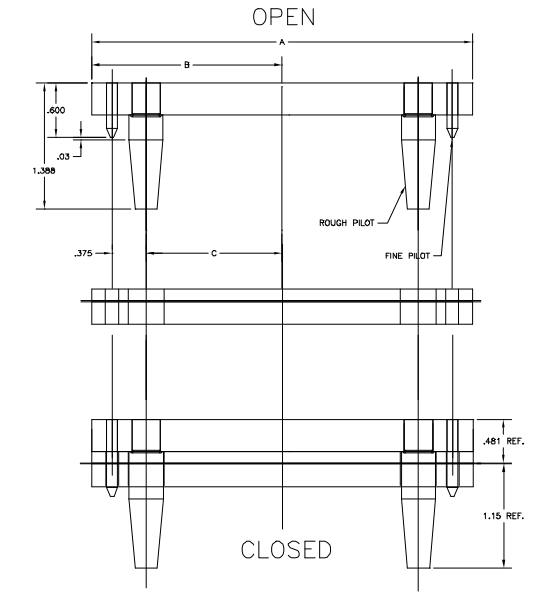
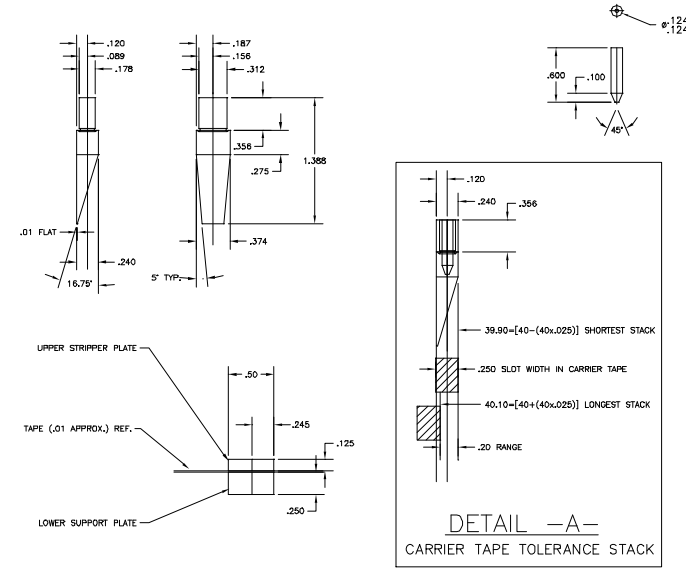
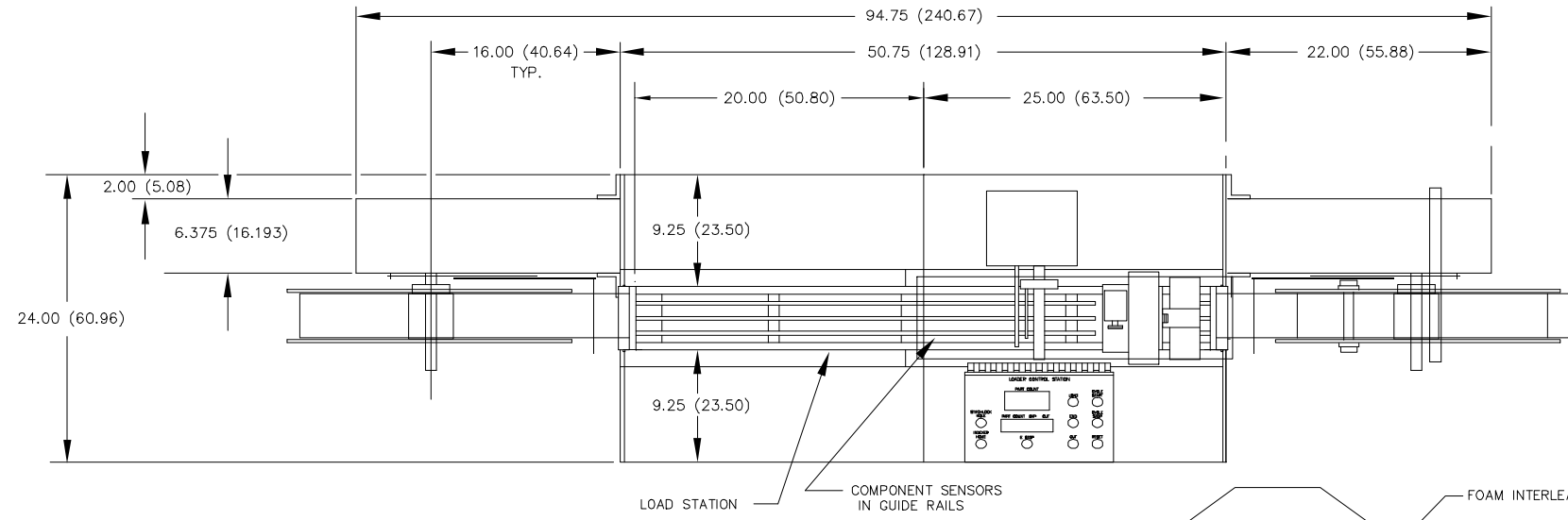
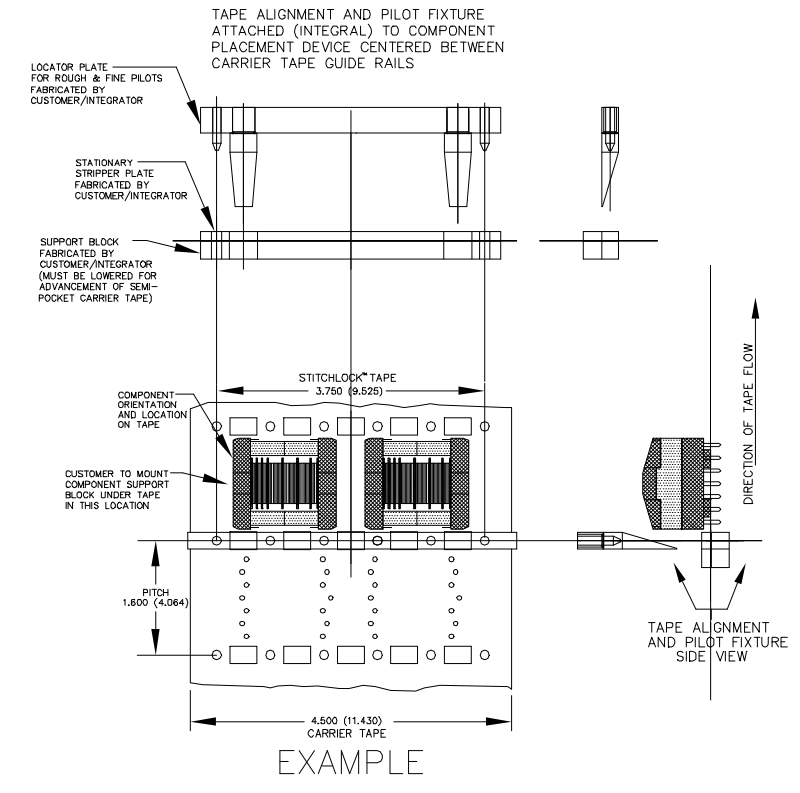
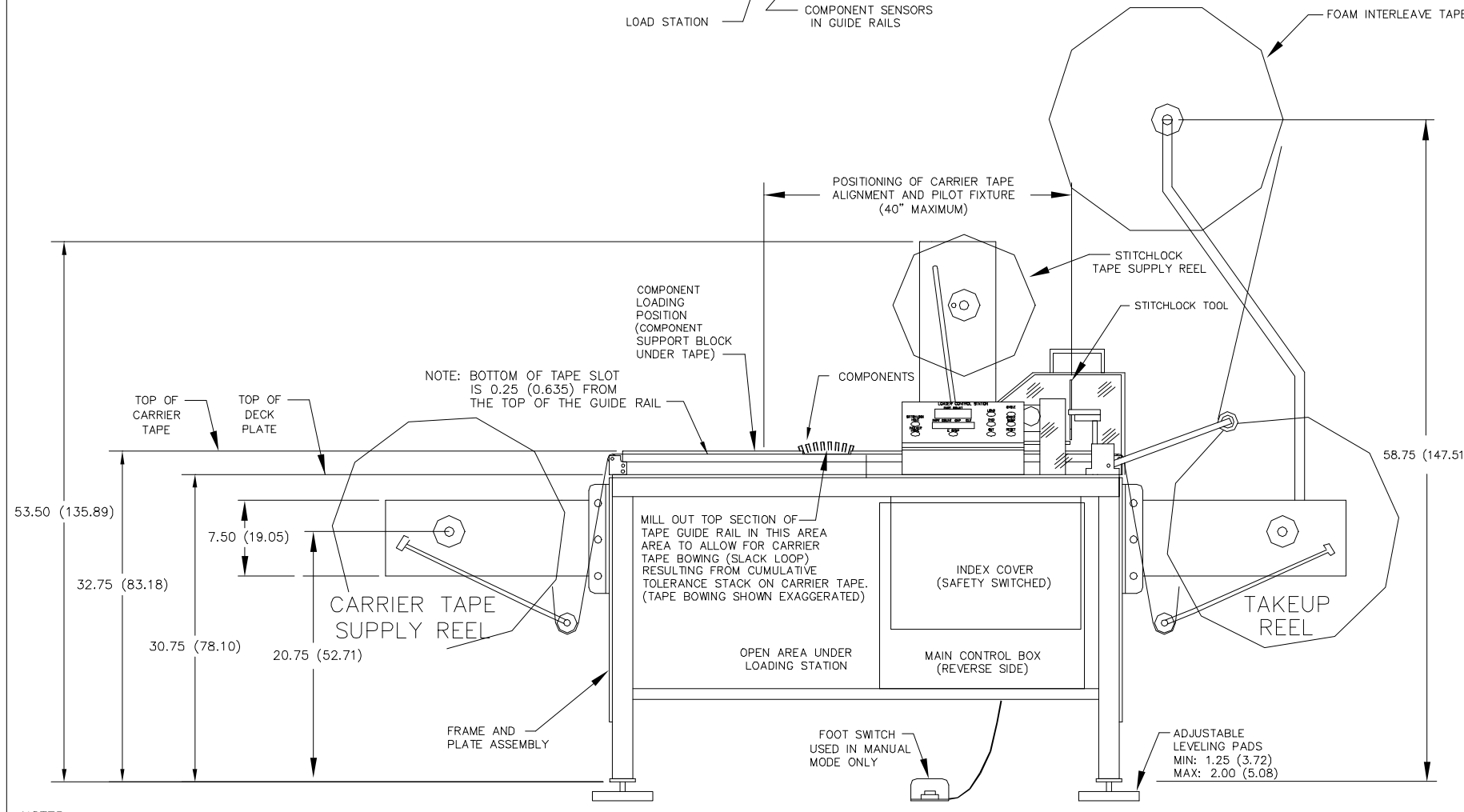


REVISIONS				
LTR	DESCRIPTION/DCR	DRWN	DATE	APPD
A	ADDED TEXT, CHART, & SOME DIM.S	MTB	1/5/94	
B	MODIFIED PILOT FIXTURE	MTB	5/13/94	
C	ADDED SAFETY COVER NOTE	SES	4-6-98	

WIDTH CHART			
TAPE WIDTH	A	B	C
3'	2.7	1.35	1.125
4'	3.7	1.85	1.125
4.5' SHOWN	4.2	2.10	1.875
6'	5.7	2.85	1.967



Tape Alignment And Pilot Fixture



ALL DIMENSIONS ARE IN INCHES (CM) UNLESS OTHERWISE SPECIFIED.

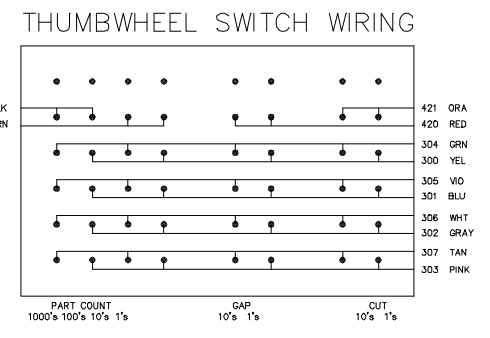
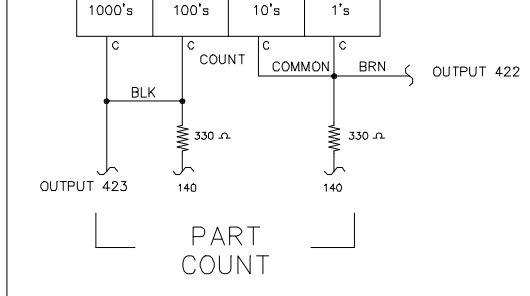
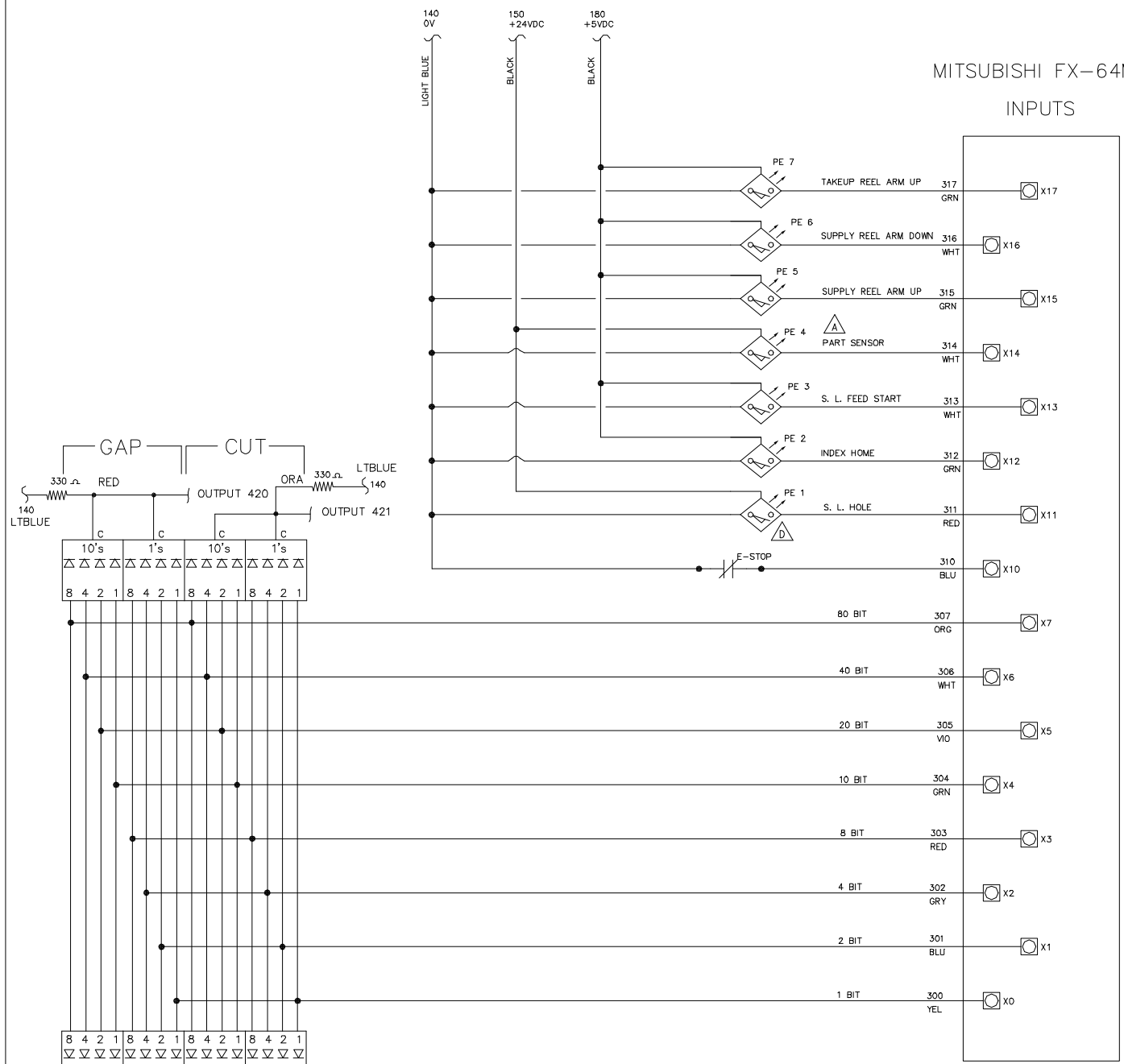
- NOTES:
- BREAK ALL SHARP CORNERS AND EDGES.
 - DEBURR ALL HOLES.
 - PLATING THICKNESS: .0002 MIN/ .0008 MAX.

DO NOT SCALE DRAWING

PROPRIETARY INFORMATION
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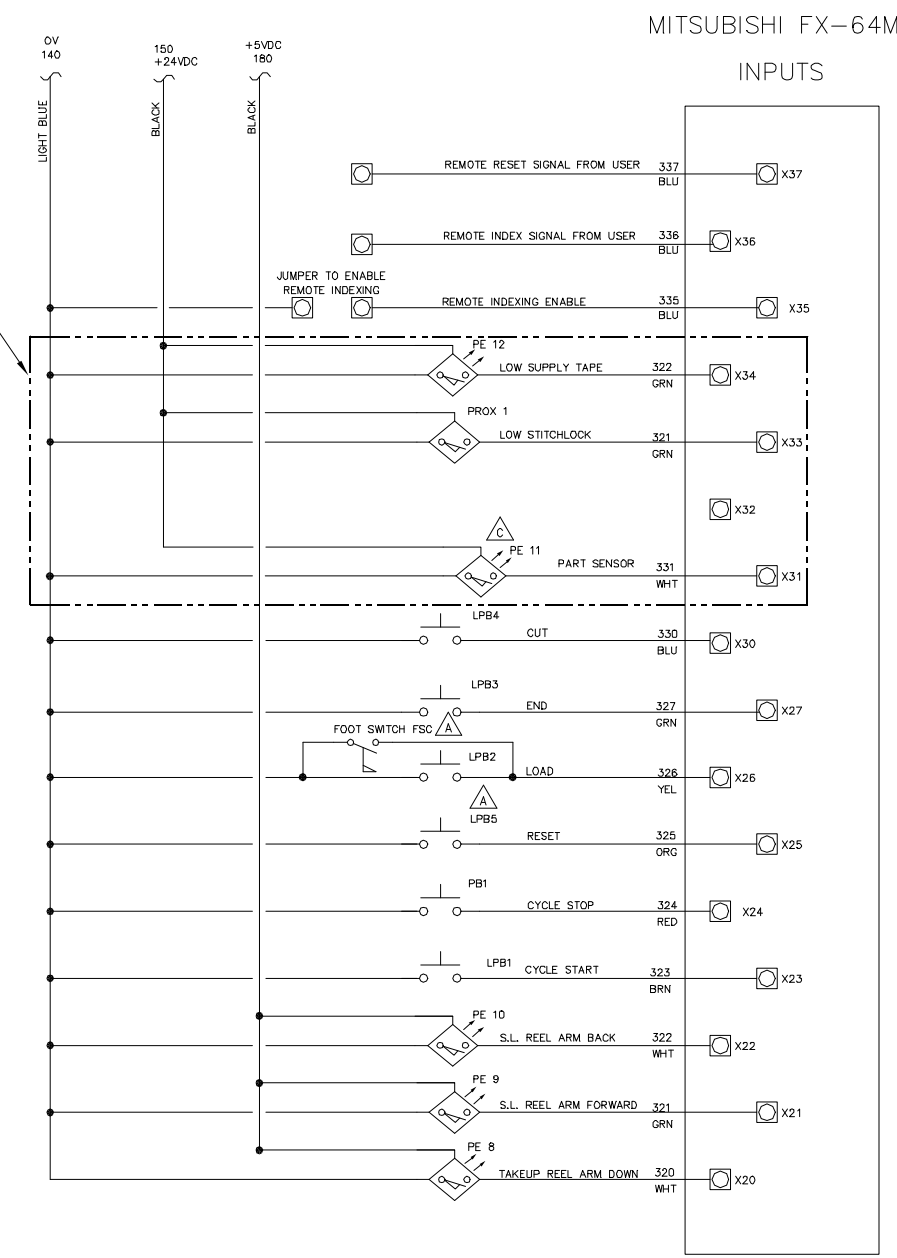
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NEXT ASSEMBLY	TITLE		
NONE	GPAX 4008A LOADER		
	AUTOMATION INTEGRATION DRAWING		
	DATE	DRAWING NO.	REV
	07/09/92	S4008001	C

REVISIONS				
LTR	DESCRIPTION	DRWN	DATE	ECR #
A	GENERAL REVISIONS	ACH	08/13/92	
B	CORRECTIONS	CRR	03/14/94	94161
C	Added 2nd Part Present Sensor	JCC	05/19/98	
D	STITCHLOCK HOLE SENSOR WAS DRAWN CONNECTED TO 5VDC	JCC	09/18/98	97586



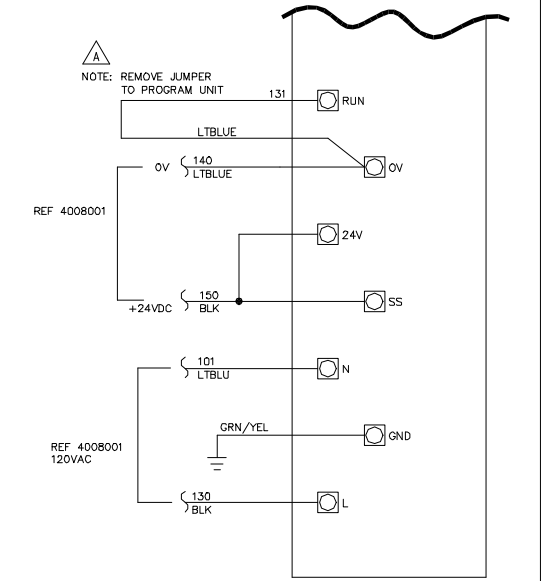
MITSUBISHI FX-64MT
INPUTS

OPTIONAL
LOW TAPE
SENSOR
AND
PART SENSOR



MITSUBISHI FX-64MT
INPUTS

MITSUBISHI FX-64MT
SYSTEM TB'S



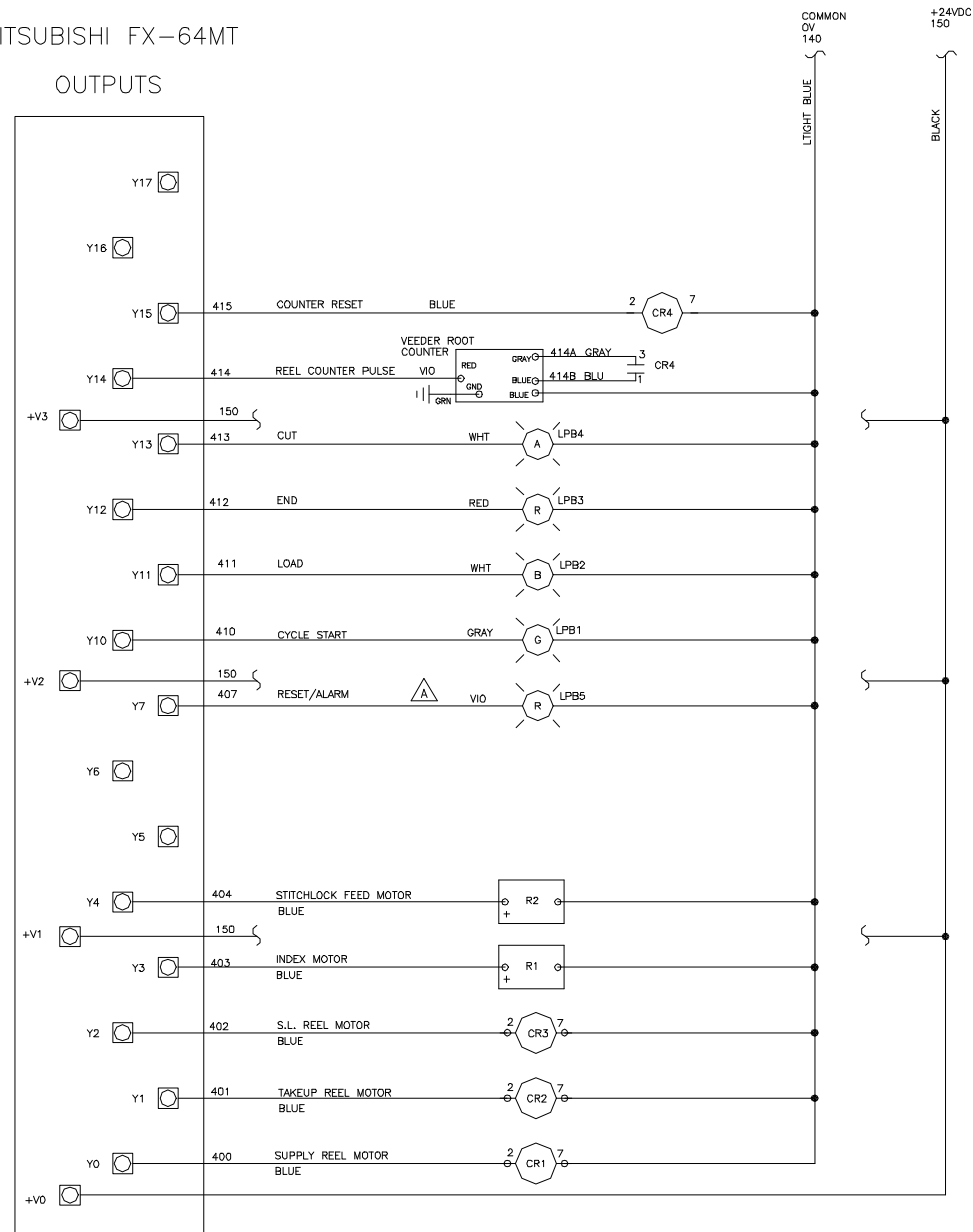
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DO NOT SCALE DRAWING

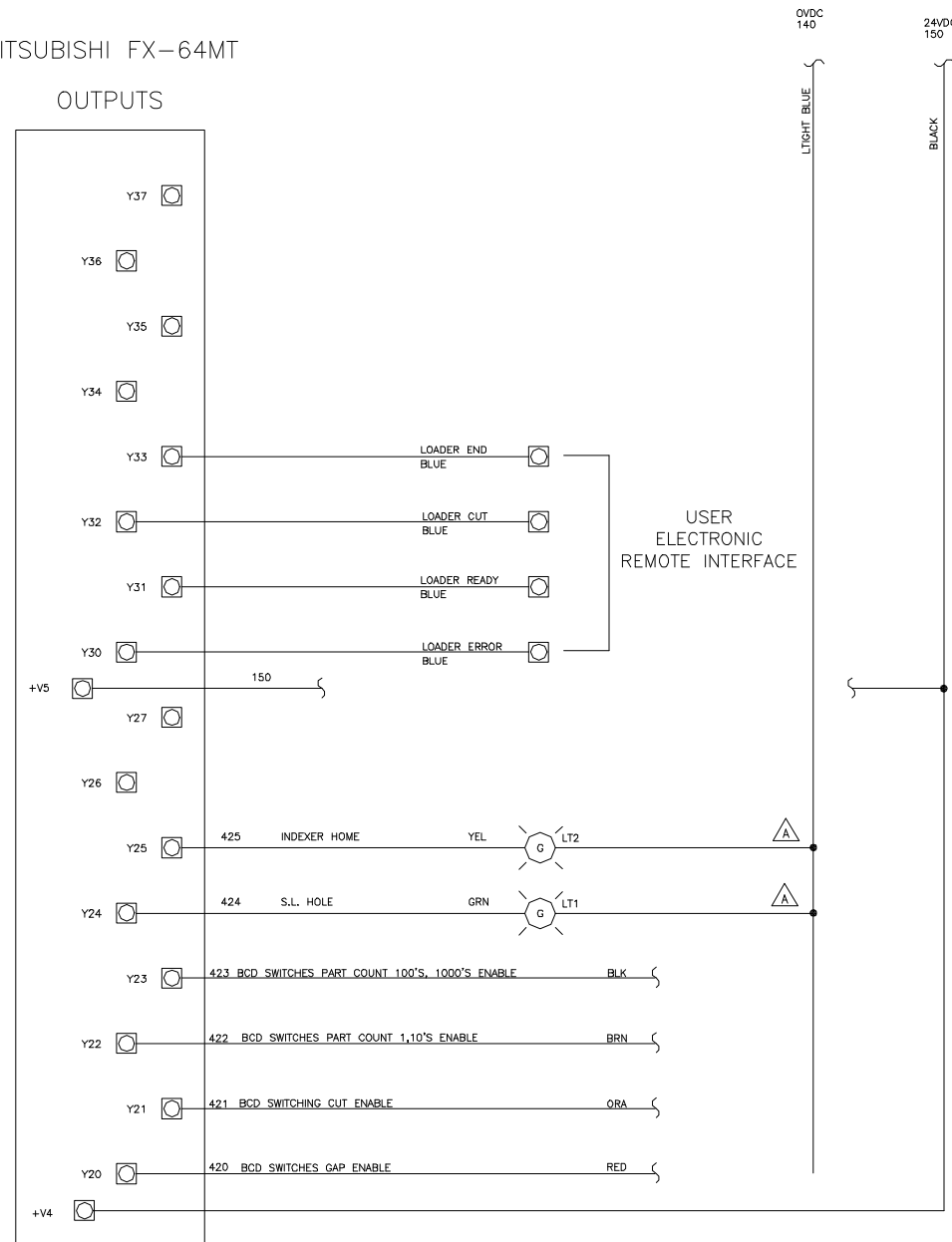
PROPRIETARY INFORMATION		DATE		DRAWING NO.		REV	
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REVISIONS				
LTR	DESCRIPTION	DRWN	DATE	ECR #
A	ADDED 407, 424, & 425	ACH	08/13/92	
B	CORRECTIONS	CRR	03/16/94	94162

MITSUBISHI FX-64MT
OUTPUTS



MITSUBISHI FX-64MT
OUTPUTS



DO NOT SCALE DRAWING
TOLERANCES (EXCEPT AS NOTED)
DIM +/- .010
HOLE +/- .005
ANGLE +/- 2°

SERIAL #'S 64 & UP		GPAX INTERNATIONAL, INC.	
SCALE: NONE	PROJECT: 4008	TITLING: TMS	DRAWN BY: TMS
TITLE: LOADER PLC OUTPUTS		DATE: 04/07/92	DRAWING NO.: E4008003
REV: B			

GPAX TECHNICAL BULLETIN	Approved	TB37-00
Released May 1994		Page
INTEGRATION OF THE GPAX 4008 LOADER FOR AUTOMATED INSERTION		

Customer/integrator will provide the necessary fixtures to accurately align, pilot both rough and fine and support the tape at the component loading position on the GPAX 4008 Loader. Reference drawing *S4008001* for typical details of a tape alignment and pilot fixture and its mounting configuration.

Mechanical Integration (see Reference Drawing S4008001):

1. Locate the position of the component placement device and carrier tape rough and fine pilot pins as near towards the StitchLock mechanism end of the loading station as possible.
2. Load the components in the first pitch location downstream of the tape alignment and pilot pins fixture.
3. The tape alignment and pilot fixture requires an underside support plate to support the carrier during piloting and topside stripper plate to strip the pilot pins from the carrier, which is to be supplied by customer/integrator. The opening between the lower support plate and the upper stripper plate must be 0.050" minimum and 0.075" maximum during insertion of the components (the underside support plate must move vertically downward during advancement of Semi-Pocket carrier tape to clear the Semi-Pockets). Chamfer the entry edges of these plates. The holes in the pilot receivers should be no more than 0.010" larger than the pilot pins.

Rough pilot on all or the maximum number of rectangles in the carrier tape (minimum of two (2)). Rough piloting may occur further upstream from the fine piloting location. Fine pilot on adjacent inside .125" index hole. Integrator to control activation of separate rough pilot function.

4. At the component loading position, the carrier tape must be supported from the bottom side with a customer/integrator fabricated support block. *Do not use the support rails provided with the GPAX Loader to perform this function.* A solid underside plate should be used so as to provide complete under tape support during the component insertion process.
5. Locate the position of the carrier tape alignment and pilot fixture so that the distance between the *center line* of the StitchLock tool and the carrier tape alignment and pilot fixture pins is the number of carrier tape pitches between the two positions multiplied by the carrier tape pitch length minus the maximum negative tolerance of each pitch length.

GPAX TECHNICAL BULLETIN	Approved	TB37-00
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INTEGRATION OF THE GPAX 4008 LOADER FOR AUTOMATED INSERTION		

Example:

20 pitches from the center line of StitchLock tool to the pilot pins, 1.600" pitch length, .0025 maximum negative tolerance per pitch

Calculation: $20 \times (1.600 - .0025) = 31.95"$

This is the shortest possible distance from the center line of the StitchLock tool to the nearest edge of the rectangular hole in the carrier into which the rough pilot will be inserted (see Detail A, Reference Drawing S4008001).

To accommodate the variation in carrier tape length due to the accumulated stack-up of plus tolerances, during piloting of the carrier tape (it will undoubtedly be moved slightly toward the direction of the StitchLock station) allow the carrier tape to bow-up by milling out a 4" section of the top of the carrier tape guide rail downstream of the component insertion position.

6. Modify the under tape support rails provided with the GPAX Loader as necessary to provide 100% support of components after they have been inserted into the carrier tape and travel toward the StitchLock station.
7. Change the timing (HOME position) of the GPAX 4008 Loader by performing the following steps:
 - A. Open Index Mechanism Module access cover under the deck plate. Remove cover plate from Index Mechanism Module.
 - B. Remove support bar from left side of the Index Mechanism Module to provide access to the HOME and HOLE sensor cam discs (see *Reference Drawing A4008156, item #59*).
 - C. Rotate Index Mechanism Module hand knob (see *Reference Drawing A4008156, item #12*) clockwise until the StitchLock Tool (see *Reference Drawing A4008156, assembly #28*) has reached its lowest point of travel. Rotate the hand knob slightly further clockwise until the StitchLock Tool just begins its upward motion.
 - D. Loosen the transtorque on the HOME sensor cam disc (HOME disc is on the left, see *Reference Drawing A4008156, item #59*). Position the slot of the HOME disc at the sensor. Tighten the transtorque. Make sure the HOME disc is not touching either side of the sensor.

After the above adjustment, the HOLE disc (HOLE disc is on the right) should be approximately 90° behind the HOME disc.

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Released May 1994		Page
INTEGRATION OF THE GPAX 4008 LOADER FOR AUTOMATED INSERTION		

- E. Set the StitchLock feed mechanism at a maximum 1/8" above the components. The components must not touch the Stitchlock feed mechanism.
- F. With the GPAX 4008 Loader in the new HOME position, adjust the StitchLock sensor on the StitchLock feed mechanism to the **trailing edge** of the StitchLock tape hole. Then move the sensor approximately 1/8" into the Stitchlock tape hole.
- G. Manually index tape a few pitches (indexing with the hand knob while manually feeding StitchLock tape until the HOLE light is ON) to check setup.
- H. Replace Index Mechanism Module cover plate and close access cover before operating the GPAX 4008 Loader.
- I. Observe the normal operation of the GPAX 4008 Loader for a few pitches to insure proper operation.

Electrical Integration:

I/O signals are available for the electrical integration of the GPAX 4008 Loader. Reference Technical Bulletin *TB34: User Electronic Interface Specification for the GPAX 4008 Loader* for GPAX 4008 Loaders equipped with Mitsubishi FX-series PLCs. (*TB34-AB* for GPAX 4008 Loaders equipped with Allen-Bradley SLC500 PLCs.)

GPAX TECHNICAL BULLETIN	Approved	TB34-00
Released December 1993		Page
USER ELECTRONIC INTERFACE SPECIFICATION FOR THE GPAX 4008 LOADER		

Software (Version 2.0 and later) and PLC I/O are available in the GPAX 4008 Loader to allow for control of loading process via an intelligent remote interface. Following are descriptions of the I/O interface signals. It is recommended the interface signals be electrically isolated using Opto-22 style modules. Reference electrical drawings E4008002 and E4008003 for PLC I/O wiring diagrams.

When using the remote interface, the Operator Control Panel remains operational. All procedures described in the **Operation & Maintenance Manual** are identical except for the END pushbutton. When controlled by the remote interface, the END pushbutton on the Operator Control Panel will immediately start the next reel. There is no need to depress CYCLE START to resume operation.

The following I/O define the remote interface and are described below:

USER OUTPUT SIGNALS (to Loader)				USER INPUT SIGNALS (from Loader)			
REMOTE INDEX ACTIVE	REMOTE INDEX	REMOTE RESET	User Signal	LOADER ERROR	LOADER READY	LOADER CUT	LOADER END
X35	X36	X37	PLC I/O	Y30	Y31	Y32	Y33

USER INPUT SIGNALS

User inputs are +24V sourcing signals. The input signal will go high when active. Raise time for the input signals is 20ms. Maximum current draw is 100ma.

LOADER READY

LOADER READY, PLC output Y31, indicates that the GPAX 4008 Loader is in position to be loaded with component(s). The component sensor does not affect the LOADER READY signal; therefore, once the component(s) are placed, the LOADER READY signal does not change until the REMOTE INDEX signal is issued.

The following conditions must be present for LOADER READY to be active:

- ✓ REMOTE INDEX ACTIVE mode (input X35 hard-wired to 0V - see below)
- ✓ Index Mechanism is at HOME position and StitchLock tape feeder is at HOLE
- ✓ No alarms are present (LOADER ERROR output Y30 is OFF)
- ✓ The LOADER CUT, PLC output Y32, signal is OFF. CUT requires action by the loader operator, see below.
- ✓ The LOADER END, PLC output Y33, signal is OFF. END requires action by the loader operator, see below.

LOADER END

GPAX TECHNICAL BULLETIN	Approved	TB34-00
Released December 1993		Page
USER ELECTRONIC INTERFACE SPECIFICATION FOR THE GPAX 4008 LOADER		

LOADER END, PLC output Y33, indicates that the GPAX 4008 Loader has reached the END of loading parts on the current reel. If the next reel of component(s) has the same settings, the END signal may be cleared by the user by issuing the REMOTE RESET signal (see below). If the next reel has different settings, the new settings must be entered at the Operator Control Panel. The GPAX 4008 Loader requires no operator attention until the LOADER CUT signal becomes active. See the **Operation & Maintenance Manual** for more details.

LOADER CUT

LOADER CUT, PLC output Y32, indicates that the GPAX 4008 Loader has reached the CUT position and the output reel is completed. CUT requires operator attention (see the **Operation & Maintenance Manual** for more details on CUT procedures) and must be cleared by pressing the CUT pushbutton on the Operator Control Panel.

LOADER ALARM

LOADER ALARM, PLC output Y30, indicates that the GPAX 4008 Loader has encountered an alarm condition. The GPAX 4008 Loader is stopped and corrective is necessary from the loader operator. The LOADER ALARM signal will remain active until the alarm condition is corrected and reset from the Operator Control Panel. Note that RESET pushbutton on the Operator Control Panel will flash slow or fast to indicate the type of error that has occurred. See the **Operation & Maintenance Manual** for more details on alarms and corrective procedures.

USER OUTPUT SIGNALS

The user must supply a sinking voltage reference for the output signals, **observe voltage polarities**. The interface must maintain a **common 0V** reference with the loader PLC. Maximum current draw is 20ma per channel.

REMOTE INDEX ACTIVE

REMOTE INDEX ACTIVE, PLC input X35, forwards indexing control to an exterior source. X35 must be hard-wired to 0V on the PLC to allow remote indexing.

REMOTE INDEX

The user can control the activation of the index sequence of the GPAX 4008 Loader with the REMOTE INDEX signal, PLC input X36. REMOTE INDEX functions only when the LOADER READY signal is active. The REMOTE INDEX signal must be issued after the component(s) have been placed at the sensor location. The duration of the signal must be at least 100ms. *The REMOTE INDEX signal must be removed prior to placing the next component(s) because the GPAX 4008 Loader will immediately index when the sensor beam is interrupted.*

REMOTE RESET

The REMOTE RESET signal, PLC input X37, is used to reset the GPAX 4008 Loader for

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the next reel of components. REMOTE RESET will reset the component count, clear the LOADER END signal, and initiate the next reel by running GAP. This signal should only be activated after the LOADER END signal is active. The REMOTE RESET signal should be applied for a period of at least 100ms.

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The GPAX 4008 Loader operating under the remote interface requires minimal operator attention. The GPAX 4008 Loader reel settings must be set at the Operator Control Panel in the same way as manual operation (see the **Operation & Maintenance Manual** for details). The GPAX 4008 Loader must then be initially placed into start mode by depressing the CYCLE START pushbutton. Operator attention is also required if the GPAX 4008 Loader encounters any error conditions.

During operation, if no user input signals are detected within 1.5 seconds after issuing the REMOTE INDEX signal, the GPAX 4008 Loader requires operator attention. There are three possible causes. First, the Index Mechanism may not be in HOME position or the StitchLock tape may not be in HOLE position (either HOME or HOLE lights are not lit on the Operator Control Panel). This is corrected by depressing the RESET pushbutton on the Operator Control Panel - *NOT the REMOTE RESET*. Second, there may be components in the GAP pitches. Remove the components from the GAP pitches to correct. Third, there may be a hardware wiring or power problem.