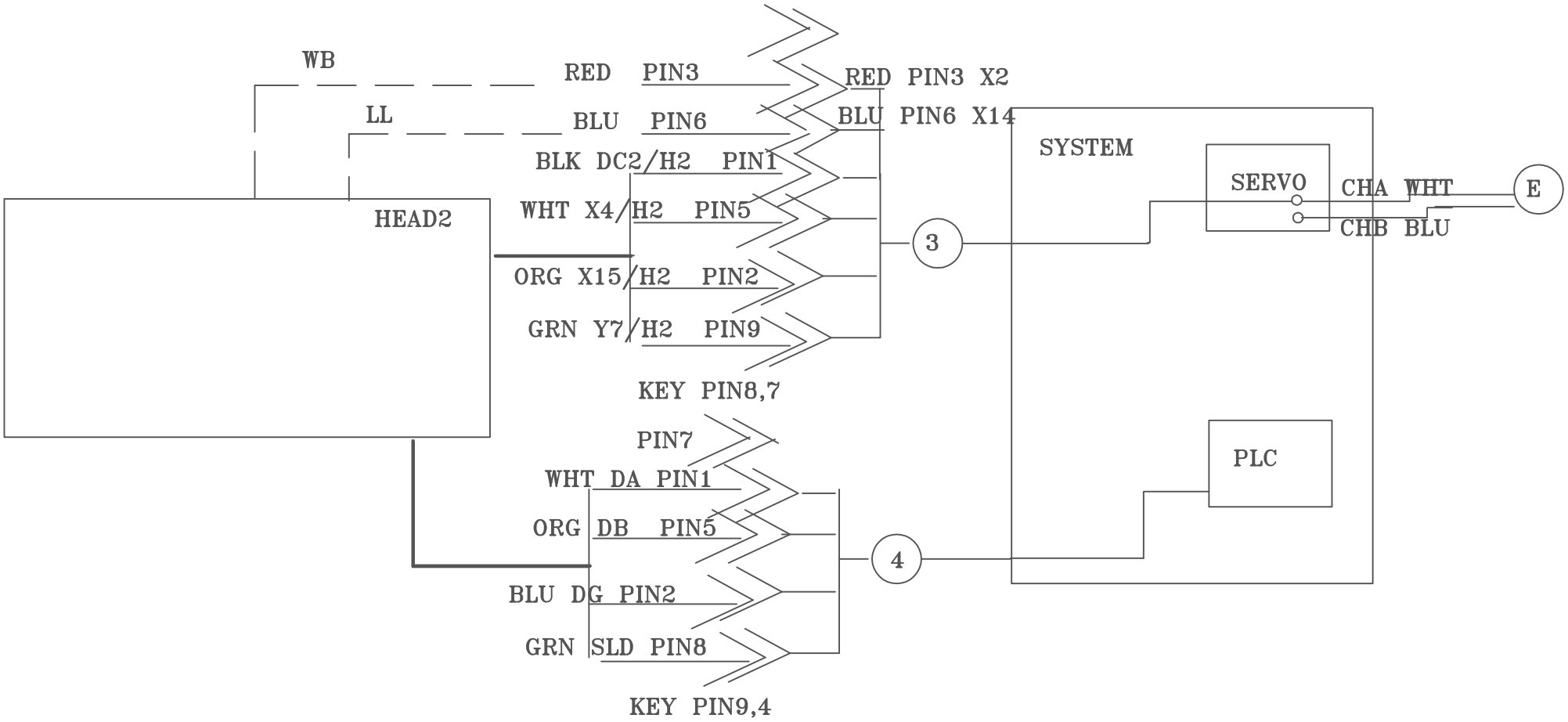
FINISH

TITLE
TERMINAL ARRANGEMENT

DRAWN L.L. 8/07
APPROVED AD 8/07
SCALE
MATERIAL
REQ'D
INV #
QUAN.
U.M.

SIZE C
PART NO. ETA140540GA

ISI
32-T Spruce Street
Oakland, New Jersey 07436-1811
Phone: (201)405-0767
Labeling Systems, Inc.



UNLESS OTHERWISE SPECIFIED
FRACTIONS ± 1/64
DECIMALS ± .005
DEGREES ± 1/2°
BREAK EDGES .005 X 45°

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Oakland, New Jersey 07436-1811
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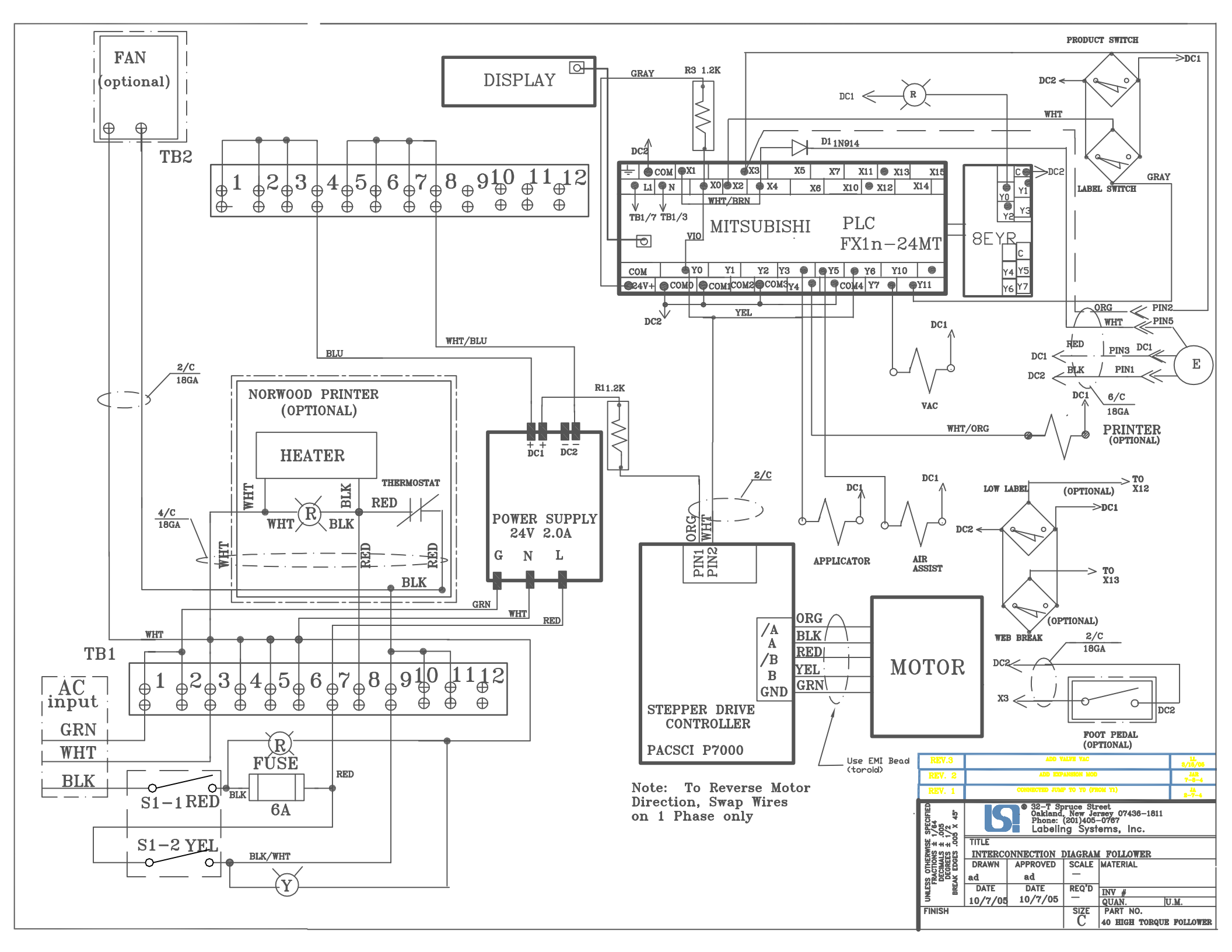
HEAD 2

DRAWN	APPROVED	SCALE	MATERIAL
DATE	DATE	REQ'D	INV #
			QUAN. U.M.
FINISH		SIZE C	PART NO. ETA1405540GA



Note: To Reverse Motor Direction, Swap Wires on 1 Phase only

REV.		
REV.3	ADD VALVE VAC	LL 9/15/05
REV. 2	ADD EXPANSION MOD	JAR 7-8-4
REV. 1	CONNECTED JUMP TO Y0 (FROM Y1)	JA 8-9-4

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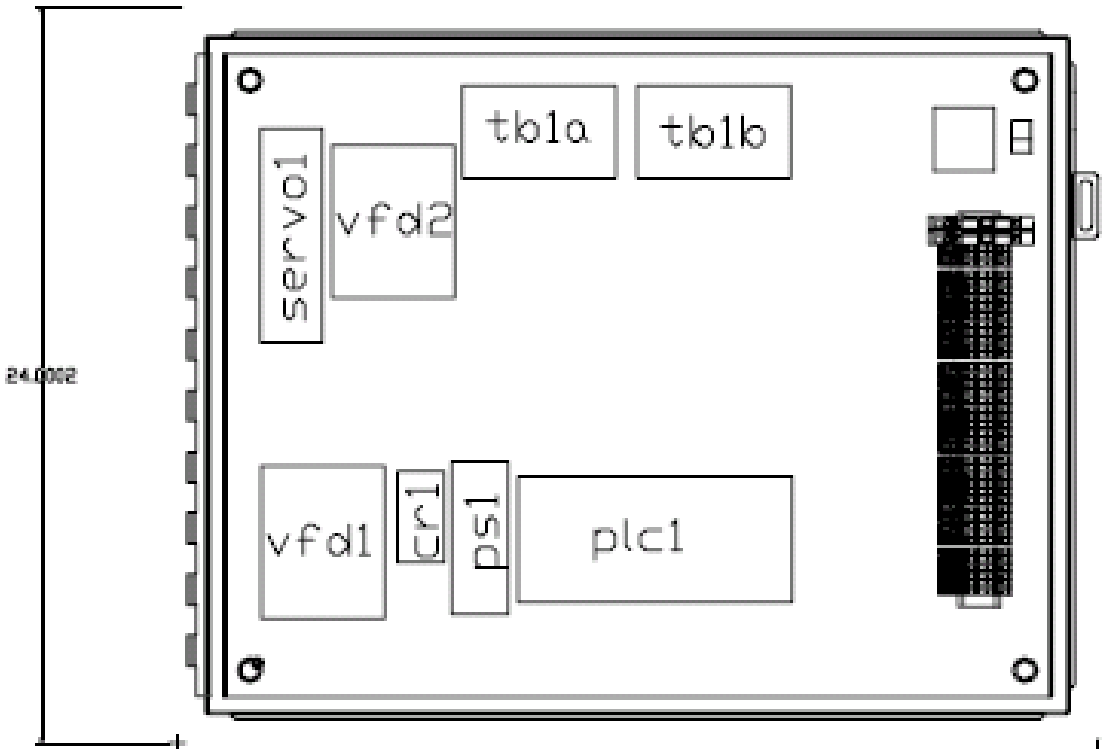
UNLESS OTHERWISE SPECIFIED
FRACTIONS ± 1/64
DECIMALS ± .005
DEGREES ± 1/2
BREAK EDGES .005 X 45°

TITLE: INTERCONNECTION DIAGRAM FOLLOWER

DRAWN	APPROVED	SCALE	MATERIAL
ad	ad	—	
DATE	DATE	REQ'D	INV #
10/7/05	10/7/05	—	QUAN. U.M.
FINISH		SIZE C	PART NO. 40 HIGH TORQUE FOLLOWER


24.0002
servo1
vfd2
tb1a
tb1b
vfd1
cr1
ps1
plc1