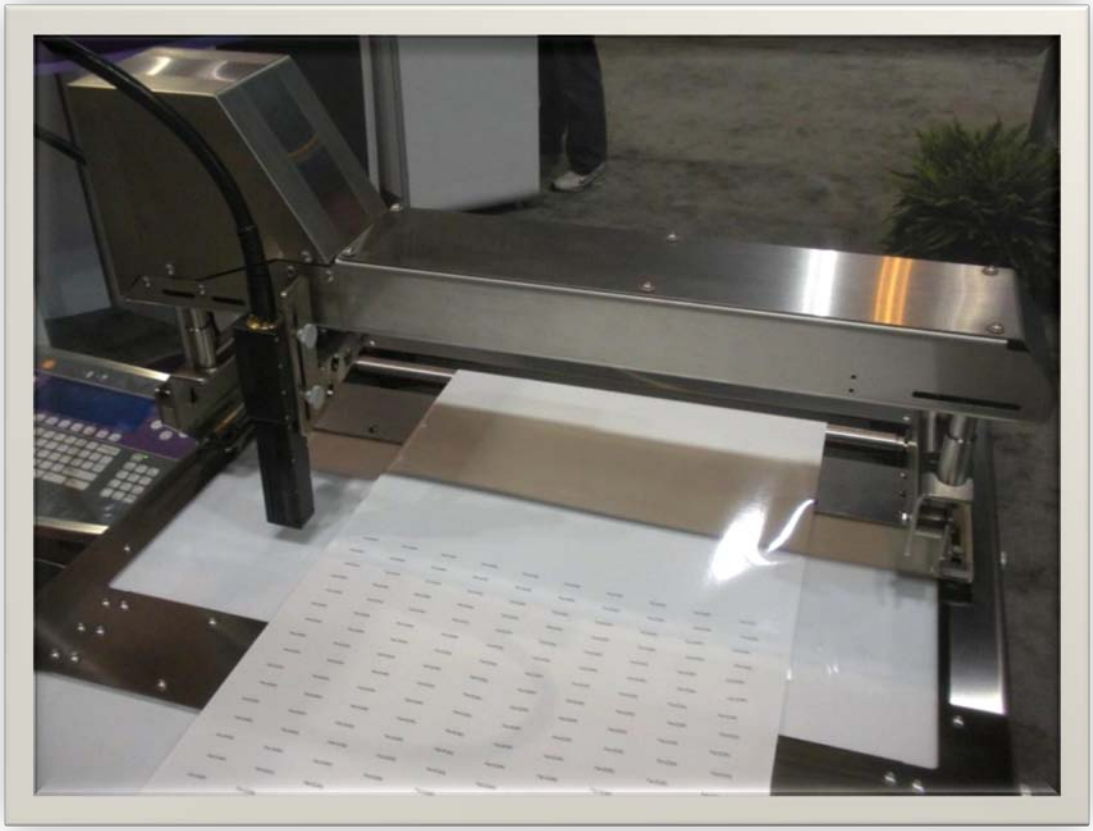
SMART TRAVERSE

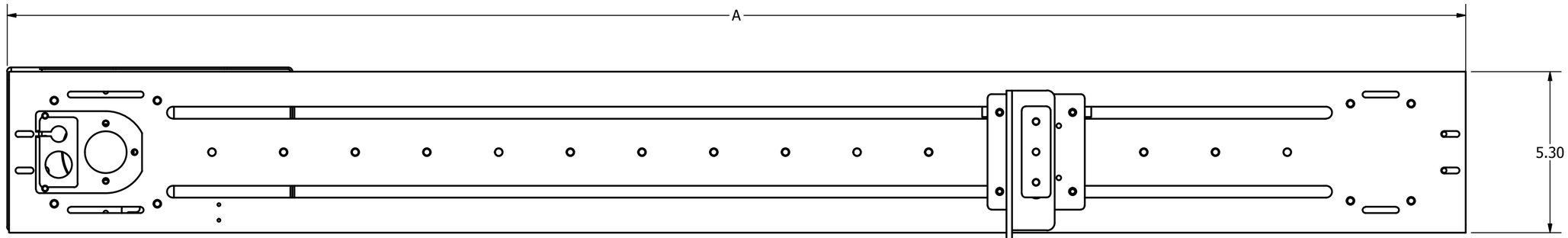
CONTINUOUS INK JET

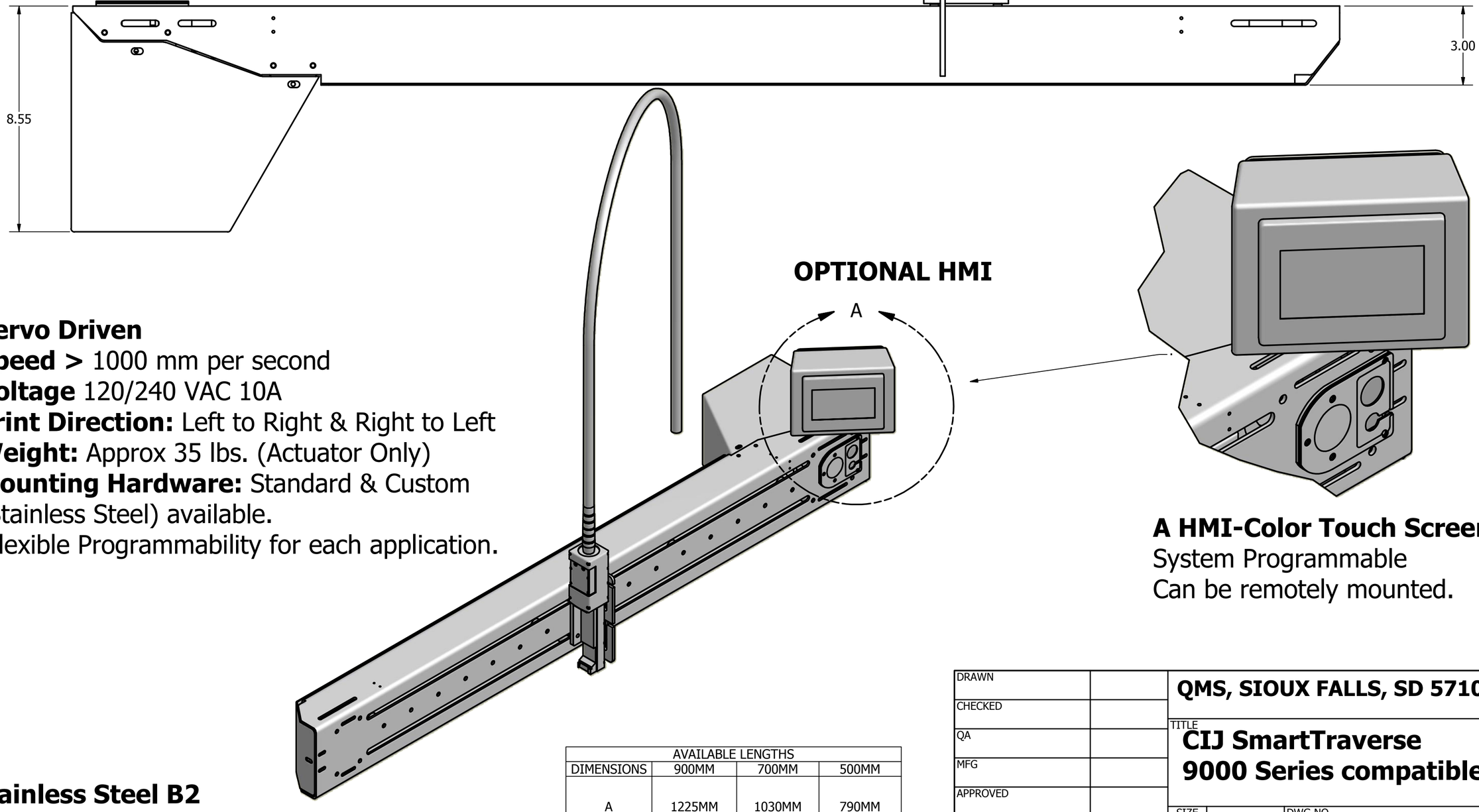
OPERATING MANUAL



REVISED:

SEPTEMBER 15, 2011





Servo Driven
Speed > 1000 mm per second
Voltage 120/240 VAC 10A
Print Direction: Left to Right & Right to Left
Weight: Approx 35 lbs. (Actuator Only)
Mounting Hardware: Standard & Custom (Stainless Steel) available.
Flexible Programmability for each application.

Stainless Steel B2 Finish

OPTIONAL HMI

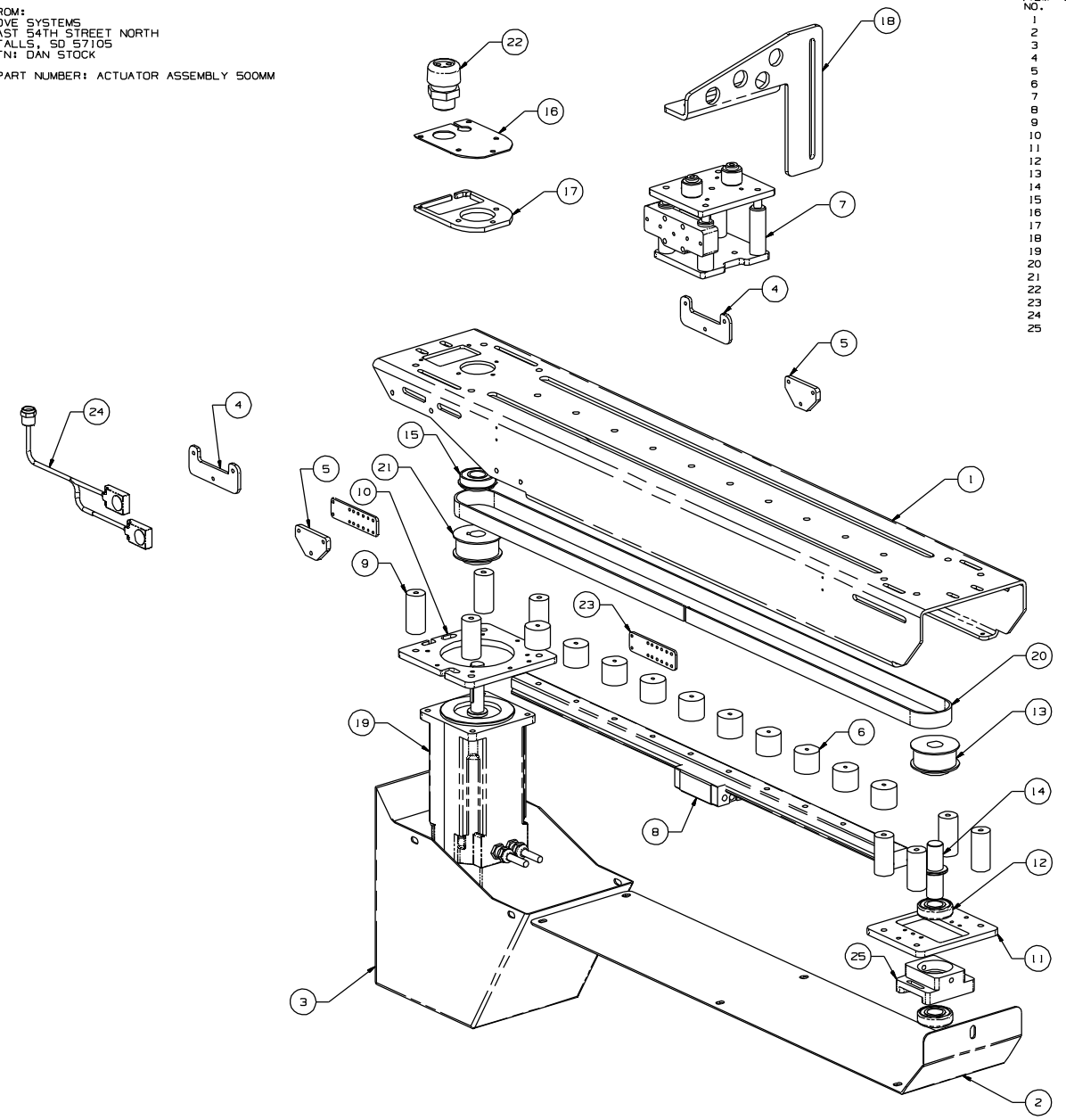
A HMI-Color Touch Screen
System Programmable
Can be remotely mounted.

AVAILABLE LENGTHS			
DIMENSIONS	900MM	700MM	500MM
A	1225MM	1030MM	790MM

DRAWN		**QMS, SIOUX FALLS, SD 57105**	
CHECKED			
QA		TITLE **CIJ SmartTraverse 9000 Series compatible**	
MFG			
APPROVED			
		SIZE C	DWG NO CIJ Traversing Spec Sheet
		SCALE	SHEET 1 OF 1

PURCHASE FROM:
QUICKMOVE SYSTEMS
1401 EAST 54TH STREET NORTH
SIOUX FALLS, SD 57105
ATTN: DAN STOCK

QUICKMOVE PART NUMBER: ACTUATOR ASSEMBLY 500MM



ITEM NO.	QTY.	PART NO.	DESCRIPTION
1	1	10056188	ACTUATOR FRAME 500MM
2	1	10056191	GUARD, ACTUATOR BACK 500MM
3	1	10056194	MOTOR GUARD
4	2	10056195	GUARD SPLICE PLATE
5	2	10056196	GUARD SPLICE PLATE B
6	10	10056197	LINEAR RAIL SPACER
7	1	10056198	CARRIAGE ASSEMBLY MSB
8	1	10056199	LINEAR RIAL ASSEMBLY 500MM
9	8	10056202	MOTOR PLATE STANDOFF
10	1	10056203	MOTOR ADAPTER PLATE
11	1	10056204	BEARING BLOCK MOUNTING PLATE
12	2	10056205	BEARING 16MM
13	1	10056206	TIMING PULLEY DRIVEN
14	1	10056207	TIMING PULLEY SHAFT
15	1	10056208	BEARING MOTOR SHAFT
16	1	10056209	BEARING COVER
17	1	10056210	BEARING COVER B
18	1	10056211	CIJ HEAD MOUNTING ARM
19	1	10056213	SERVO MOTOR
20	1	10056214	TIMING BELT 500MM
21	1	10056217	TIMING PULLEY DRIVER
22	1	10056218	CABLE GLAND
23	2	10056219	LIMIT SWITCH MOUNTING PLATE
24	1	10056220	LIMIT SWITCH ASSEMBLY
25	1	10056554	BEARING BLOCK

PART NO. 10052678 REV AA

ECO#

TITLE: SMARTRAVERSE FOR 9000 SERIES-500MM

FILE: pcf_10052678aa.prt

DRAWING: SHEET 1 OF 1

markem-imaje CONFIDENTIAL

THIRD ANGLE PROJECTION

DO NOT SCALE THIS DRAWING. IF IN DOUBT ASK

ALL DIMENSIONS IN MILLIMETERS U.O.S.

TOLERANCE U.O.S.
.000 ±0.10mm
.000.0 ±0.20mm
.000.00 ±0.10mm
.000.000 ±0.05mm
ANGLES ±1°
SURFACE FINISH 3.2 µM Ra
⊥ : PERPENDICULARITY. 1 in 500
// : PARALLELISM. 1 in 500
↗ : RUNOUT. 0.1mm MAX.
FILLET RAD. 0.5mm MAX. U.O.S.
ALL SHARP EDGES AND CORNERS TO BE REMOVED TO 0.5mm MAX. U.O.S.

DIMENSIONS APPLY TO FULLY FINISHED PART U.O.S.

⊗ INSPECTION DIMENSION

DESIGN BY: DAN STOCK	DATE: 03NOV10
DRAWN BY: ENNIS	DATE: 03NOV10
PROTECTIVE FINISH: N/A	CLEANING PROCESS: NONE

MATERIAL: PURCHASE

TRAVERSE SETUP PROCEDURE:

Setting the travel distance of the traverse.

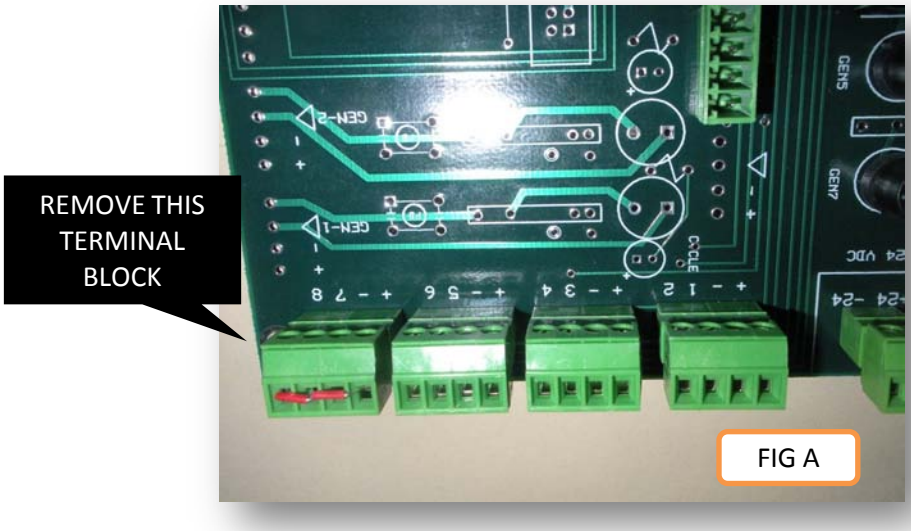
STEP 1: Turn “OFF” power to the traverse system.

STEP 2: Turn “ON” power to the traverse system.

STEP 3: Initiate home sequence and/or allow homing sequence to complete.

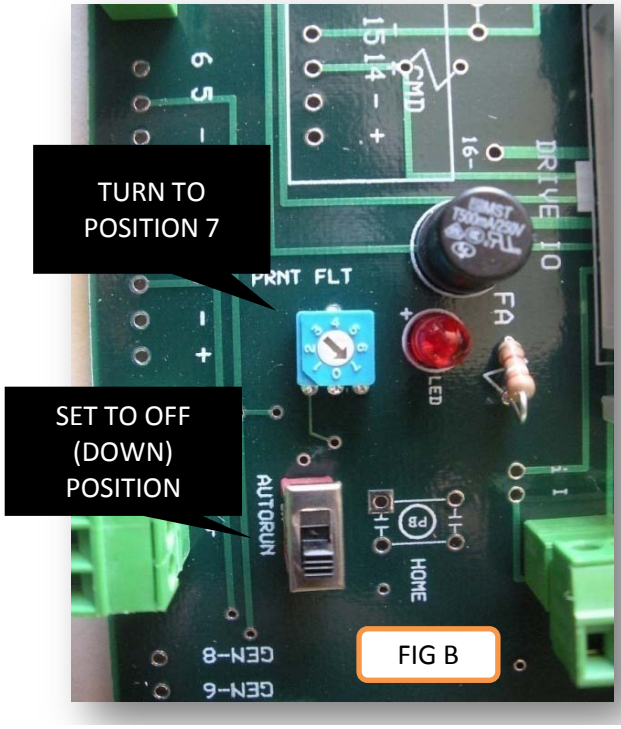
IMPORTANT: The home sequence must be completed before continuing to next step.

STEP 4: Remove connector on Main Control board at pins 7 & 8 (see photo FIG A).



STEP 5: Set “Auto Run” selector switch to “OFF” position (Down) (see photo FIG B).

STEP 6: Turn “Rotary Speed” selector to position 7 as shown in Photo FIG B.



STEP 7: Move “Print head carriage” to required position.

NOTE: The travel distance cannot exceed the limit of the “end of travel” sensor.

STEP 8: Press and Hold the “CYCLE” button on main control board until the COMM LED illuminates.

FIG C

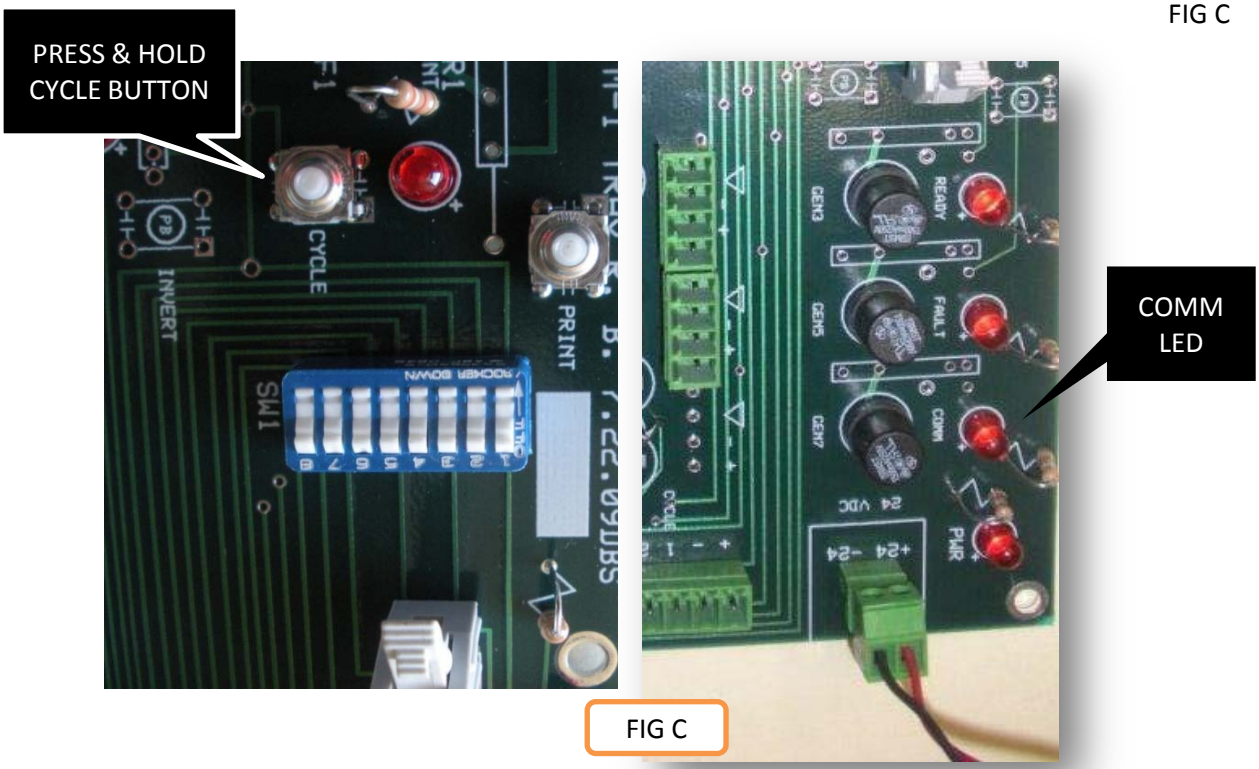


FIG C

NOTE: If LED does not illuminate, the teach process may not be successful.

STEP 9: Return “Rotary Speed” selector to original speed setting (0-6).

STEP 10: Position “Auto Run” selector to desired position (on or off).

STEP 11: Replace connector on Main Control board at pins 7 & 8.

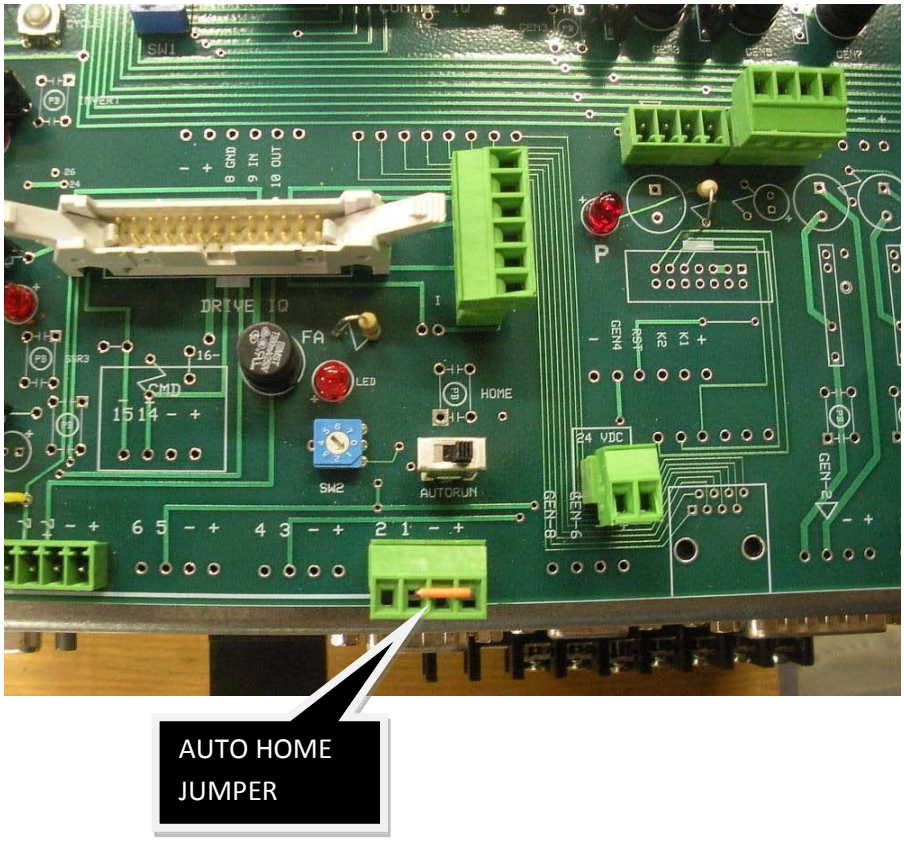
IMPORTANT: Depending on configuration of the “HOME INITIATE” input, motion may commence!

HOME SEQUENCE:

The home move is a reference cycle by which the traverse system moves in a designated direction, typically towards the motor end of the actuator. The homing sequence continues to move until the home switch is sensed. When the reference switch is sensed the traverse controller will stop motion and set the position value equal to zero. If the axis is on the reference switch when a home move is called, the traverse will move in the opposite direction until the reference switch opens and will then move back onto the reference switch, stop motion and set the position to zero. ***NOTE: If a home sequence cannot be completed, the traverse system will not operate; ie: a faulty reference sensor.***

AUTO HOME SETUP:

The traverse system can be configured to automatically initiate a home sequence at power up or at a positive transition of the enable circuit. To enable the "Auto Home" setting a jumper needs to be placed as indicated in PHOTO.



A home sequence can be initiated by a customer supplied momentary push button or relay. This can be wired to the "Home initiate" input #1 (Jumper Removed).

REFERENCE SENSORS:

Two sensors are located on each end of the traverse actuator. By default, the sensor closest to the servo motor is referred to as the HOME switch and the sensor on the opposite end of the actuator references the end of travel sensor or EOT. The photo FIG A shows the HOME sensor mounted on the actuator. The sensor has an adjustment range of approximately 30mm.

FIG A

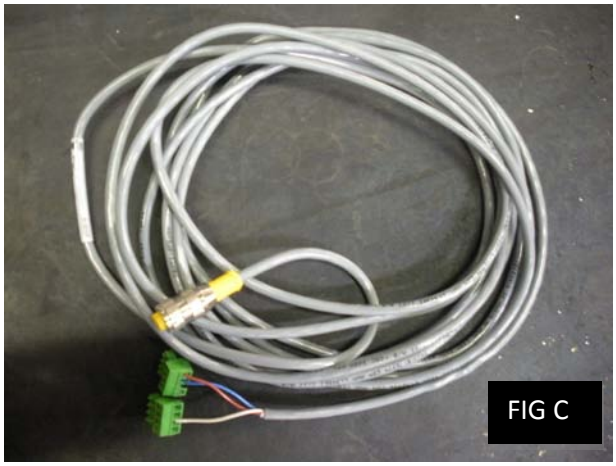
IMPORTANT:

During NORMAL operation should the axis reach the EOT (End Of Travel) sensor, the system will immediately STOP motion and will automatically call an HOME move. Should this occur the system will need to be adjusted such that the carriage never reaches the EOT sensor. This can be accomplished by either adjusting the EOT sensor or reducing the travel distance of the traverse.

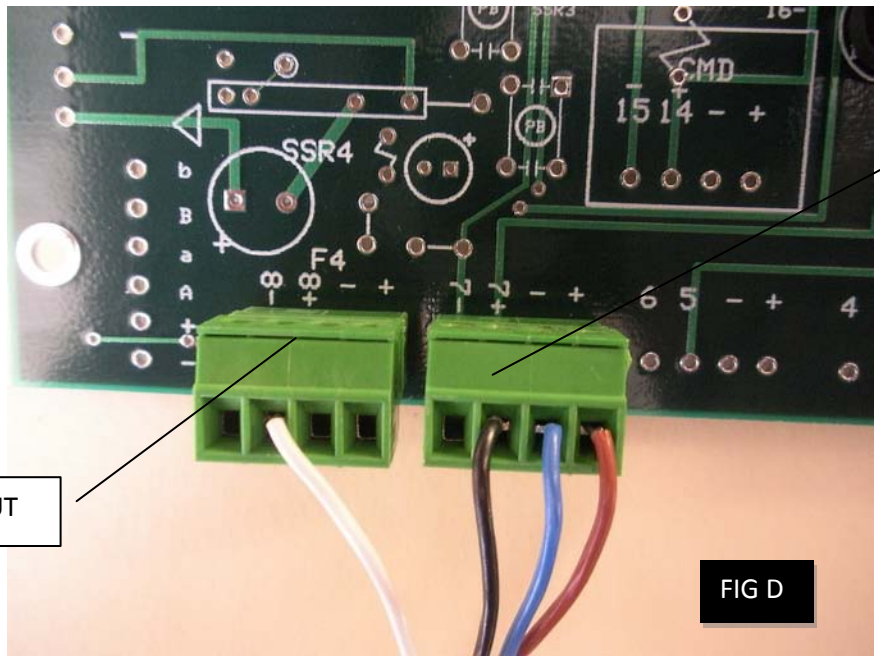
Both the Home and EOT reference sensors are connected in a single harness connected to a bulkhead quick disconnect fitting located on the end of the traverse actuator. See PHOTO FIG B


FIG B

A quick disconnect cable (FIG C) connects to the bulk head fitting located on the traverse actuator.



Connection to the Main Control circuit board are as pictured below.



EOT INPUT

EOT INPUT

By default; the home sensor wire is connected to input 7+ and the EOT sensor is connected to input 8+ as pictured above (FIG D).

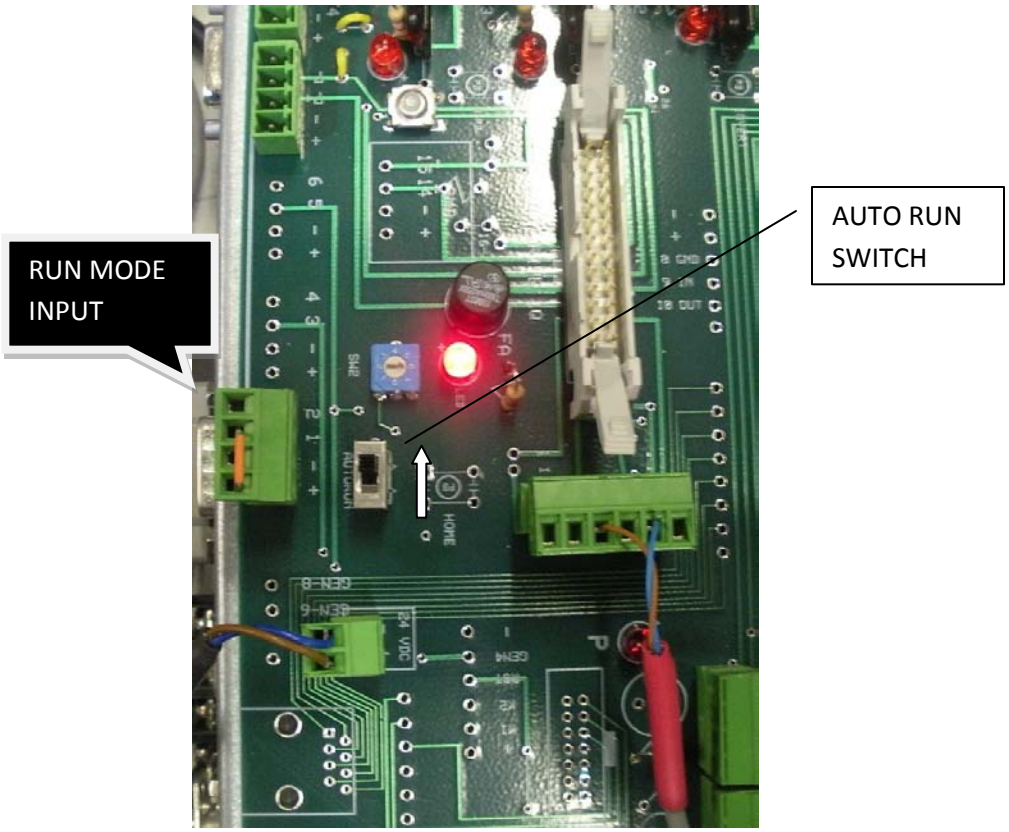
NOTE: In some instances where the traverse system must home “away” from the servo motor, the connectors can be interchanged to accommodate reverse rotation. The reverse rotation is possible by reversing the timing pulley on the actuator.

RUN MODE

The “Run” mode is a required condition for the normal operation of the traverse system. When NOT in the run mode, the system will ignore any cycle input commands and the system will not send a print signal to the printer.

AUTO RUN MODE SETUP:

The traverse system can be configured to automatically transition to the “RUN” mode at a power up or at a positive transition of the enable circuit. To enable the “Auto RUN” setting, the selector switch located on the Main Control Board must be placed in the “ON” (up) position. .

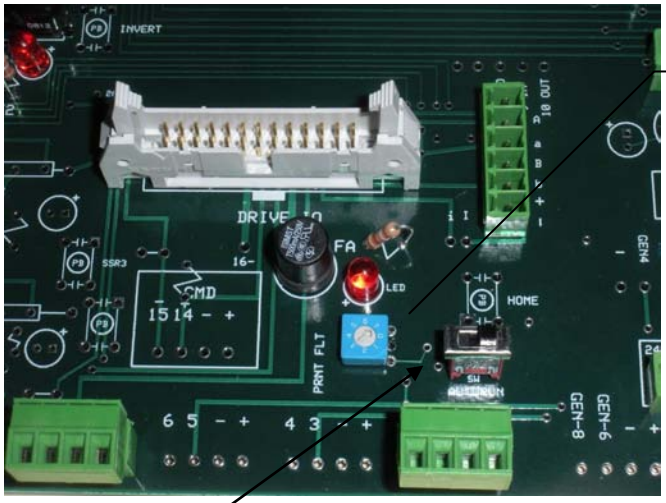


A customer supplied selector switch or relay (maintained) can be wired to the “RUN MODE” input “2

NOTE: A home sequence must be completed for the system to enter the Run Mode.

TRAVERSE SPEED SETTING:

The speed at which the traverse travels can be adjusted to meet the application requirements. A rotary selector switch has settings available from 0 to 7. Setting number 7 is reserved for programming. Valid settings are 0 through 6. Setting 0 will result in the slowest speed setting and setting 6 will provide the fastest speed setting.



ROTARY SPEED SELECTOR SWITCH

NOTE: On board versions C and later, there are 2 rotary selector switches available. The switch associated with the speed control is located nearest the AUTORUN selector switch.

System status LED Indicators and Relays:

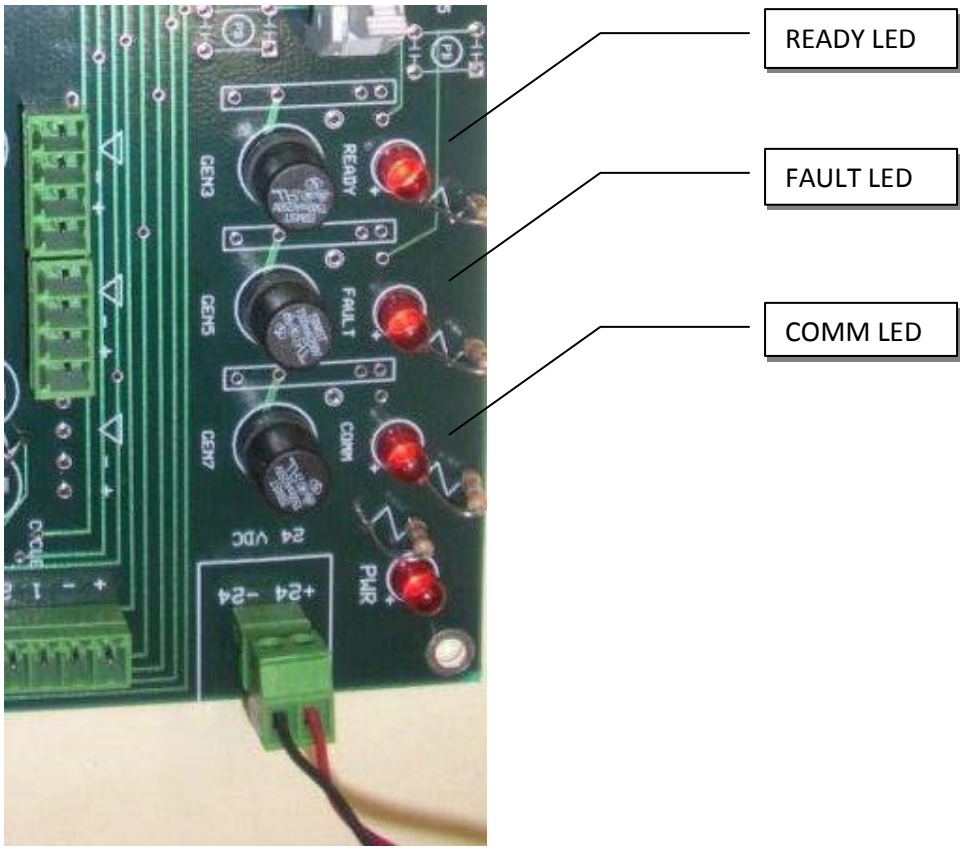
The three LED indicators located on the Main Control circuit board will show the system status of system. The following is a brief description of how they operate.

READY LED: Steady "ON" indicates the system is "Ready" to operate. The associated relay is typically used to interface between the traverse unit and the customers packaging machine. A solid state relay is provided for isolation of power.

FAULT LED: Steady "ON" indicates the "enable circuit" is open Connector 7 & 8 (either channel) or dip switch settings 7 or 8 are in the "OFF" position.

Flashing Fault LED indicates the printer faults and or warning relays are open. Be sure the printer is not in a "fault or warning" condition.

COMM LED: Indicates the system has not completed a "Home" sequence and the system is not in the "RUN" mode.



IMPORTANT! Do not connect any other devices to the control power of the traverse system other than what is listed on the wiring diagram. Connecting auxiliary devices may cause erratic operation and or severe damage to the traverse system.

2 POLE 10AMP
BREAKER

6 ' PWR CORD
SUPPLIED

POWER SUPPLY
24VDC
L N
-V +V

DRIVE BUSS

24VDC+
0VDC-

-24V
COM
BR+
BR-

CAUTION
DO NOT CONNECT

B+
B-
L1
L2
U
V
W

L1
L2 / NEUTRAL
PE

BLUE
BROWN
VIOLET
PE

SERVO MOTOR

HOME/EOT
HARNESS ASSEMBLY

EOT
0V
+24 VDC
HOME

0V
+24 VDC

IO CONTROL
BOARD

MESSAGE
SELECT

INVERT
MESSAGE

PRINT

CIJ / TRAVERSE IO
CABLE

PRINTER INTERFACE		
PIN	COLOR	SIGNAL
1	BLACK	DTOP+
2	RED	24 VDC
3	GREEN	INVMES+
4	BROWN	24 VDC
5	BLUE	TACHY +
6	WHITE	TACHY -
7	PINK	FAULT COMMON
8	PURPLE	FAULT NO
9	YELLOW	WARN COMMON
10	GRAY	WARN NO

WHITE
BLACK
SYSTEM
READY

SYSTEM
FAULT

FEED BACK PCB	
COLOR	PIN
BLU	1
BLU/WHT	2
GRN	3
GRN/WHT	4
VIO	5
ORG & BLK	6
NC	7
WHT	8
NC	9
VIO/BLK	10
ORG/WHT	11
BRN	12
GRAY	13
RED	14
NC	15

ENCODER CABLE

BROWN
BLUE

HAND SHAKE SIGNAL
CUSTOMER SUPPLIED
VOLTAGE
24VDC

CYCLE START
DRY CONTACT
RELAY

RETURN
BROWN
BLUE
WHITE
BLACK
+24VDC

TO PARENT MACHINE
M12 QD CABLE
(MALE)

M12 QD CABLE
(FEMALE)

DRAWN	Dan Stock
CHECKED	
QA	
MFG	
APPROVED	

QMS, SIOUX FALLS, SD 57105

TITLE
SmartTraverse
CIJ - 9000 Series
Wiring Diagram

SIZE D | DWG NO | REV

SCALE | SHEET 1 OF 1

DIAGNOSTIC LED ERROR CODES

WARNINGS

1	Chasis Heatsink Temp Warning	LOWER AMBIENT TEMP
2	Chasis Ambient Temp Warning	LOWER AMIENT TEMP
4	Motor Calculated Temp Warning	REDUCE DUTY CYCLE
5	Overtravel PLUS Warning	MOVE OFF AXIS
6	Overtravel MINUS Warning	MOVE OFF AXIS

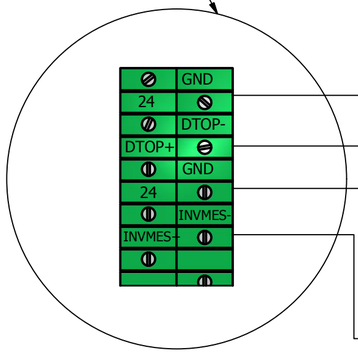
FAULTS

11	Drive Memory Fault	CONTACT QMS
12	Buss Over Voltage	EXCESSIVE AC INPUT VOLTAGE
13	PM Over Current	INTERNAL MOTOR WINDING SHORT CIRCUIT
14	Over Power Fault	CHECK FOR MECHANICAL LOAD PROBLEMS
15	Motor Temperature Fault	CHECK MOTOR WIRING
16	Continuous Current Fault	CHECK FOR MECHANICAL LOAD PROBLEMS
17	Chasis Heatsink Temp Fault	CHECK FOR MECHANICAL LOAD PROBLEMS
22	Feedback Fault	VERIFY ENCODER WIRING IS CORRECT
23	Chasis Ambient Temp Fault	LOWER AMBIENT TEMPERATURE, INCREASE CABINET COOLING
25	Drive Timing Fault	CONTACT QMS
26	Drive Interface Fault	CONTACT QMS
27	User SET Fault	CONTACT QMS
31	F1 Communication Fault	VERIFY ENCODER WIRING IS CORRECT
32	Over Speed Fault	CHECK CABLES

33	Over Current Fault	CHECK FOR MECHANICAL LOAD PROBLEMS
34	Drive Communications Fault	CONTACT QMS
35	Power Module Fault	VERIFY AC INPUT VOLTAGE IS CORRECT
36	Setup Data Fault	INVALID CONFIGURATION DATA
41	Relay Fault	CONTACT QMS
42	PM2 Over Current Fault	REMOVE ALL POWER AND MOTOR CONNECTIONS. PERFORM CONTINUITY CHECK
43	PM Over Temperature Fault	CHECK FOR MECHANICAL LOAD PROBLEMS
44	Motor Ground Fault	MAKE SURE MOTOR GROUND CONNECTIONS ARE CORRECT
45	AC Input Over Voltage	VERIFY INPUT VAC IS WITH SPECIFICATIONS
46	Overtravel PLUS Fault	CONTACT QMS
47	Overtravel MINUS Fault	CONTACT QMS
52	Digital Link Communications Error	CORRUPT DIGITAL LINK MESSAGES RECEIVED
53	Undetermined Drive	DRIVE DAMAGED
77	Drive Not Ready	CONTACT QMS

OPTIONAL HMI

INDUSTRIAL INTERFACE BOARD



Red

Black

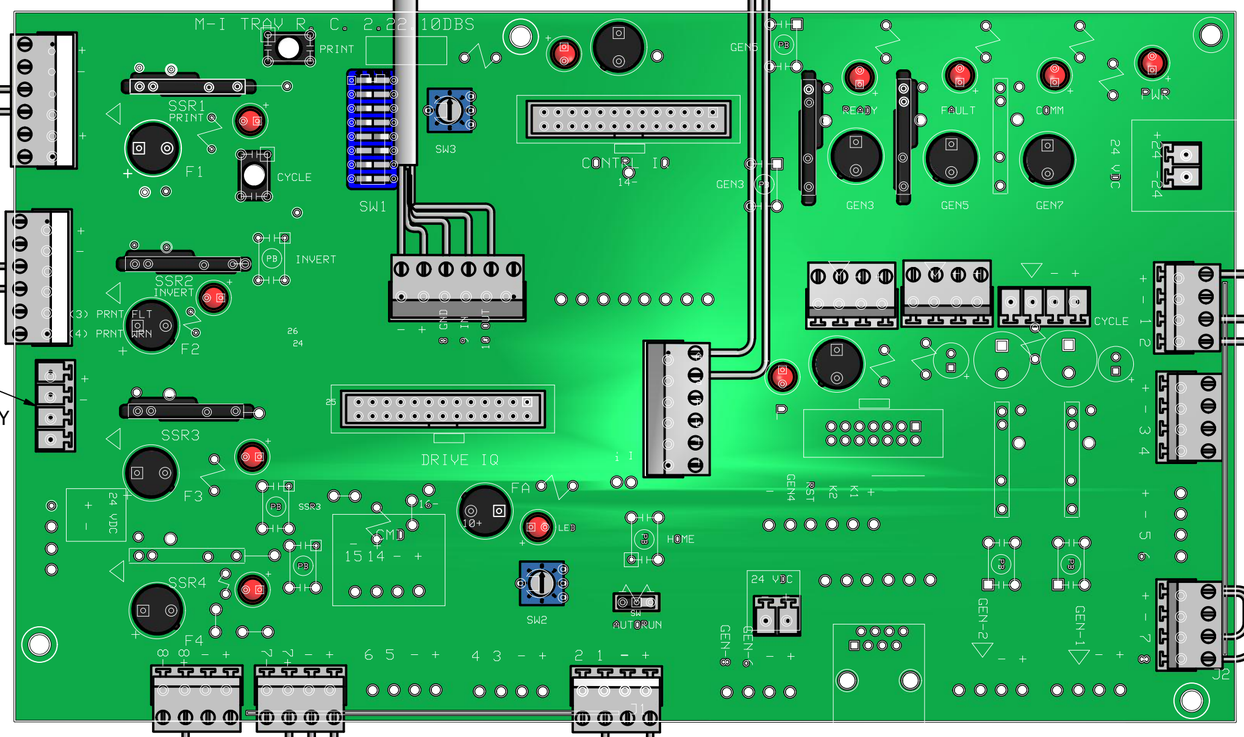
Brown

Green

OPTIONAL MESSAGE LIBRARY SELECT

TACHY+

TACHY-



OUT TO PARENT MACHINE

CYCLE START

PRINTER 24VDC

PRINTER FAULT

* Channel 1 Enable Jumper

* Channel 2 Enable Jumper

Auto Home Jumper ***

SENSOR; End of travel

SENSOR; Home

Mounted on Actuator frame

White

Brown

Blue

Black

Home/EOT Cable

DRAWN Dan Stock	9/15/2011		
CHECKED		TITLE	
QA			
MFG			
APPROVED		SIZE C	DWG NO Control Interconnect Board
		SCALE	REV Rev
			SHEET 1 OF 2