Base Machine
73-3657A-B-SD02.SCH

MCU Safety Interface Board
73-3657A-B-SD03.sch

SS Bin Safety Loop
73-3657A-B-SD04.SCH

Safe Voltages - MCU or SCU
73-3657A-B-SD05.SCH
J14
J13

Safe Voltages - TSV
73-3657A-B-SD06.SCH

Safe voltages - Conveyor
73-3657A-B-SD07.SCH

AC SWITCH PANEL **MCU: ASSY 11-0901 NA & JAPAN, 11-0900 EUROPE**
SCU: ASSY 11-0829 NA & JAPAN, 11-0840 EUROPE

NORTH AMERICA/ JAPAN
PLUG: 16-3997 L6-20P(Locking Twist Type, rated 250Vac, 20A)

EUROPE
PLUG: 16-4006 IEC309, rated 16A 250V

INPUT RATED:
200-240 V AC
50/60 HZ, 16 A

L1
L2/N
GND

BRN 12 OR BLK 12
BLU 12 OR WHT 12
G/Y 12

ALL GROUND WIRES
G/Y WIRE OR
GRN WIRE WITH G/Y MARKER

MCU/SCU GND
M6 STUD
CHASSIS

FL1
EMI FILTER
16A
13-5027
LINE
LOAD

ROTARY DISCONNECTS
MAIN (RED) 15-3399
AUTOLOADER (BLACK) 15-3427
AL-SW1
AL-SW2

AL-CB1
15A
15-3085

BRN 12
BLU 12
BRN 14
BLU 14

TO VLF-TS
REC AC POWER
NA & JAPAN:
16-3797 L6-20R
EUR:
16-4033 IEC-309 16A

MATE 1X2
J43
MATE 2X3
J26
J27
AMPINNERGY

UMNL 16PIN
J37

MLX 1X2
J34
MLX 1X2
J35
MINIFIT 2X4
J41
MINIFIT 1X3
J42
MINIFIT 2X4
J31

10-4736B
+24V

AUTOLOADER **BASE TSV**

J39
MINIFIT 2X4
DOOR
LOOP
2
10-4462
J30
MINIFIT 2X4
DOOR
LOOP
4

POWER DISTRIBUTION BOARD (PDB)

10-4112F

PS1
POWER SUPPLY
24V
13-4750
AC IN
200-240V
RTN
24V

10-4361A
BRN 18
BLU 18
G/Y 18
L1
L2/N
GND

10-4363A
RED 16
BLK 16
24V
24V RTN

PS2
POWER SUPPLY
48V
13-4832
AC IN
200-240V
RTN
48V

10-4360A
BRN 14
BLU 14
G/Y 14

10-4362A
48V
48V RTN
BRN 16
BLK 16

J5
MATE 1X4
KEY
Chassis
JP
10-4680A
J10
MOLEX 1X3
2
GND
J4
MATE 1X4
J6
MOLEX 2X3

SELV CIRCUITRY

NON-SELV CIRCUITRY
200-240 VAC

J3
MATE 1X4
TO PS3 (SSR) [4]

F6
AC SAFE SPARE
J32
MINIFIT 2X3
J15
J24
MATE 3X3

F3
J9
MATE 1X5
J2
MATE1X5

Chassis Ground
8 mounting screws
& lockwashers

10-4741A
10-4364

TO MCU SAFETY
INTERFACE BOARD J2 [3]
10-4735A
MCU MOTOR
DRIVE
INVERTER
15-3422

10-4688A
G/Y 18
B1
PLENUM BLOWER
15-3155
CONNECTOR AT
BLOWER END IS
FITTED WITH
BACKSHELL
CONNECTOR

NOTE: MCU COMPONENTS ARE NOT USED IN SCU:
MOTOR MCU-M1
CONTACTORS MCU-K1, MCU-K2
MCU MOTOR DRIVE INVERTER

G/Y 14
10-4746A

CONTACTOR,DIL EM-01-G
15-3445
MCU-K1
CONTACTOR,DIL EM-01-G
15-3445
MCU-K2

1 L1 2 T1 RED 18
3 L2 4 T2 BLK 18
5 L3 6 T3 BLU 18
21 NC 22
A1 + A2 -

MCU-M1
MTR AC 3PHASE
15-3421
L1
L2
L3
GND
MCU-M1 MOTOR

10-4745A
J5-1 TO MCU SAFETY
J5-2 INTERFACE BOARD [3]
10-4752A
TO CABLE 10-4351C AND GNE1 [5]

NOTE: FOR AN SCU,
THERE IS NO MCU
EMERGENCY STOP SWITCH
SO THE BASE TSV ESTOP
LOOP IS SHORTED

10-4943A
SHORTING JUMPER
(USED WHEN
MCU OR SCU
IS DISCONNECTED)
NC
NC

MCU EMERGENCY
STOP SWITCH
10-4892A
OR 10-4925A

GUARD RAIL LEFT
EMERGENCY
STOP SWITCH
GUARD RAIL RIGHT
EMERGENCY
STOP SWITCH
10-4918A
10-4891A
10-4921A
10-4896A
10-4897A
10-4920A
10-4898A

AL ESTOP LOOP

BASE TSV FRONT
EMERGENCY
STOP SWITCH
(NOT USED IN AUTOLOADER)
10-4936A
J4-1 RELAY DELAY
J4-2 CONTROL BOARD [2]
BASE TSV
ESTOP LOOP
J8-1 RELAY DELAY
J8-3 CONTROL BOARD [2]

SW2 ON BASE TSV
BASE REAR EMERGENCY
STOP SWITCH

J10-7
J10-8
TO GENINE 0
J18-11
J18-12 +24VSAFE
10-4343B
10-4468B
10-4467
+24VSAFE
NOTE: GUARD RAIL
SAFETY LOCK
WILL UNLOCK
WHEN +24VSAFE
IS ABSENT

GUARD RAIL GATE
SAFETY LOCK
E2
E1
SWITCHES CLOSED
WHEN GATE CLOSED
22
21
FIRMWARE SENSE
32
31
12
11
OMRON D4DL-2DFG-B 15-3423

J1
MINIFIT 2X2
J11
MINIFIT 2X2
J14
MINIFIT 2X5
J13
MINIFIT 2X5
J40
MINIFIT 2X4

+48VSAFE
+48VRTN
+24VSAFE
+24VRTN

10-4356
SCON Bus
J24
TO GENINE1 [5]
AND GENINE 2 [6]

10-4700B OR 10-4366B
SCON Bus
J24
TO GENINE0 [6]
AND GENINE 4 [7]

BLK 22
DOOR
LOOP
1
SW- RED 24
SW+ BLK 24

CONVEYOR
I/F PANEL
15-3355
CONVEYOR
I/F PANEL
15-3355
DROP
LEAF
15-3355
DROP
LEAF
15-3355

10-4468, 10-4467

10-4700B OR 10-4366B, 10-4918A, 10-4874A, 10-4346C, 10-4348B, 10-4900A, 10-4914A, 10-4873A, 10-4461, 10-4375 OR 10-4764

AL SAFETY LOOP [5, 6, 7]

B ADDED REV BLOCK, NO CHANGES TO THIS PAGE

REV	ECO	DATE	DRAWING CHANGES BY	APPROVED BY
B	E440	2002 JAN 23	T NIVOLIANITIS	T NIVOLIANITIS

TS-VLF AL
SAFETY CIRCUIT

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F:\INBASKET\E440\73-3657A-B-SD01.Ddb - Documents\73-3657A-B-SD02.prj

DESIGNED BY:	DOCUMENT NUMBER:	LAST ECO:
W COETZEE	73-3657A-B-SD	SEE REV BLOCK
DRAWN BY:	LAST REVISED BY:	APPROVED BY:
P YUEN	SEE REV BLOCK	K POULIN
DESIGN DATE:	LAST MODIFIED DATE:	SHEET:
2000:11:14	SEE REV BLOCK	1 of 7

NOTE: ALL CIRCUITRY ON THIS PAGE, EXCEPT WHERE SHOWN (DASHED LINES), IS BASE TSV CIRCUITRY (WHICH IS PRESENT IN ALL AUTOLOADERS), AND IS SHOWN HERE FOR INFORMATIONAL PURPOSES.

BASE TSV
AUTOLOADER
J27
TO GNE0
+24V SAFE
RTN
RED 22
BLK 22
10-4449B
J4
MTA6L
TABLE AUTOMATION DISABLED
WHEN AL ABORT OR SAFETY LOOP OPEN
(+24VSAFE REMOVED)
+24V
K2
15-3359
J5
MTA8L
J6
MTA4L
+24V RED 22
+24V RED 22
+24V (TABLE UP) BLK 22
+24V (TABLE DN) BLK 22
+24V (TABLE UP) RED 22
+24V (TABLE DN) BLK 22
Registration/Table Safety
Electronics
10-4006
SW3
15-3355
SW4
15-3355
NOTE: SW3 CONTACTS CLOSED WHEN TABLE IN UP POSITION.
NOTE: SW4 CONTACTS CLOSED WHEN TABLE IN DOWN POSITION.
+5V (pullup) WHT 24
RTN BLK 24
+5V (pullup) RED 24
RTN GRN 24
J20
MTA16
10-4010
MOLEX 1X3
10-4906A
MOLEX 1X3
+24V (TABLE UP) RED 22
+24V (TABLE DN) RED 22
10-4319
TABLE DOWN
TABLE UP
24V SOLENOID
24V SOLENOID
TABLE UP BLK 22
TABLE DN BLK 22
J32
MTA8L
10-1426
Engine Satellite
Electronics
TO GENINE 0 BOARD J1
FOR AL MODE
MTA6L
10-4453B
GND
+24V
K3
15-3359
MINIFIT1X2
AUTOLOADER EN
TABLE_VALVE_UP_24V
TABLE_VALVE_DOWN_24V
SAFETY_KEY_SW
J30
MTA8L
SW1
SAFETY INTERLOCK OVERRIDE
KEY SWITCH
3 POSITIONS
CENTER
(LASER/MECH HAZARDS)UP
DOWN(MECHANICAL HAZARDS)
WHT 22
BLK 22
RED 22
BRN 22
*CABLE 10-5053A CONNECTS
TO PDB CONNECTOR OF
CABLE 10-3563B PINS 7 AND 8
PIN 7
PIN 8
10-5053A
LINE WHT 18
NEUT BLK 18
GND G/Y 18
10-3563B
TO FANBOX
J5
BASE PDB
CHASSIS
POWER SUPPLY 24V
FOR S-CONVEYOR
MANUAL MODE
NON-SELV CIRCUITRY
200-240 VAC
SELV CIRCUITRY
*POWER SUPPLY AND CABLES 10-5049A,10-5050A, AND 10-5053A
ARE ONLY ADDED TO MACHINES WITH S-CONVEYOR MANUAL MODE OPTION
24V
10-5049A
RELAY 15-3248 IS USED
IN PLACE OF RELAY
15-3359 FOR MANUAL
MODE S-CONVEYOR
OPTION ONLY.
K3
15-3248
10-5050A
MOLEX 1X2
+24V
GND
TO CONEYOR BULKHEAD
CABLE 10-5093A
[6]
AUTOLOADER
BASE TSV
10-4905A
+24V
+24V
J29
MTA8L
DOOR(SW)
+12V
ESTOP(SW)
RED 22
ORG 22
ORG 22
WHT 22
BRN 22
BRN 22
BLK 22
BLK 22
ORG 22
BRN 22
BLK 22
BLK 22
J3
MTA1X10
J4
MTA1X2
10-4936A
RED 22 ESTOP
BLK 22 ESTOP (SW)
FOR AL: TO THREE AUTOLOADER ESTOP SWITCHES [1]
FOR BASE TSV: TO OPERATOR PANEL ESTOP SWITCH [1]
J8
MATE1X4
RED 22 +12V
RED 22 +12V
BLK 22 DOOR (SW)
BLK 22 ESTOP
NC
10-4096A
TO ESTOP SWITCH SW2 [1]
NOTE: "ESTOP" = +12V
WHEN BASE TSV REAR
ESTOP SWITCH IS CLOSED
"ESTOP (SW)" = +12V
WHEN BASE TSV AND
ALL THREE AUTOLOADER
ESTOP SWITCHES
ARE CLOSED
Rear Panel (Encoder Side)
Rear Panel (Motor Side)
RED 22 +12V
BLK 22 DOOR+
CON4
CON4
Front Panel
Fan Box Panel
Encoder Side Panel
Motor Side Panel
AUTOLOADER (ADD'L CONTACT BLOCK)
BASE TSV
J7
MTA1X4
+12V ORG 22
DOOR+ BRN 22
ESTOP+ WHT 22
RTN BLK 22
FROM BACKPLANE
BOARD (J19)
TSV
RELAY DELAY
CONTROL BOARD
10-4827A
SIGNAL FOR ONE-CYCLE OPERATION WHEN MACHINE IS IN SERVICE OVERRIDE STATE
AUTOLOADER
BASE TSV
AUTOLOADER
BASE TSV

TO DRUM SERVO AMP
13-3591B
J4
J1
MTR GND G/Y 14
PHASE 1 BLK 14
PHASE 2 WHT 14
PHASE 3 RED 14
POWER-LOSS
DRUM BRAKING ASSEMBLY
10-4928A
MTR GND G/Y 14
MTR PHASE S BLK 14
MTR PHASE T WHT 14
MTR PHASE R RED 14
J2
PHASE R RED 14
PHASE S BLK 14
PHASE T ORG 14
GND G/Y 14
NC
10-4592A
TO DRUM MOTOR
15-3163B
NON-SELV CIRCUITRY
200-240 VAC
SELV CIRCUITRY
CABLE 10-4972A
+24V RED 22
RTN BLK 22
TO BASE TSV POWER BOX PDB J3
+24V RED 22
+24V RED 22
+24V RED 22
RTN BLK 22

B ADDED REV BLOCK, S-CONVEYOR MANUAL MODE

REV	ECO	DATE	DRAWING CHANGES BY	APPROVED BY
B	E440	2002 JAN 23	T NIVOLIANITIS	T NIVOLIANITIS

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TS-VLF AL
BASE MACHINE
SAFETY CIRCUIT

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2000:11:24	SEE REV BLOCK	2 of 7

COMPONENTS ON THIS PAGE ARE NOT PRESENT IN SCU

10-4736B JOG BUTTON PANEL

MCU-SW1
SERVICE OVERRIDE
3 POSITION
LEVER SWITCH

CENTRE
POS 1

LEFT - SEMI-AUTO MODE
POS 3

RIGHT - MANUAL JOG MODE
POS 2

(GRN/RED
CONTACT
BLK)

MCU-SW2
PUSHBUTTON
HOLD FOR SEMI-AUTO

MCU-SW3
PUSHBUTTON
JOG UP

MCU-SW4
PUSHBUTTON
JOG DOWN

SELV CIRCUITRY | NON SELV CIRCUITRY

J4
+24VSAFE
JOG MODE
ACT2+(MOTOR RUN)
SEMI/AUTO RUN
JOGGED RUN
JOG DOWN
SERV PNL SW OVR
GND

J2
N/O CONTACT TERM 1
NO CONTACT TERM 3
FREQ1 TERM 4
FREQ2 TERM 5
15VDC TERM 11
REVERSE TERM 12
FORWARD TERM 13
DC COMMON TERM 6
CONT REL TERM 14
10-4735A
TO MCU MOTOR DRIVE [1]

J3
+24VSAFE
TO GENINE 1
I/O SIGNALS
10-4703A

MCU REAR SERVICE PANEL SAFETY LOOP
10-4725
15-3263
J8

MCU OPERATOR SIDE DOOR SAFETY LOOP
10-4724
15-3263
J9

MCU PLATE DOOR SAFETY LOOP
PLATE DR L PICKER DR PLATE DR R
10-4770
AND 10-4744
15-3355 x 3
J6

MCU SAFETY INTERFACE BOARD
10-4697B
(NOT USED IN SCU)

UPPER/LOWER LIM SW'S
UPPER LIM SWITCH
NC CONTACTS
LOWER LIM SWITCH
NC CONTACTS
J1
10-4723

MCU SAFETY LOOP

MCU CHARIOT SAFETY LOOP
10-4726B
NO NC NC
15-3457 15-3450 15-3450
CASSETTE POSITION 2 POSITION 1
DOWN = LATCHED
UP = UNLATCHED
DOWN = LOAD
UP = PARKED
CLOSED IN PARKED OR LOAD POSITIONS
J7

NOTE: "LOAD" IS FULLY EXTENDED (OUT) CHARIOT POSITION
"PARKED" IS NORMAL OPERATING CHARIOT POSITION
"LATCHED" MEANS CASSETTE IS LATCHED ONTO CHARIOT

J5
TO MCU-K1, MCU-K2 [1]
10-4745A

MCU ROOF SAFETY LOOP
FRONT RIGHT X 2 REAR RIGHT X 2
10-4822A
FRONT LEFT X 2 FRONT RIGHT X 2
15-3355 x 8
J10

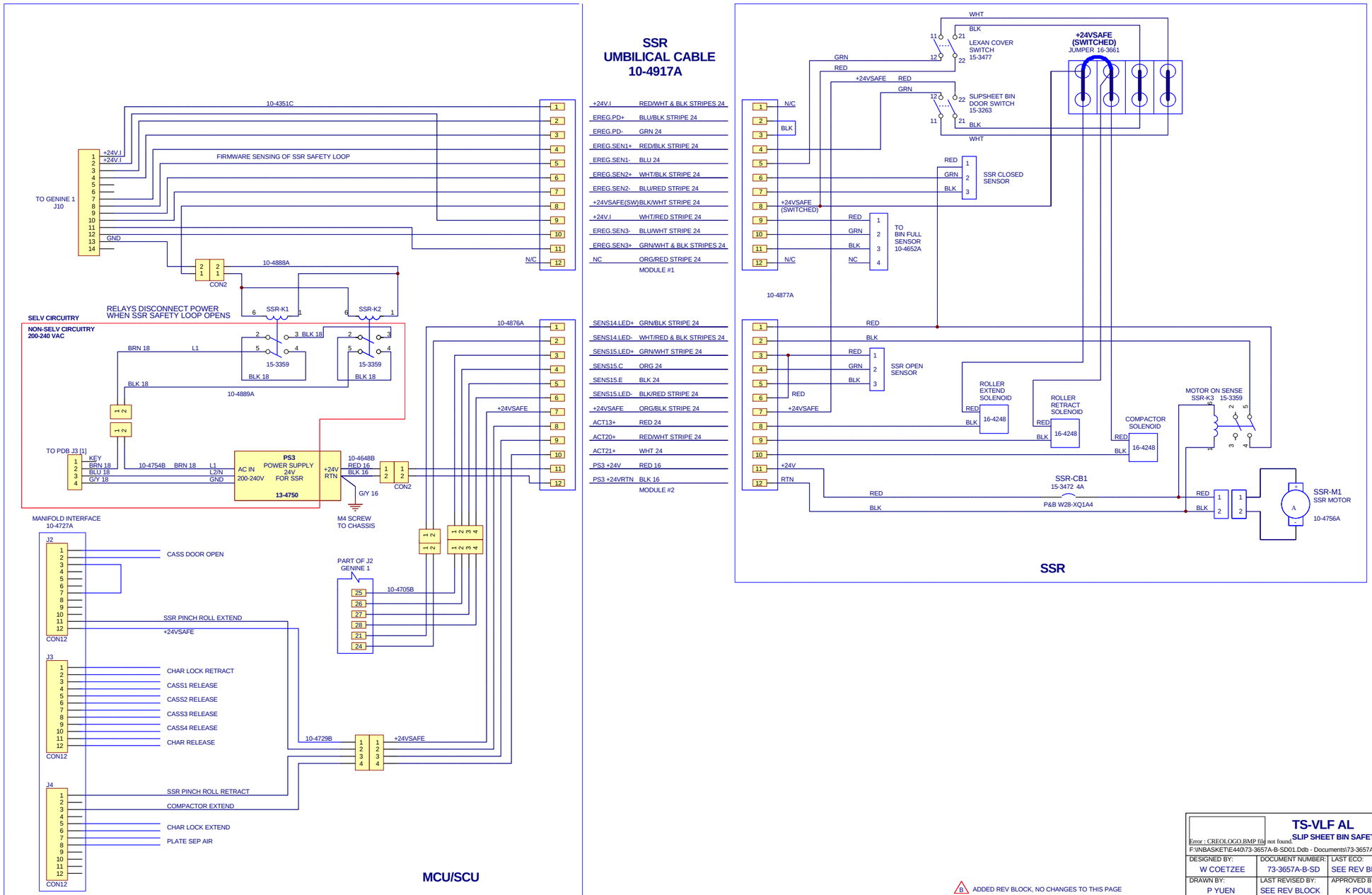
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TS-VLF AL
MCU SAFETY INTERFACE BOARD
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D KAHLE	73-3657A-B-SD	SEE REV BLOCK
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B	E440	2002 JAN 23	T NIVOLIANITIS	T NIVOLIANITIS

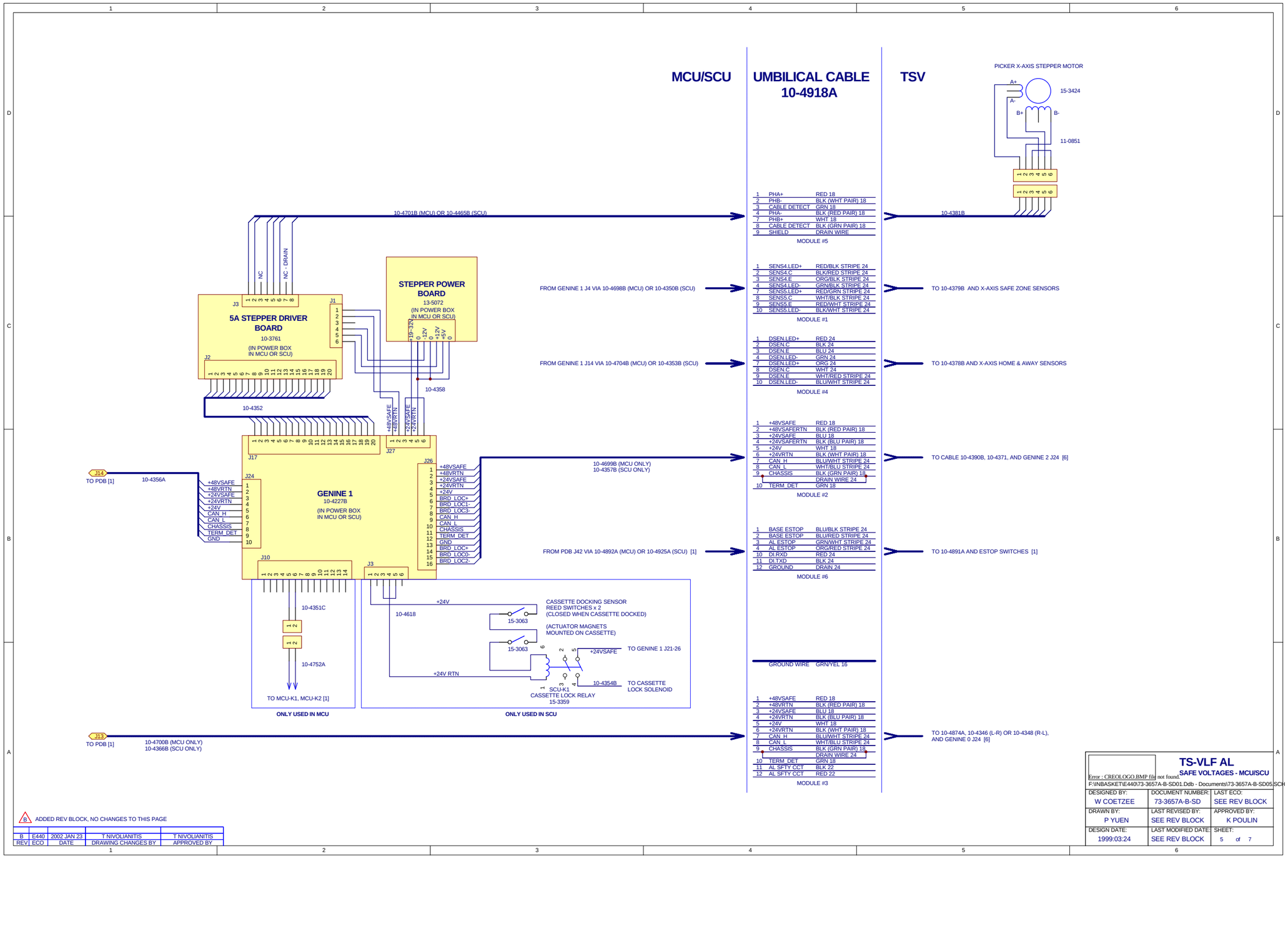
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TS-VLF AL

SLIP SHEET BIN SAFETY

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B	E440	2002 JAN 23	T NIVOLIANITIS	T NIVOLIANITIS

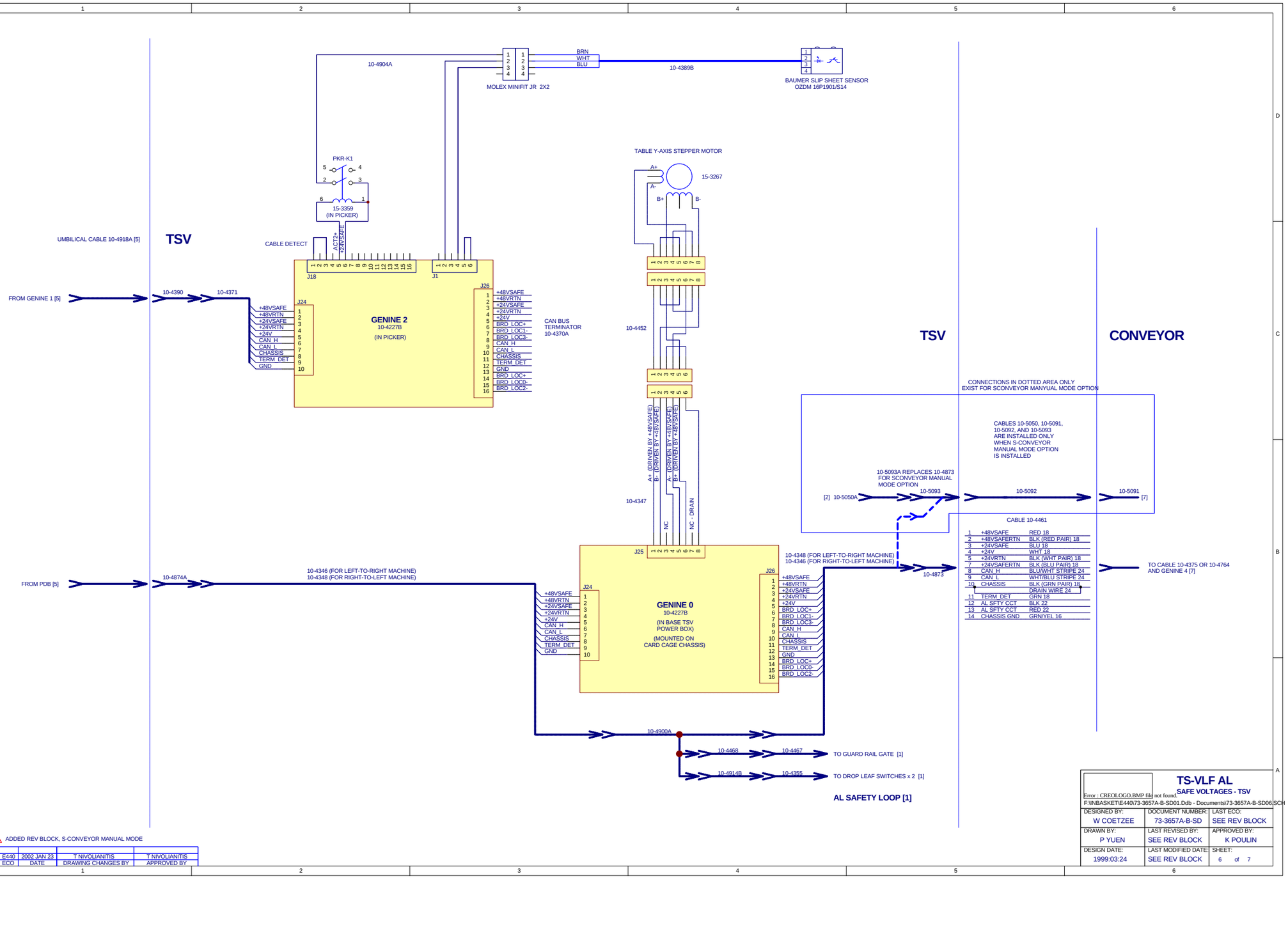
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TS-VLF AL

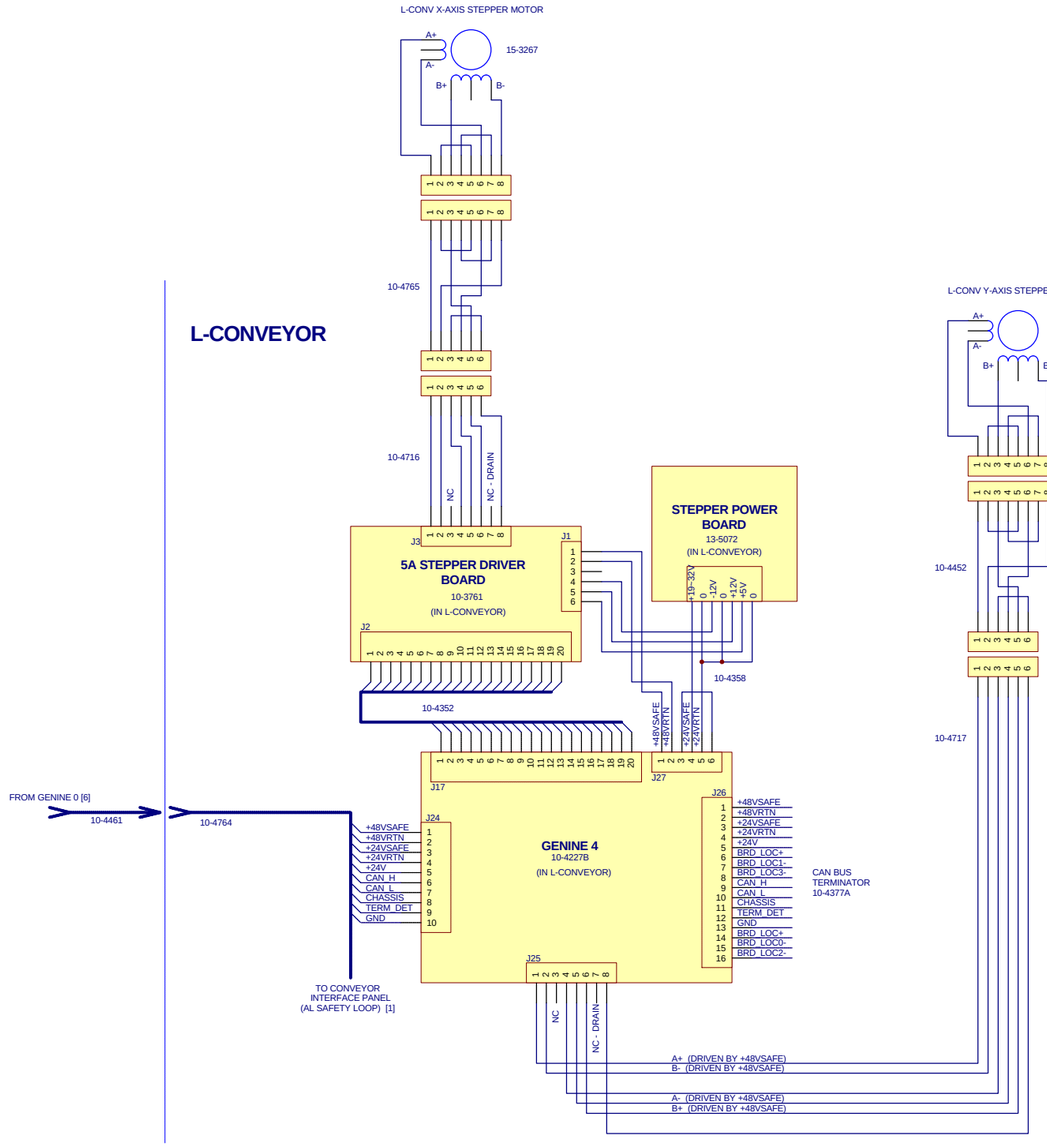
SAFE VOLTAGES - MCU/SCU

F:\INBASKET\E440\73-3657A-B-SD01.Ddb - Documents\73-3657A-B-SD05.SCH

DESIGNED BY:	DOCUMENT NUMBER:	LAST ECO:
W COETZEE	73-3657A-B-SD	SEE REV BLOCK
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DESIGN DATE:	LAST MODIFIED DATE:	SHEET:
1999:03:24	SEE REV BLOCK	5 of 7

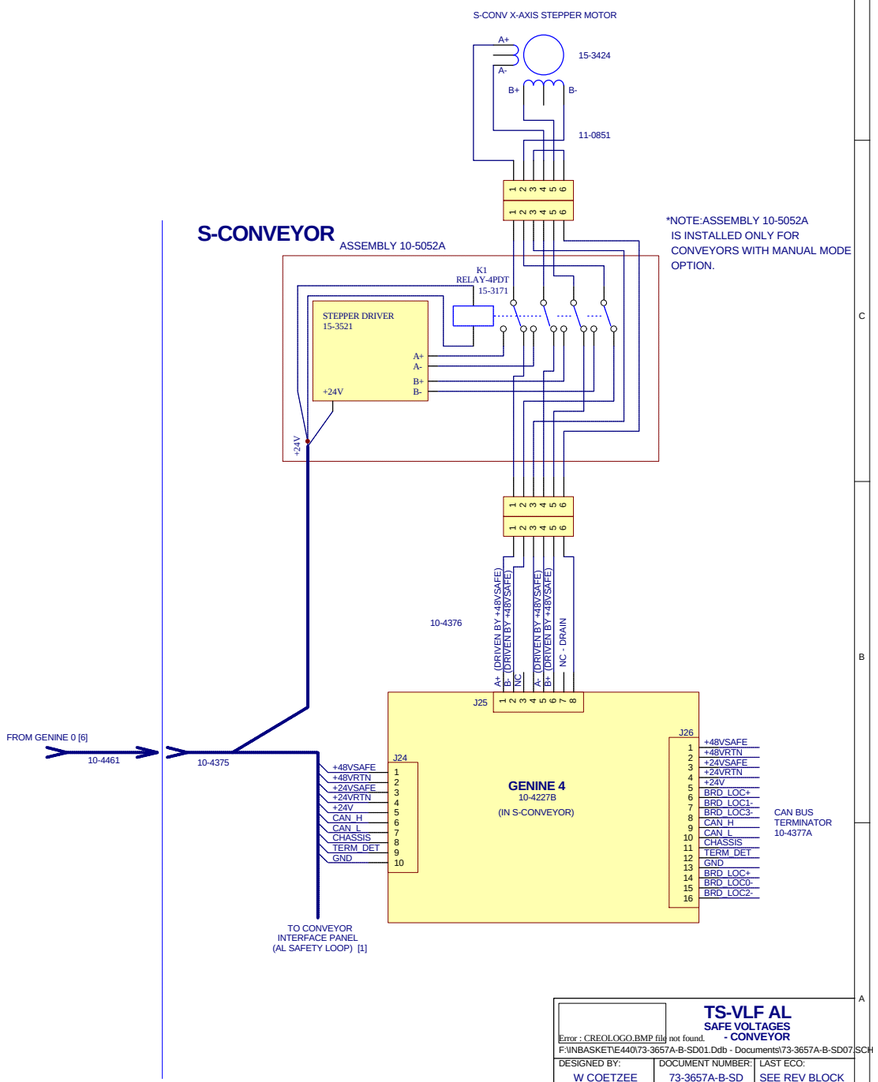

10-4904A
MOLEX MINIFIT JR 2X2
BRN
WHT
BLU
10-4389B
BAUMER SLIP SHEET SENSOR
OZDM 16P1901/S14
PKR-K1
15-3359
(IN PICKER)
TABLE Y-AXIS STEPPER MOTOR
15-3267
A+
A-
B+
B-
UMBILICAL CABLE 10-4918A [5]
TSV
CABLE DETECT
ACT2+
+24VSAFE
J18
J1
J26
FROM GENINE 1 [5]
10-4390
10-4371
J24
+48VSAFE
+48VRTN
+24VSAFE
+24VRTN
+24V
CAN_H
CAN_L
CHASSIS
TERM_DET
GND
GENUINE 2
10-4227B
(IN PICKER)
CAN BUS
TERMINATOR
10-4370A
10-4452
BRD_LOC+
BRD_LOC1-
BRD_LOC3-
BRD_LOC0-
BRD_LOC2-
A+ (DRIVEN BY +48VSAFE)
B- (DRIVEN BY +48VSAFE)
A- (DRIVEN BY +48VSAFE)
B+ (DRIVEN BY +48VSAFE)
10-4347
NC
NC - DRAIN
J25
TSV
CONVEYOR
CONNECTIONS IN DOTTED AREA ONLY
EXIST FOR SCONVEYOR MANYUAL MODE OPTION
CABLES 10-5050, 10-5091,
10-5092, AND 10-5093
ARE INSTALLED ONLY
WHEN S-CONVEYOR
MANUAL MODE OPTION
IS INSTALLED
10-5093A REPLACES 10-4873
FOR SCONVEYOR MANUAL
MODE OPTION
[2] 10-5050A
10-5093
10-5092
10-5091
[7]
CABLE 10-4461
1 +48VSAFE RED 18
2 +48VSAFERTN BLK (RED PAIR) 18
3 +24VSAFE BLU 18
4 +24V WHT 18
5 +24VRTN BLK (WHT PAIR) 18
7 +24VSAFERTN BLK (BLU PAIR) 18
8 CAN_H BLU/WHT STRIPE 24
9 CAN_L WHT/BLU STRIPE 24
10 CHASSIS BLK (GRN PAIR) 18
DRAIN WIRE 24
11 TERM_DET GRN 18
12 AL SFTY CCT BLK 22
13 AL SFTY CCT RED 22
14 CHASSIS GND GRN/YEL 16
TO CABLE 10-4375 OR 10-4764
AND GENINE 4 [7]
10-4348 (FOR LEFT-TO-RIGHT MACHINE)
10-4346 (FOR RIGHT-TO-LEFT MACHINE)
10-4873
FROM PDB [5]
10-4874A
10-4346 (FOR LEFT-TO-RIGHT MACHINE)
10-4348 (FOR RIGHT-TO-LEFT MACHINE)
GENINE 0
10-4227B
(IN BASE TSV
POWER BOX)
(MOUNTED ON
CARD CAGE CHASSIS)
10-4900A
10-4468
10-4467
TO GUARD RAIL GATE [1]
10-4914B
10-4355
TO DROP LEAF SWITCHES x 2 [1]
AL SAFETY LOOP [1]
B ADDED REV BLOCK, S-CONVEYOR MANUAL MODE
B E440 2002 JAN 23 T NIVOLIANITIS T NIVOLIANITIS
REV ECO DATE DRAWING CHANGES BY APPROVED BY
Error : CREOLOGO.BMP file not found.
TS-VLF AL
SAFE VOLTAGES - TSV
F:\INBASKET\E440\73-3657A-B-SD01.Ddb - Documents\73-3657A-B-SD06.SCH
DESIGNED BY: W COETZEE
DOCUMENT NUMBER: 73-3657A-B-SD
LAST ECO: SEE REV BLOCK
DRAWN BY: P YUEN
LAST REVISED BY: SEE REV BLOCK
APPROVED BY: K POULIN
DESIGN DATE: 1999:03:24
LAST MODIFIED DATE: SEE REV BLOCK
SHEET: 6 of 7

L-CONVEYOR OPTION ONLY



L-CONVEYOR

S-CONVEYOR OPTION ONLY



B ADDED REV BLOCK, S-CONVEYOR MANUAL MODE

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