| Base Machine | MCU Safety Interface Board | SS Bin Safety Loop | Safe Voltages - MCU or SCU | Safe Voltages - TSV | Safe Voltages - Conveyor |
|---|---|---|---|---|---|
| 73-3657A-B-SD02.SCH | 73-3657A-B-SD03.sch | 73-3657A-B-SD04.SCH | 73-3657A-B-SD05.SCH | 73-3657A-B-SD06.SCH | 73-3657A-B-SD07.SCH |
| | | | J14, J13 | | |

## AL ESTOP LOOP

10-4943A SHORTING JUMPER USED WHEN MCU/SCU IS DISCONNECTED

MCU EMERGENCY STOP SWITCH (NOT USED IN SCU)

10-4892A (NOT USED IN SCU)

UMBILICAL CABLE 10-4918A

10-4891A

**SW2 ON BASE TSV**
TSV REAR EMERGENCY STOP SWITCH

GUARD RAIL LEFT EMERGENCY STOP SWITCH

GUARD RAIL RIGHT EMERGENCY STOP SWITCH

BASE TSV FRONT EMERGENCY STOP SWITCH (NOT USED IN AUTOLOADER)

10-4896A · 10-4898A · 10-4942A · 10-4096A

J8-1 RELAY DELAY
J8-3 CONTROL BOARD [2]

**BASE TSV ESTOP LOOP**

J4-1 RELAY DELAY
J4-2 CONTROL BOARD [2]

10-4921A · 10-4897A · 10-4920A · 10-4936A (CONNECTS TO 10-4898A IN AUTOLOADERS ONLY OR TO 10-4942A IN BASE TSV)

A · B

**AUTOLOADER COMPONENTS INSIDE BASE TSV**

LEFT-TO-RIGHT MACHINE CONNECTIONS ARE DEPICTED.
FOR RIGHT-TO-LEFT MACHINE, CABLE 10-4891A CONNECTS TO POINT B INSTEAD OF POINT A.

10-4736B (MCU ONLY)
10-4925A (SCU ONLY)

**AUTOLOADER**

**BASE TSV**

**AUTOLOADER COMPONENTS INSIDE BASE TSV**

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 · 22 · 21 · SWITCHES CLOSED WHEN GATE CLOSED · FIRMWARE SENSE · 32 · 31 · 12 · 11 · OMRON D4DL-2DFG-B 15-3423

## 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

FL1 EMI FILTER 16A **13-5027** (LINE / LOAD)

ROTARY DISCONNECTS
MAIN (RED) 15-3399 — AL-SW1
AUTOLOADER (BLACK) 15-3427 — AL-SW2
AL-CB1 15A 15-3085

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

BRN 12 · BLU 12 · BRN 14 · BLU 14

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

MCU/SCU GND M6 STUD CHASSIS

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

G/Y 12 · G/Y 14

MATE 1X2 · J43 · MATE 2X3 · J26 · J27 AMPINNERGY

MINIFIT 1X3 J42 · UMNL 16PIN J37 · MLX 1X2 J34 · MLX 1X2 J35 · MINIFIT 2X4 J41 · MINIFIT 2X4 J31

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 L1 · BLU 18 L2/N · G/Y 18 GND

10-4363A: RED 16 24V · BLK 16 24V RTN

J5 MATE 1X4 · KEY · Chassis 1 · JP 10-4680A · 2 GND

J10 MOLEX 1X3

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

10-4360A: BRN 14 L1 · BLU 14 L2/N · G/Y 14 GND

J4 MATE 1X4 · KEY

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

J6 MOLEX 2X3

KEY · J3 MATE 1X4 · TO PS3 (SSR) [4]

F6 AC SAFE SPARE · F3

J32 MINIFIT 2X3 · J15 · J24 MATE 3X3 · J9 MATE 1X5 · J2 MATE1X5

J1 MINIFIT 2X2 · J11 MINIFIT 2X2

J14 MINIFIT 2X5 · J13 MINIFIT 2X5 · J40 MINIFIT 2X4

**SELV CIRCUITRY**

**NON-SELV CIRCUITRY**
**200-240 VAC**

**Chassis Ground**
8 mounting screws & lockwashers

L1 · L2/N · KEY · GND · 10-4741A

BRN 14 · BLU 14 · G/Y 14

TO MCU SAFETY INTERFACE BOARD J2 [3] · 10-4735A

MCU MOTOR DRIVE INVERTER 15-3422

W · V · U · L3 · L2 · L1

10-4688A G/Y 18

**B1** PLENUM BLOWER **15-3155**

BRN 18 · BLU 18 · G/Y 18 · L1 · L2/N · GND · 10-4364

CONNECTOR AT BLOWER END IS FITTED WITH BACKSHELL CONNECTOR

+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

10-4468, 10-4467

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

10-4700B 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]**

**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

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

21 NC · 22 · A1 + · A2 - · K1

10-4745A · J5-1 TO MCU SAFETY · J5-2 INTERFACE BOARD [3]

10-4752A · TO CABLE 10-4351C AND GNE1 [5]

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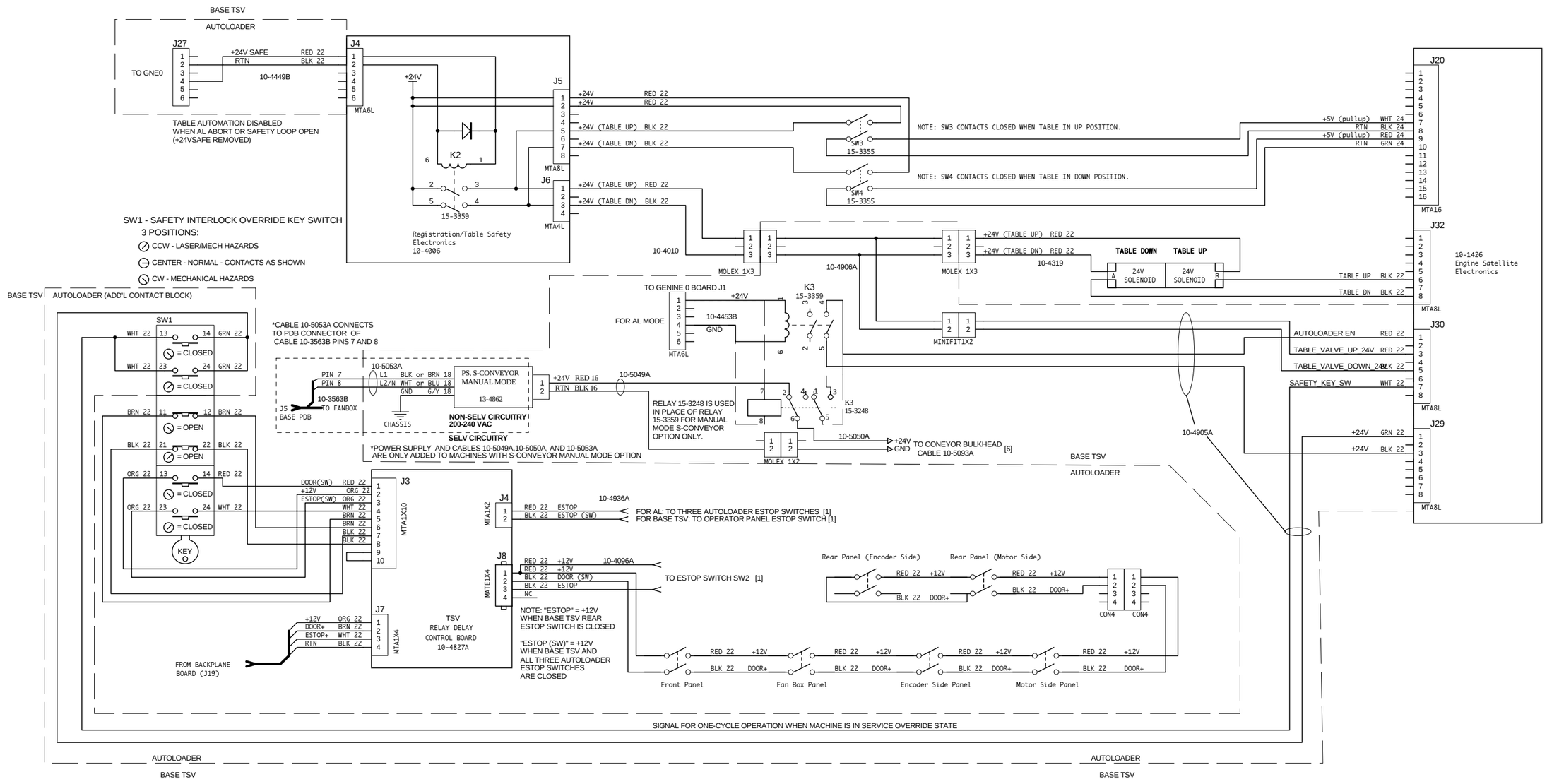
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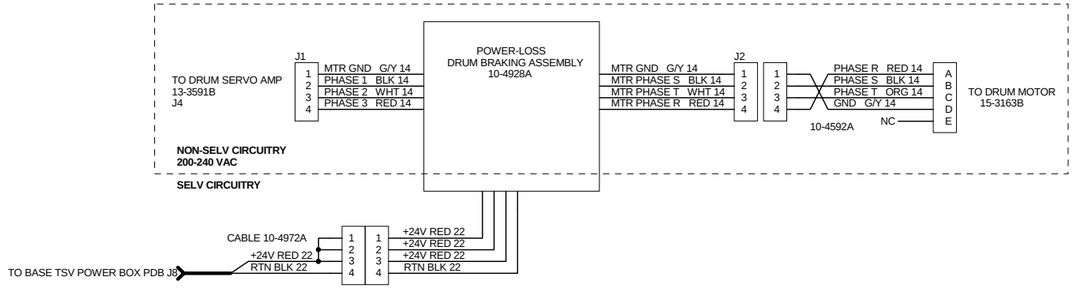
# TS-VLF AL
## SAFETY CIRCUIT

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**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.**




C ADD PART NUMBER FOR S-CONVEYOR POWER SUPPLY
REDRAW KEY SWITCH SYMBOL

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# TS-VLF AL
## BASE MACHINE SAFETY CIRCUIT

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# 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

| J4 | |
|---|---|
| 1 | +24VSAFE |
| 2 | JOG MODE |
| 3 | ACT2+(MOTOR RUN) |
| 4 | SEMI/AUTO RUN |
| 5 | JOGGED RUN |
| 6 | JOG DOWN |
| 7 | SERV PNL SW OVR |
| 8 | GND |
| 9 | |

SELV CIRCUITRY | NON SELV CIRCUITRY

| J2 | | |
|---|---|---|
| 1 | N/O CONTACT | TERM 1 |
| 2 | NO CONTACT | TERM 3 |
| 3 | FREQ1 | TERM 4 |
| 4 | FREQ2 | TERM 5 |
| 5 | 15VDC | TERM 11 |
| 6 | REVERSE | TERM 12 |
| 7 | FORWARD | TERM 13 |
| 8 | DC COMMON | TERM 6 |
| 9 | CONT REL | TERM 14 |
| 10 | | |
| 11 | | |
| 12 | | |

TO MCU MOTOR DRIVE [1]

10-4735A

MCU REAR SERVICE PANEL SAFETY LOOP

10-4725 — 15-3263 — J8 (1, 2)

MCU OPERATOR SIDE DOOR SAFETY LOOP

10-4724 — 15-3263 — J9 (1, 2)

MCU PLATE DOOR SAFETY LOOP
PLATE DR L | PICKER DR | PLATE DR R

10-4770
AND 10-4744

15-3355 x 3 — J6 (1, 2)

## MCU SAFETY LOOP

MCU CHARIOT SAFETY LOOP

10-4726B — J7 (1, 2)

| | 15-3457 | 15-3450 | 15-3450 |
|---|---|---|---|
| | CASSETTE | POSITION 2 | POSITION 1 |
| | DOWN = LATCHED | DOWN = LOAD | CLOSED IN PARKED OR LOAD POSITIONS |
| | UP = UNLATCHED | UP = PARKED | |

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

MCU ROOF SAFETY LOOP

FRONT RIGHT X 2 | REAR RIGHT X 2

10-4822A — J10 (1, 2)

FRONT LEFT X 2 | FRONT RIGHT X 2

15-3355 x 8

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

| J3 | |
|---|---|
| 1 | +24VSAFE |
| 2 | |
| 3 | |
| 4 | |
| 5 | |
| 6 | |
| 7 | |
| 8 | |
| 9 | |
| 10 | |

TO GENINE 1
I/O SIGNALS

10-4703A

UPPER/LOWER LIM SW'S

UPPER LIM SWITCH
NC CONTACTS

LOWER LIM SWITCH
NC CONTACTS

| J1 | |
|---|---|
| 1 | |
| 2 | |
| 3 | |
| 4 | |

10-4723

| J5 | |
|---|---|
| 1 | |
| 2 | |
| 3 | TO MCU-K1, MCU-K2 [1] |
| 4 | 10-4745A |
| 5 | |
| 6 | |

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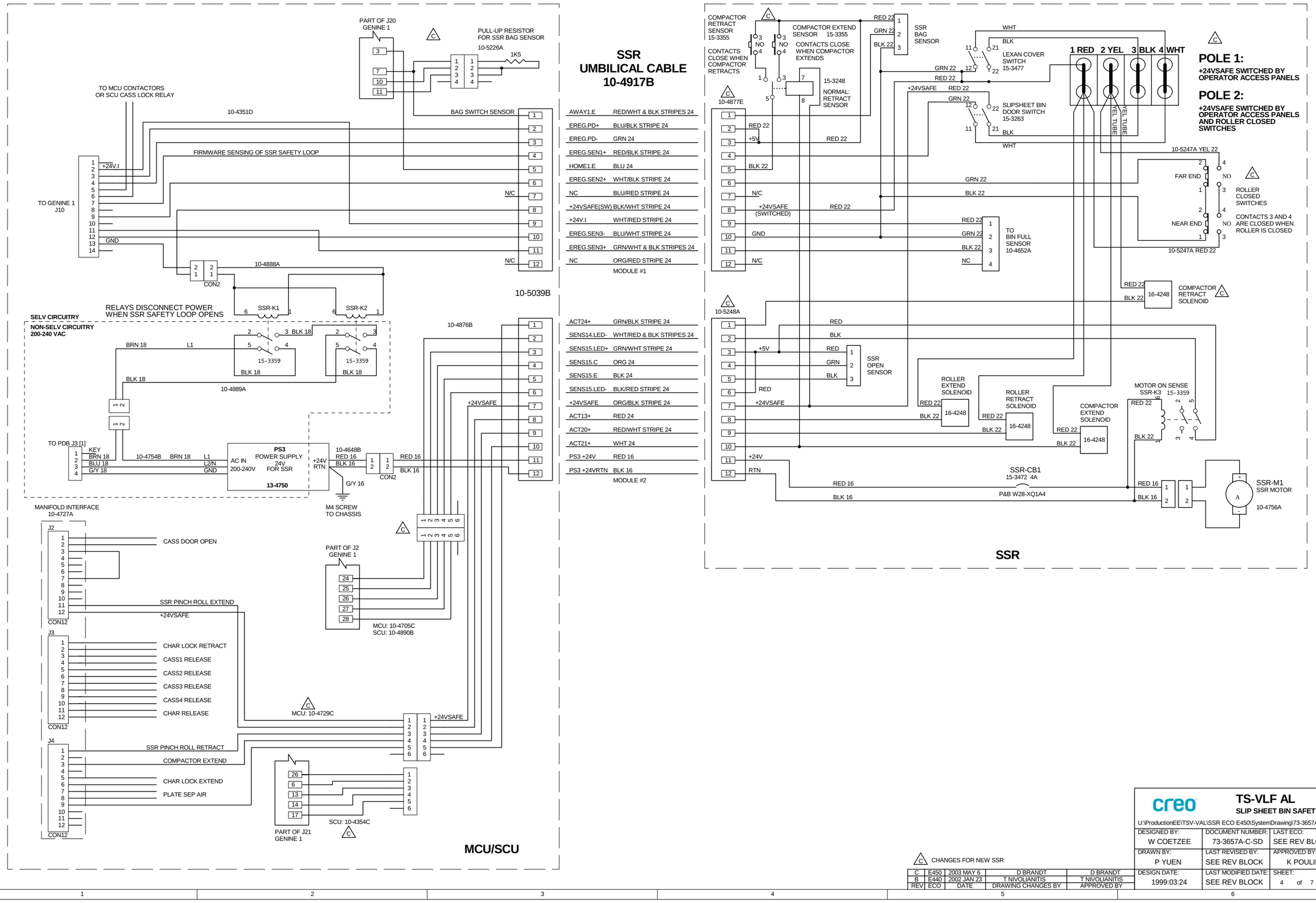
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**TS-VLF AL**
**MCU SAFETY INTERFACE BOARD**

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C CHANGES FOR NEW SSR

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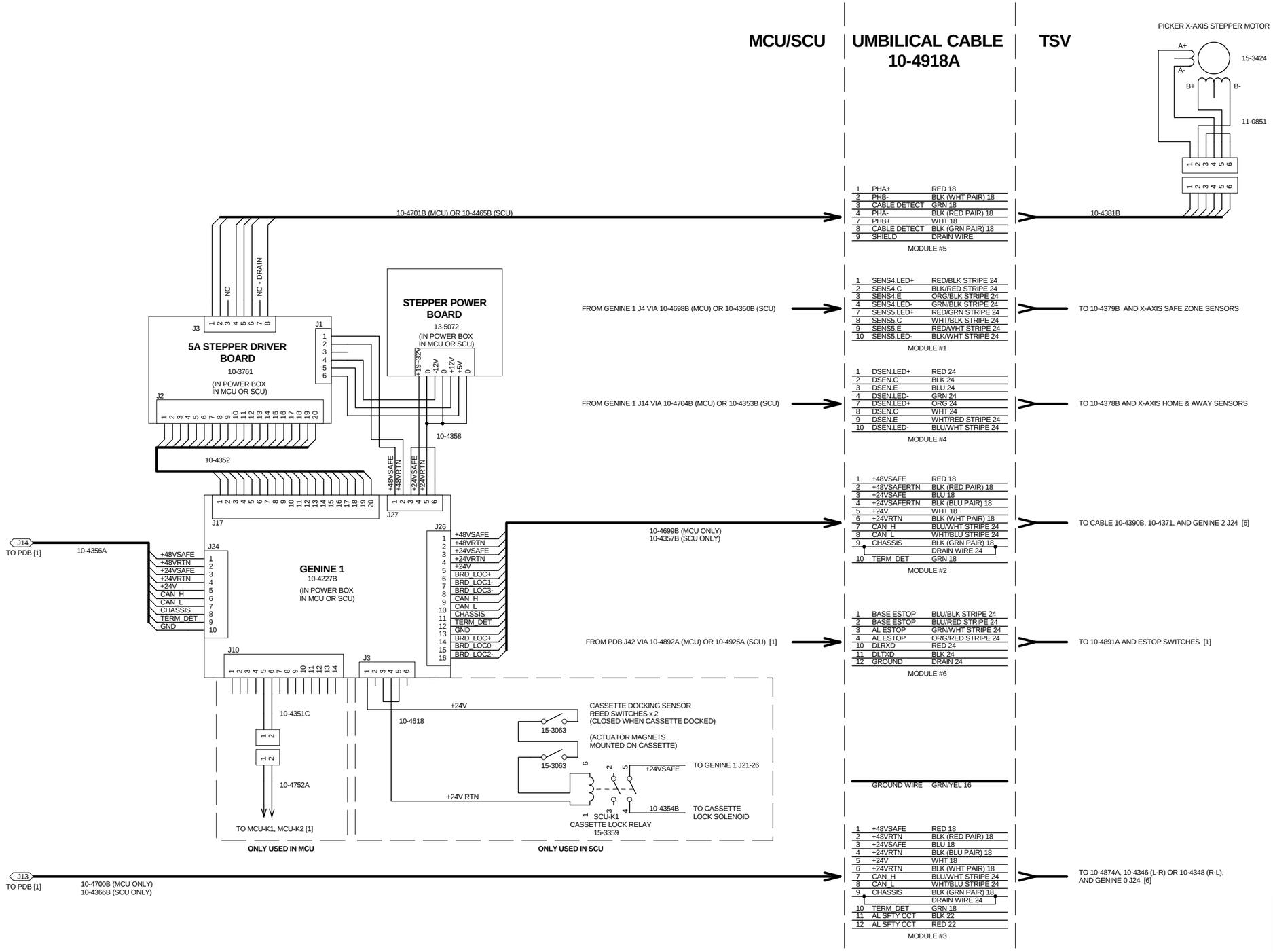
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# TS-VLF AL

**SLIP SHEET BIN SAFETY**

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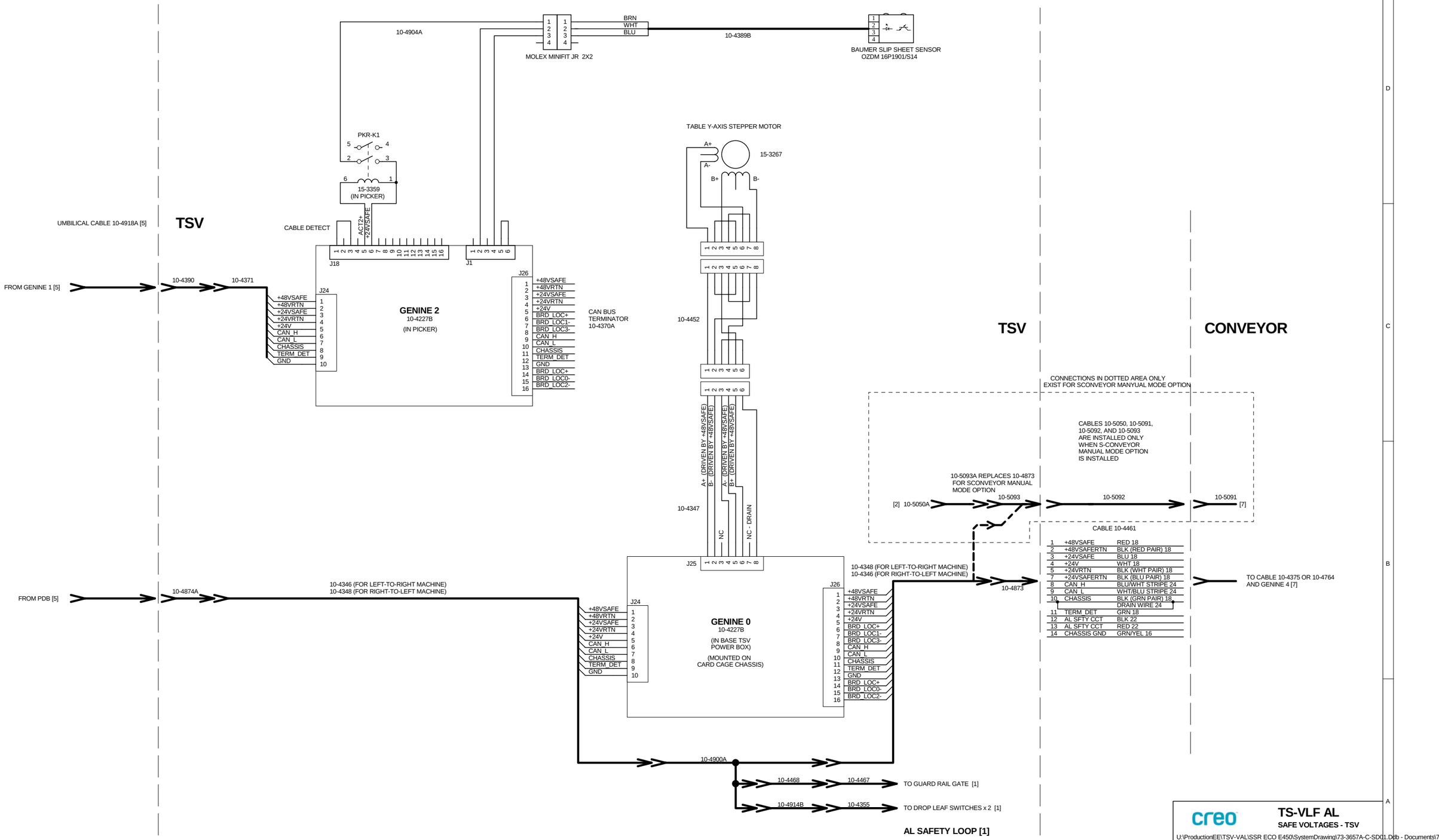
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# TS-VLF AL

**SAFE VOLTAGES - MCU/SCU**

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# TS-VLF AL

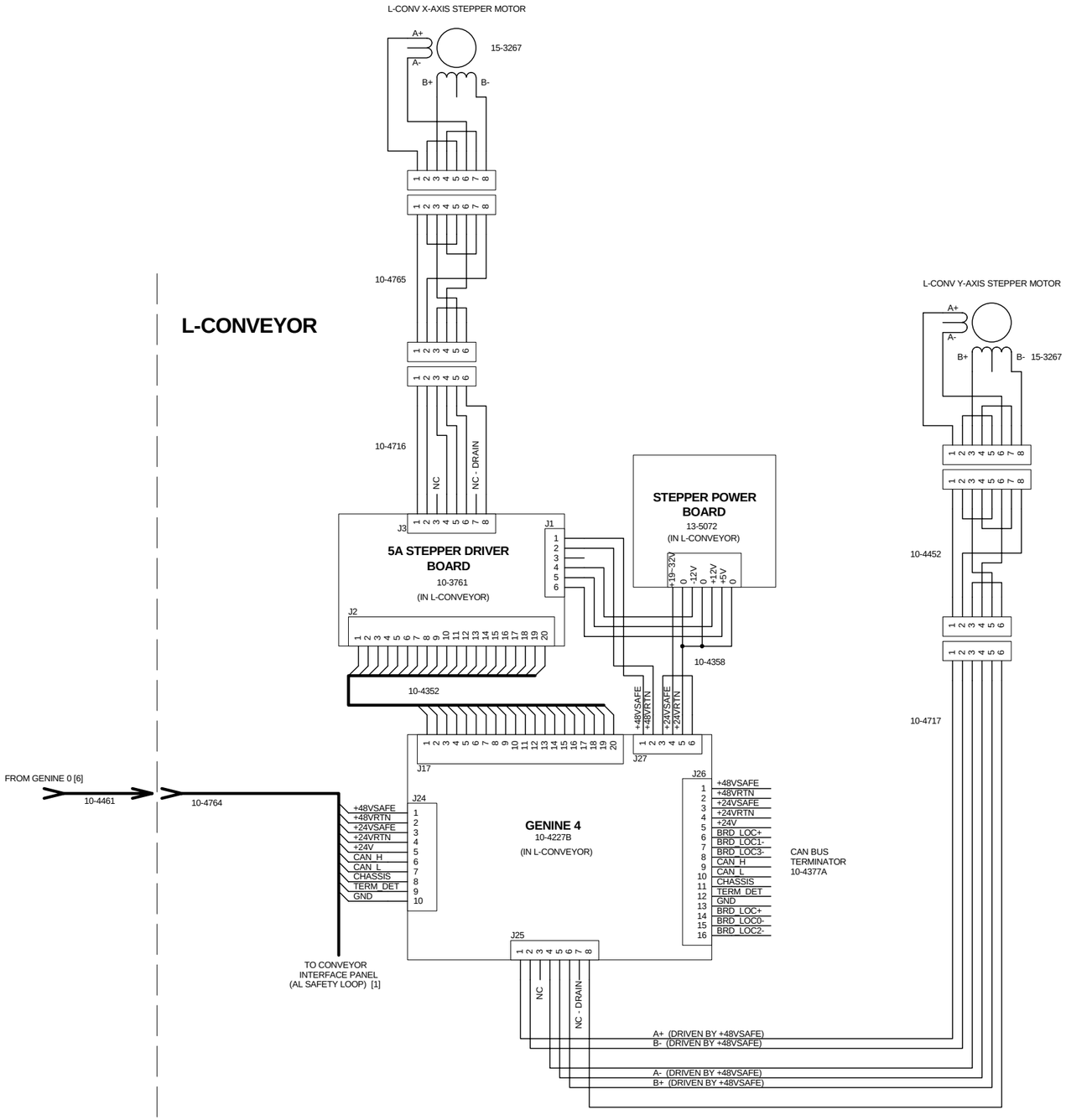
## SAFE VOLTAGES - TSV

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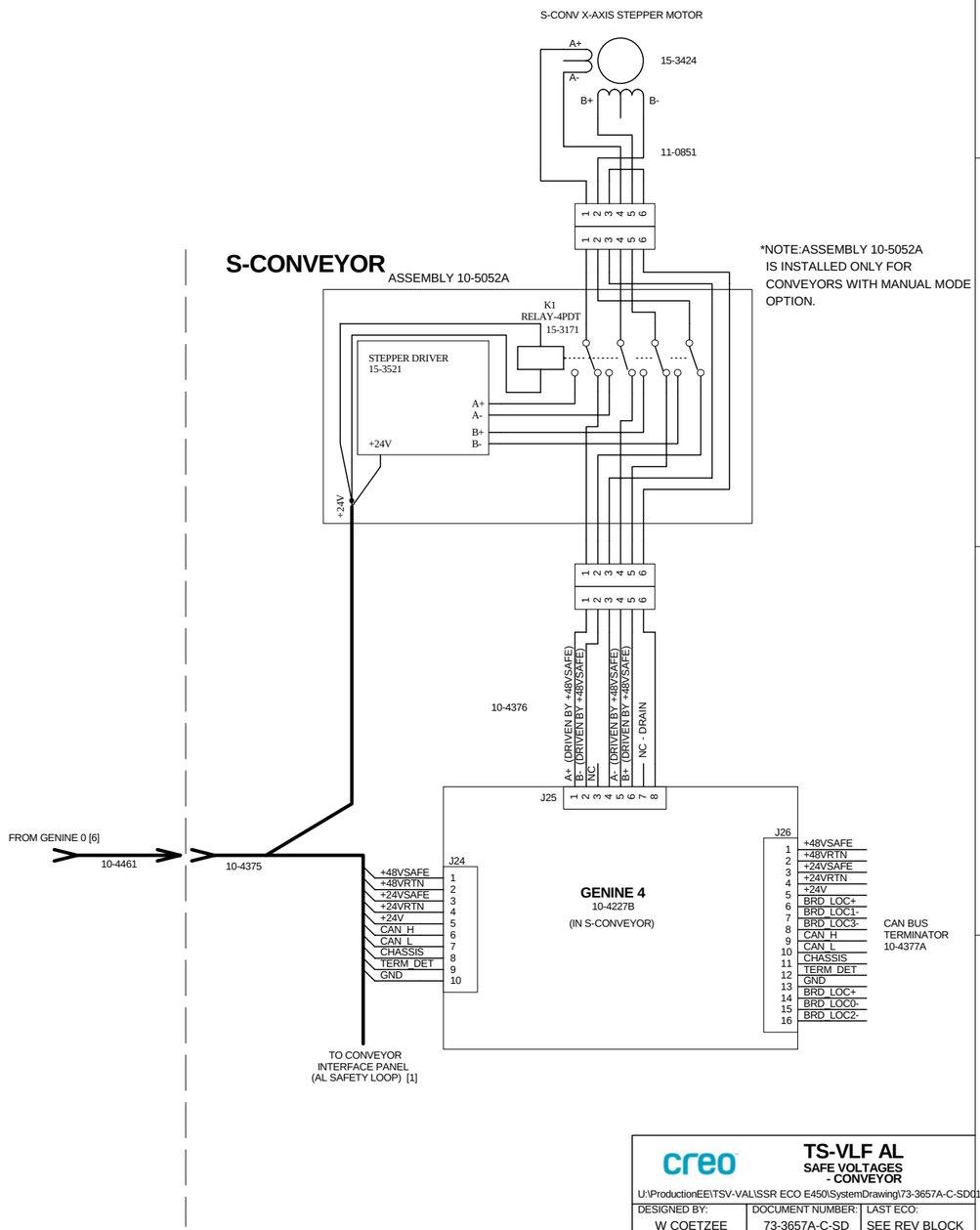
# L-CONVEYOR OPTION ONLY

## L-CONVEYOR




# S-CONVEYOR OPTION ONLY

## S-CONVEYOR




*NOTE:ASSEMBLY 10-5052A IS INSTALLED ONLY FOR CONVEYORS WITH MANUAL MODE OPTION.

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**TS-VLF AL**
**SAFE VOLTAGES - CONVEYOR**

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