MTA WIRING DIAGRAM

SEMI-AUTOMATIC OPTION

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PAGE 2_SYTEM BLOCK DIAGRAM

MANTA- SAFETY CIRCUIT
PAGE 3_SAFETY CIRCUIT

SAFETY DOOR LOOP
EMERGENCY STOP SWITCH
WRITE LASER SAFETY INTERLOCK
MECHANICAL SAFETY INTERLOCK
DRUM AMP SAFETY INTERLOCK
DRUM BRAKE SAFETY INTERLOCK
SERVICE INTERLOCK OVERRIDE SWITCH
SERVICE INTERLOCK OVERRIDE INDICATORS

MANTA - POWER ENTRY BOX WIRING
PAGE 4_ POWER ENTRY BOX WIRING

MAIN POWER SWITCH
SERVICE INTERLOCK OVERRIDE SWITCH
SERVICE INTERLOCK OVERRIDE INDICATORS
CIRCUIT BRAKERS

MANTA - POWER DISTRIBUTION BOARD WIRING
PAGE 5_ POWER DISTRIBUTION BOARD WIRING

CANBUS
POWER BOX AC POWER SW1
SAFETY DOOR LOOP
EMERGENCY STOP SWITCH
MECHANICAL SAFETY INTERLOCK
DRUM RESISTIVE BRAKE CONTROL
SERVICE INTERLOCK OVERRIDE SWITCH
SERVICE INTERLOCK OVERRIDE INDICATORS
POWER SUPPLIES PS1, PS2, PS3
AC FANS
TEC MAGNETS CONTROL

MANTA - MASTER CONTROL ELECTRONICS WIRING
PAGE 6_ MASTER CONTROL ELECTRONICS WIRING

CANBUS
CARRIAGE MOTROR DRIVE
PNEUMATIC SOLENOID DRIVE OUTPUTS
DRUM AMP CONTROL
ANLOG SENSORS
PLATE FLYOFF SENSOR
WORKSTATION CONNECTIONS
ENCODER
DEBRIS REMOVAL SENSOR
PLATE REGISTRATION ELECTRONICS

MANTA - DIGITAL SENSORS WIRING
PAGE 7_ DIGITAL SENSORS WIRING

CANBUS
CARRIAGE HOME AND AWAY SENSORS
ROLLER & LEC UP/DOWN SENSORS
HOME & AWAY BALANCE SENSORS
BACKBONE MECHANISM SENSORS
P-DOOR SENSORS
TEC DETECT SENSORS
TEC COILS
LOAD RAMP PLATE SENSOR 2
DRUM RESISTIVE BRAKE RELAYS SENSE

MANTA - DRUM DRIVE & MOTOR WIRING
PAGE 8_ MANTA DRUM DRIVE AND MOTOR WIRING

DRUM DRIVE
DRUM MOTOR
DRUM RESISTIVE BRAKE

MANTA - LIONEL BOARD WIRING
PAGE 9_ MANTA LIONEL BOARD WIRING

CANBUS
INTERNAL DEBRIS REMOVAL SENSORS
REGISTRATION LIGHTS
STATUS LIGHTS
CUSTOMER RELAY INTERFACE
EXTERNAL CHILLER CONNECTOR

MANTA - DRUM RESISTIVE BRAKE ASSEMBLY
PAGE 10_MANTA DRUM RESISTIVE BRAKE ASSEMBLY

RESISTIVE BRAKE WIRING

EXTERNAL CHILLER & INTERNAL DEBRIS REMOVAL
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CHILLER WIRING
INTERNAL DEBRIS REMOVAL WIRING

MANTA_DRUM VACUUM PUMP
PAGE 12_MANTA DRUM VACUUM PUMP

EXTERNAL DRUM VACUUM PUMP

MANTA- GENINE0 BOARD WIRING
PAGE13_GENINE0 BOARD WIRING

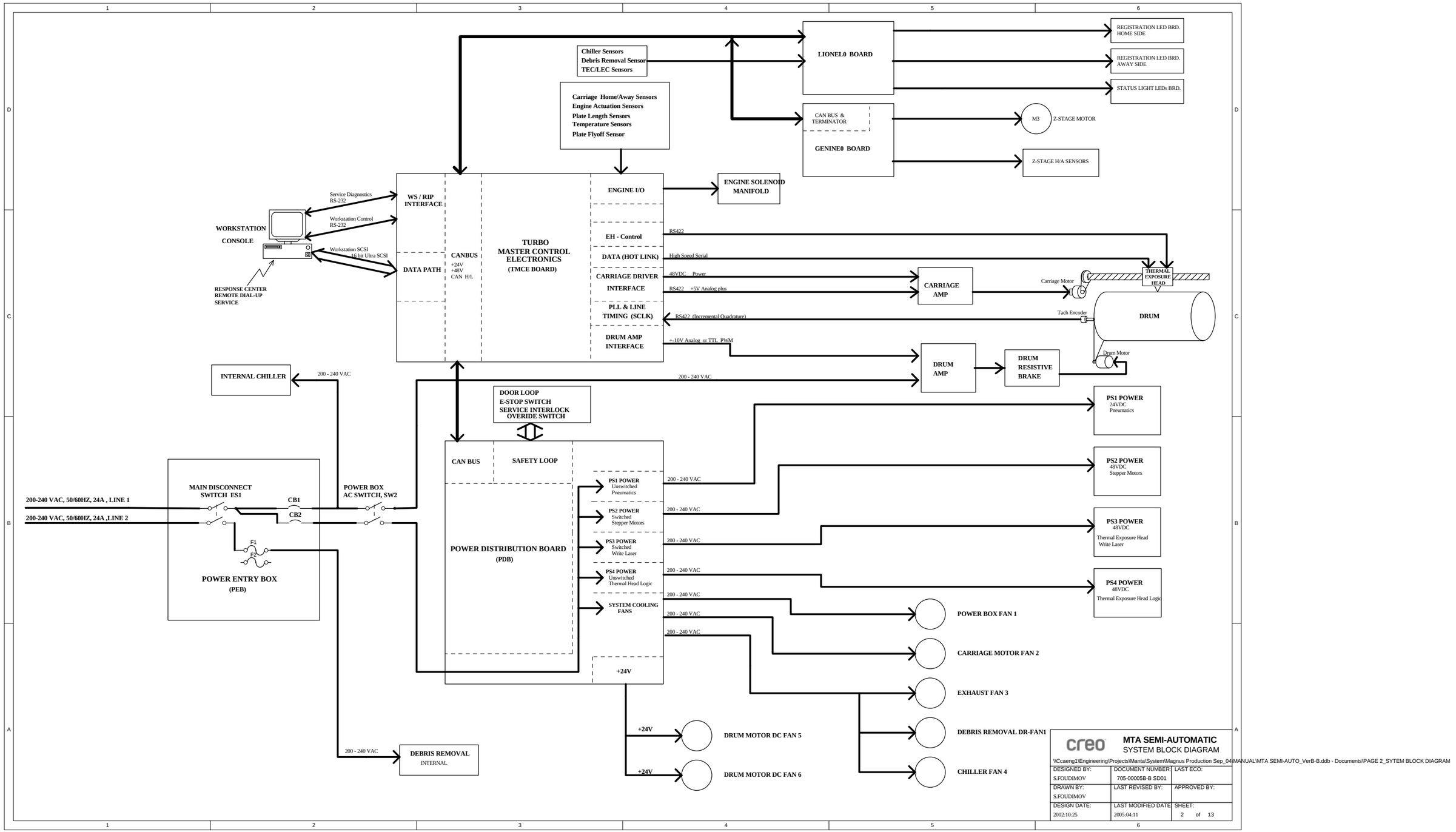
Z-STAGE

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MTA SEMI-AUTOMATIC
SYSTEM WIRING DIAGRAM

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DESIGNED BY:	DOCUMENT NUMBER:	LAST ECO:
S.FOUDIMOV	705-00005B-B SD01	ECO Number
DRAWN BY:	LAST REVISED BY:	APPROVED BY:
S.FOUDIMOV	S.FOUDIMOV	Approver Name
DESIGN DATE:	LAST MODIFIED DATE:	SHEET:
2002:10:11	2005:06:07	1 of 13

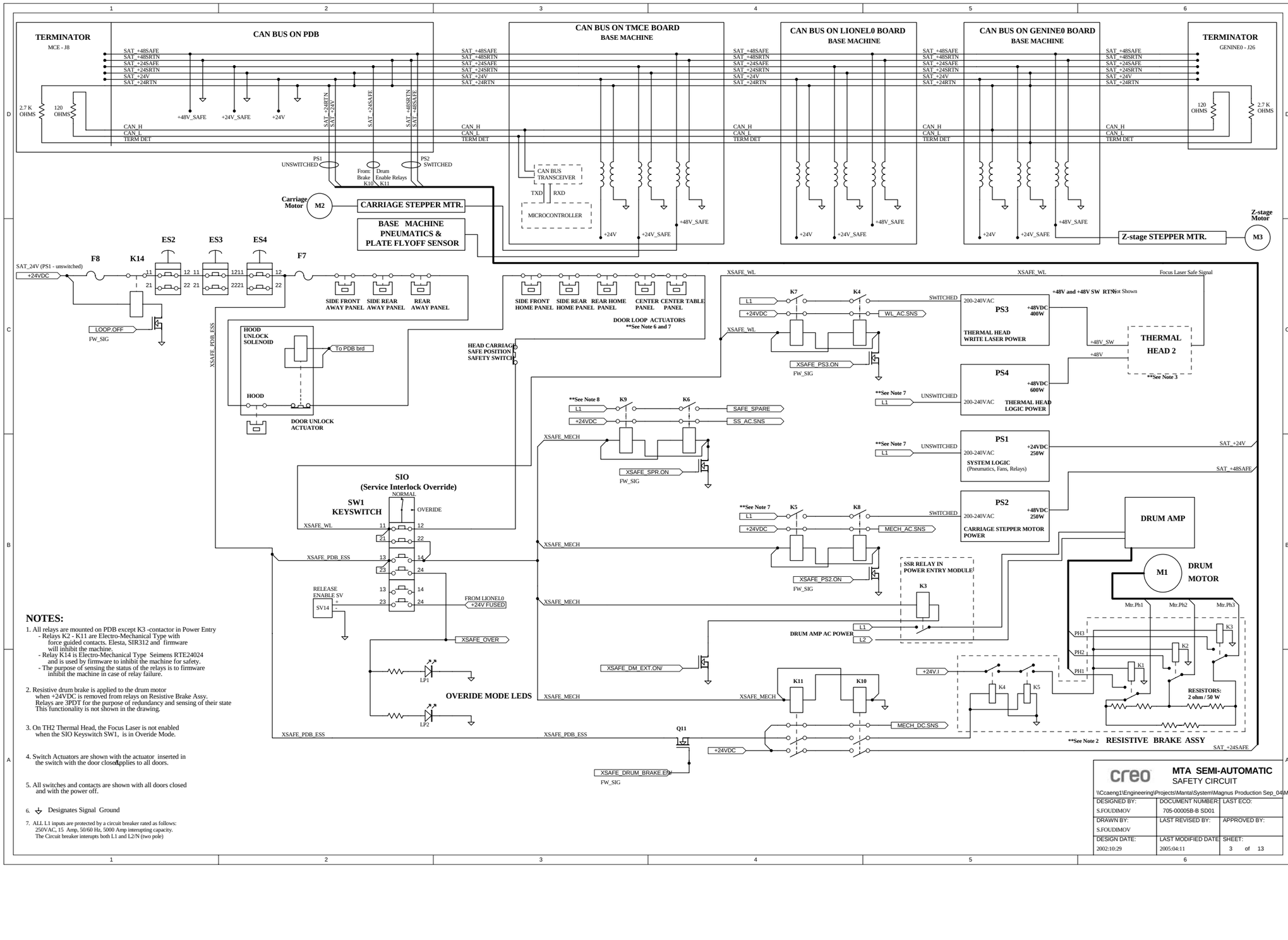


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MTA SEMI-AUTOMATIC
SYSTEM BLOCK DIAGRAM

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DESIGNED BY:	DOCUMENT NUMBER:	LAST ECO:
S.FOUDIMOV	705-00005B-B SD01	
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S.FOUDIMOV		
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NOTES:

1. All relays are mounted on PDB except K3 -contactor in Power Entry
   - Relays K2 - K11 are Electro-Mechanical Type with force guided contacts. Elesta, SIR312 and firmware will inhibit the machine.
   - Relay K14 is Electro-Mechanical Type Seimens RTE24024 and is used by firmware to inhibit the machine for safety.
   - The purpose of sensing the status of the relays is to firmware inhibit the machine in case of relay failure.
2. Resistive drum brake is applied to the drum motor when +24VDC is removed from relays on Resistive Brake Assy. Relays are 3PDT for the purpose of redundancy and sensing of their state This functionality is not shown in the drawing.
3. On TH2 Thermal Head, the Focus Laser is not enabled when the SIO Keyswitch SW1, is in Overide Mode.
4. Switch Actuators are shown with the actuator inserted in the switch with the door closed. Applies to all doors.
5. All switches and contacts are shown with all doors closed and with the power off.
6. ⏚ Designates Signal Ground
7. ALL L1 inputs are protected by a circuit breaker rated as follows: 250VAC, 15 Amp, 50/60 Hz, 5000 Amp interupting capacity. The Circuit breaker interupts both L1 and L2/N (two pole)

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MTA SEMI-AUTOMATIC
SAFETY CIRCUIT

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DESIGNED BY: S.FOUDIMOV	DOCUMENT NUMBER: 705-00005B-B SD01	LAST ECO:
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DESIGN DATE: 2002:10:29	LAST MODIFIED DATE: 2005:04:11	SHEET: 3 of 13

POWER ENTRY BOX (PEB) 11-1064A

200-240 VAC, 50/60HZ, 24A , LINE 2

AC Input 1 Plug

L1 BRN 12
L2/N BLU 12
GND G/Y 12

10-9088A (or 220-00437A)

GND G/Y 12 — M5 STUD PEB

10-9092A — GND G/Y 12 — M5 STUD PEB

LF1 FILT30A — **13-5176**

BLU 12 — BRN12

10-9090A — 10-5217A

CB1 CIRBKR 15A — 15-3085

BRN 12 — 12 — 11 — BRN 14
BLU 12 — 22 — 12 — BLU 14

TB1 — 10-5221A

10-5222A — BRN 14 — 1 — 2 — BLK 14

WHT 14

GND G/Y 12 **10-9089A** — M5 BOLT ENGINE
GND G/Y 12 **10-9089A** — M5 BOLT CHASSIS
GND G/Y 12 — M5 BOLT CHASSIS
GND G/Y 12 — M5 STUD PEB

BLK-22 — RED-22

K1 — 15-3249 RELAY,25A,SOLID STATE

To K2 — **[4]** K2 CONTROL

10-9073A — J1 — MATE 1X4

RED 22 BLK 22
WHT 22 GRN 22 RED 22 BLK 22

To PDB J37 — **10-9068A** — HEAD COOLER & BLOWER ON/OFF **[5]**

SELV

10-9084A — L1 L2/N GND — **AC POWER to CHILLER** HEAD COOLER AC POWER **[11]**

G/Y 14 — M5 STUD PEB

ES1 EMRGENCY STOP & MAIN SWITCH 25A — **15-3525**

10-9090A — 10-5218A

220-00042A — J3 — MATE 1X2

RED 22 BLK 22 — **220-00044A** — DRUM DRIVE AC ON/OFF **[5]**

To PDB J44

SELV

BLK 22 — RED 22

K3 — **15-3249** RELAY,25A,SOLID STATE

220-00049A — BRN14 — BRN 14 — BLU 14

10-9075A — L1 L2/N GND — To SW2-1,3 in POWER BOX — DDRIVE AC POWER - SW2 **[5]**

G/Y 14 — M5 STUD PEB

200-240 VAC, 50/60HZ, 24A , LINE 2

AC Input 2 Plug

L1 BRN 12
L2/N BLU 12
GND G/Y 12

10-9088A (or 220-00437A)

GND G/Y 12 — M5 STUD PEB

10-9092A — GND G/Y 12 — M5 STUD PEB

LF2 FILT30A — **13-5176**

BRN 12 — BLU 12

CB2 CIRBKR 15A — 15-3085

BRN 12 — 12 — 11 — BRN 14
BLU 12 — 22 — 21 — BLU 14

220-00833A

F1, F2: 10A, 600V, BUSSMANN, Type LP-CC for 60 Hz
F1, F2: 12A, 600V, BUSSMANN, Type LP-CC for 50 Hz
(F1 & F2 replaced the former CB3)
182-00018 for 60 Hz
182-00016 for 50 Hz

F1, F2 FUSEHOLDER, 182-00015

BRN 12 — F1 — BRN 14 — 220-00834A — 1 — 2 — BLK 14
BLU 12 — F2 — WHT 14

10-9073A — K2 CONTROL **[4]**

BLK 22 RED 22

K2 — RELAY,25A,SOLID STATE 15-3249

SELV

GND G/Y 14 — M5 STUD PEB

10-9077A — L1 L2/N GND — To SW2-5,7 in POWER BOX — PDB AC POWER - SW2 **[5]**

G/Y 14 — M5 STUD PEB

10-9086B — L1 L2/N GND — M3 DEBRIS BLOWER AC POWER **[11]**

G/Y 14 — M5 STUD PEB

SIO KEYSWITCH (2 POS) **15-3334**

SW1 NORMAL (Shown in normal position) OVERIDE

15-3067 DUAL NC Contact Block

15-3238 DUAL NO Contact Block

15-3238 DUAL NO Contact Block (For MCU option only)

OVERRIDE MODE LEDS

LP1 — LP2

+24V RED 22 — RTN BLK 22 — +24V RED 22 — RTN BLK 22

10-3721A — **10-3721A**

+24V RED 22 — RTN BLK 22 — +24V WHT 22 — RTN GRN 22

XSAFE_WL — YEL 22
XSAFE_ESS — BLK 22
MCU_OVER — RED 22
MCU_XSAFE — WHT 22
XSAFE_OVER
XSAFE_MECH

BLU 22
ORG 22
BRN 22 DOOR LOOP

10-9083A

MINIFIT 2X6 — **J2** — 1 2 3 4 5 6 7 8 9 10 11 12

10-9091B

RED 22 BLK 22 — To RELEASE SV ADAPTOR — RELEASE ADPT 1 **[6]**

RED 22 BRN 22 WHT 22 GRN 22 YEL 22 BLK 22 BLU 22 ORG 22

SELV

To PDB J34, J35, J41 — OVERRIDE SW & LED **[5]**

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MTA SEMI-AUTOMATIC
POWER ENTRY BOX
WIRING DIAGRAM

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DESIGNED BY:	DOCUMENT NUMBER:	LAST ECO:
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2002:10:25	2005:04:11	4 of 13

POWER DISTRIBUTION BOARD (PDB)

10-4112 H

SELV CIRCUITRY

NON-SELV CIRCUITRY
200-240 VAC

POWER ENTRY BOX , J3 — DRUM DRIVE AC ON/OFF
POWER ENTRY BOX , J2 — OVERRIDE SW & LED
RESISTIVE BRAKE, J5 — BRAKE POWER
POWER ENTRY BOX, J1 — HEAD COOLER & BLOWER ON/OFF

ES2 EMERGENCY STOP SWITCH FRONT — 15-3474
ES3 EMERGENCY STOP SWITCH REAR — 15-3474 — 220-00093A
ES4 EMERGENCY STOP SWITCH REAR — 15-3474 — 220-00220A
ES5 EMERGENCY STOP SWITCH HOOD — 15-3474 — 220-00444A
ES6 EMERGENCY STOP SWITCH HOOD — 15-3474 — 220-00445A
10-9246A

FAN6, DRUM MOTOR, DC 24V — 500-00205A — MATE 1X2 — 220-0092A — MATE 1X2
FAN7, DRUM MOTOR, DC 24V — 500-00205A — MATE 1X2 — To K1-ENG RELAY — [7] K1-ENG

220-00044B — MECH SAFE, RTN, +24V, DM ON
10-9068A — 10-9091A — 10-9074A

MINIFIT 2X8 J37 — MINIFIT 2X7 J44 — MLX 1X2 J34 — MLX 1X2 J35 — MINIFIT 2X4 J41 — J42 MINIFIT 1X3 — J29 SHROUDED HDR 1X3

From POWER ENTRY BOX [4] DDRIVE AC POWER -SW2 — 10-9075A — GY 14 — GND M5 BOLT
SW2 14A — BRN 14 1 — BLU 14 3 — 2 — 4
From POWER ENTRY BOX [4] PDB AC POWER -SW1 — 10-9077A — GY 14 — GND M5 BOLT
BRN 14 5 — BLU 14 7 — 6 — 8 — 10-9078A
11-1138A SERVICE OVERRIDE TOOL

MATE 1X2 — MATE 2X3 — J43 — J26 — K15
J27 AMP INNERGY — BRN 14 L1 — BLU 14 L2/N — GND

PS4 POWER SUPPLY 48V — HEAD LOGIC UNSWITCHED — 13-4791 — AC IN 200-240V — 48V S — 48V R — 220-00066A — BLK 16 — WHT 16 — GY 16
PS1 POWER SUPPLY 24V, 250W — 13-5094 — AC IN 200-240V — 24V R — 24V S — 220-00065A — BLK 18 — WHT 18 — GY 18 — 10-4679A GND M5 BOLT
220-00058A — L1 — L2/N — Key — GND — J5 MATE 1X4
10-5112A — RED 16 — 24V — BLK 16 — RTN — J10 MOLEX 1X3 — GND
PS2 POWER SUPPLY 48V, 250W SWITCHED — 13-5094 — AC IN 200-240V — BLK 16 RTN — BRN 16 48V — 48V R — 48V S — 220-00067A — BLK 18 — WHT 18 — GY 18 — L1 — L2/N — GND — Key — J4 MATE 1X4
220-00059A — BRN 16 48V SAFE SW — BLK 16 RTN — BRN 16 48V SAFE SW — BLK 16 RTN — J6 MOLEX 2X3
[6] CARRIAGE DRIVE 48V — 10-4679A GND M5 BOLT
PS3 POWER SUPPLY 48V (For Write Laser Diodes) SWITCHED — 13-4832 — AC IN 200-240V — 48V R — 48V S — BLK 16 — WHT 16 — GY 16 — 10-5115A — L1 — L2/N — GND — Key — J3 MATE 1X4

J32 MINIFIT 2X3 — J24 MATE 3X3 — BLK22 — J15 MATE 1X5 — F6 AC SAFE SPARE — F3 PUMP — J9 MATE 1X5
Chassis Ground With 8 mounting screws

J14 MINIFIT 2X8 CAN — SAT_+48SAFE, SAT_+48SRTN, SAT_+24SAFE, SAT_+24SRTN, SAT_+24V, BRD_LOC+, BRD_LOC1-, BRD_LOC2-, CAN_H, CAN_L, CAN_SS, TERM_DET, SAT_+24RTN, BRD_LOC1+, BRD_LOC2+
J13 MINIFIT 2X5 — 10-5138A — To LIONEL J9 SCON BUS [9]
220-00147A — TO TMCE J7 SCON BUS [6]
J30 MINIFIT 2X4 — J1 MINIFIT 2X2 — J3 MINIFIT 2X2 — RTN, 24V — BLK 22 — RED 22 — 500-00058A — To RESISTIVE BRAKE Assy DRUM BRAKE [8]
CARRRIAGE SAFE POS. 11 12 RED 22 — SSW13 13 14 15-3450

J28 SHROUDED HEADER 1X4 — +24V, RTN
10-5237A — 172-00032 HOOD UNLOCK SOLENOID — E2 E1 — 51 52 — 10-5245A — SSW2 11 12 31 32
SSW1 15-3263 REAR AWAY — 10-5246A
SSW3 15-3263 SIDE REAR AWAY — 10-5244A
J40 MINIFIT 2X4 — 10-5242B — D/ FUSE SNS, LOOP1 SNS, key, LOOP1 SNS, LOOP2 SNS — RED 22, BLK 22
220-01059A — SSW4 15-3263 SIDE FRONT AWAY
220-00379B — J39 MINIFIT 2X4 — LOOP2 SNS, key, LOOP3 SNS, LOOP3 SNS, LOOP4 SNS — RED 22, BLK 22
220-01060A — SSW5 15-3263 SIDE FRONT HOME
10-5240A — J31 MINIFIT 2X4 — LOOP4 SNS, LOOP 4A SNS, DOOR SW, Key, DOOR SW — 10-5229A
SSW6 15-3263 SIDE REAR HOME — 10-5243A
220-00076A — J30 MINIFIT 2X4 — LOOP5 SNS, LOOP 5A SNS, key, RED 22, BLK 22
SSW7 REAR HOME 15-3263 — 10-5246A
15-3263 SSW8 CENTER FRONT — 10-5246A
SSW9 CENTER TABLE 15-3263 — 10-5246A

G/Y Ground Marker Tubing Attached — GND CHASSIS — TO CHASSIS
WHT 16, BRN 16, RED 16, VIO 16, GRY 16, BLU 16, ORG 16, YEL 16, WHT 22, RED 22, ORG22 — 10-9096A
CHASSIS, 48V S UNSWITCHED, 48V S UNSWITCHED, 48V R UNSWITCHED, 48V R SWITCHED, 48V R SWITCHED, 48V S SWITCHED, 48V S SWITCHED, FL_SAFE 1-, FL_SAFE 2+, R TN 1-, R TN 2-
S A B L M D P C N F H E G
TH2 Thermal Exposure Head

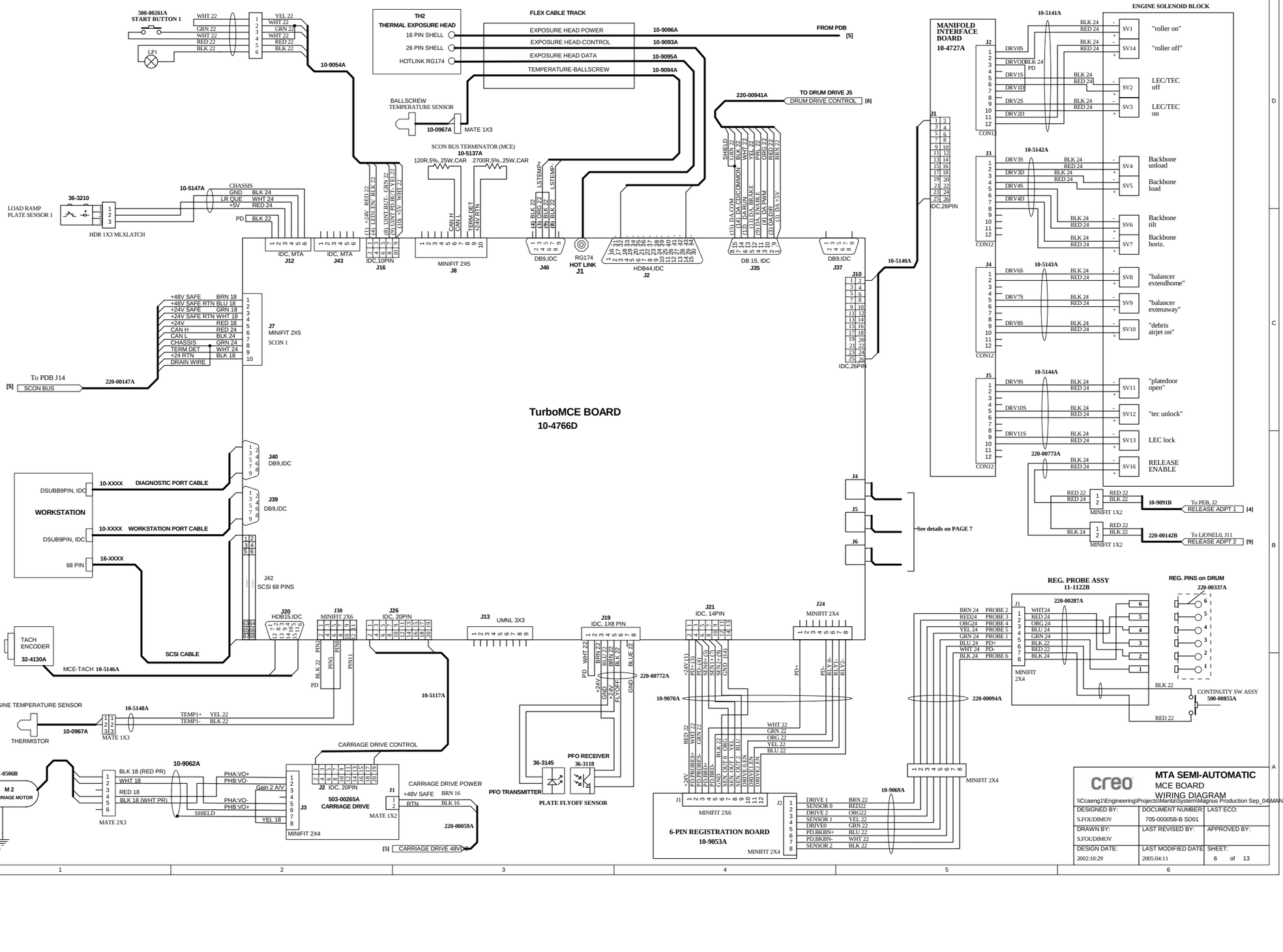
10-9067A — BLK 16, WHT 16, GY 16, BLK 18, RED 18, L1, L2/N, GND, WHT 16, GY 16
MATE 1X3 — backshell — MATE 1X2 — backshell — MATE 1X3 — backshell
10-1436A FAN 1, POWER BOX AC
11-0453A FAN2, CARRIAGE MOTOR AC — GY 18 — GND CASTING
10-1436A FAN 3, AC EXHAUST GARAGE LEFT SIDE
GND, L2/N, L1 — G/Y 16, WHT 16, BLK 16 — To DR AC FAN 4 BLOWER AC FAN POWER [11]

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MTA SEMI-AUTOMATIC
PDB BOARD
WIRING DIAGRAM

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DESIGNED BY:	DOCUMENT NUMBER:	LAST ECO:
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2002:10:29	2005:04:11	5 of 13


500-00261A
START BUTTON 1
LP1
WHT 22
GRN 22
WHT 22
RED 22
BLK 22
YEL 22
WHT 22
GRN 22
WHT 22
RED 22
BLK 22
10-9054A
TH2
THERMAL EXPOSURE HEAD
16 PIN SHELL
26 PIN SHELL
HOTLINK RG174
FLEX CABLE TRACK
EXPOSURE HEAD POWER
EXPOSURE HEAD-CONTROL
EXPOSURE HEAD DATA
TEMPERATURE-BALLSCREW
10-9096A
10-9093A
10-9095A
10-9094A
FROM PDB
[5]
BALLSCREW
TEMPERATURE SENSOR
10-0967A
MATE 1X3
SCON BUS TERMINATOR (MCE)
10-5137A
120R,5%,.25W,CAR
270OR,5%,.25W,CAR
220-00941A
TO DRUM DRIVE J5
DRUM DRIVE CONTROL
[8]
SHIELD
GRN 22
BLK 22
WHT 22
YEL 22
PRL 22
ORG 22
GRN 22
BRN 22
(15) DA COM
(14) DA GND/COMMON
(13) DA +5V
(12) DA -5V
(11) DA - BRAKE
(10) DA - ENABLE
(9) DA - DIR PWM
(8) DA DIR
(1) DA +5V
MANIFOLD
INTERFACE
BOARD
10-4727A
J1
IDC,26PIN
10-5140A
IDC,26PIN
10-5141A
ENGINE SOLENOID BLOCK
J2
DRV0S
DRV0D
DRV1S
DRV1D
DRV2S
DRV2D
CON12
BLK 24
RED 24
PD
SV1
SV14
SV2
SV3
"roller on"
"roller off"
LEC/TEC
off
LEC/TEC
on
10-5142A
J3
DRV3S
DRV3D
DRV4S
DRV4D
SV4
SV5
SV6
SV7
Backbone
unload
Backbone
load
Backbone
tilt
Backbone
horiz.
10-5143A
J4
DRV6S
DRV7S
DRV8S
SV8
SV9
SV10
"balancer
extendhome"
"balancer
extenaway"
"debris
airjet on"
10-5144A
J5
DRV9S
DRV10S
DRV11S
SV11
SV12
SV13
SV16
"platedoor
open"
"tec unlock"
LEC lock
RELEASE
ENABLE
220-00773A
10-9091B
To PEB, J2
RELEASE ADPT 1
[4]
220-00142B
To LIONEL0, J11
RELEASE ADPT 2
[9]
MINIFIT 1X2
LOAD RAMP
PLATE SENSOR 1
36-3210
HDR 1X3 MLXLATCH
10-5147A
CHASSIS
GND BLK 24
LR QUE WHT 24
+5V RED 24
PD BLK 22
IDC, MTA
J12
IDC, MTA
J43
IDC,10PIN
J16
(1) +24V RED 22
(9) LED1 EN BLK 22
(9) UNT BUT GRN 22
(9) UNT PB BUT WHT 22
(10) +5V WHT 22
MINIFIT 2X5
J8
CAN H
CAN L
TERM DET
+24V RTN
(4) BLK 22
(3) ORG 22
(6) BLK 22
(6) BLK 22
LSTEMP+
LSTEMP-
DB9,IDC
J46
RG174
HOT LINK
J1
HDB44,IDC
J2
DB 15, IDC
J35
DB9,IDC
J37
J10
IDC,26PIN
+48V SAFE BRN 18
+48V SAFE RTN BLU 18
+24V SAFE GRN 18
+24V SAFE RTN WHT 18
+24V RED 18
CAN H RED 24
CAN L BLK 24
CHASSIS GRN 24
TERM DET WHT 24
+24 RTN BLK 18
DRAIN WIRE
J7
MINIFIT 2X5
SCON 1
To PDB J14
[5]
SCON BUS
220-00147A
TurboMCE BOARD
10-4766D
J40
DB9,IDC
J39
DB9,IDC
DSUBB9PIN, IDC
WORKSTATION
10-XXXX DIAGNOSTIC PORT CABLE
10-XXXX WORKSTATION PORT CABLE
DSUB9PIN, IDC
68 PIN
16-XXXX
SCSI CABLE
J42
SCSI 68 PINS
TACH
ENCODER
32-4130A
MCE-TACH 10-5146A
J20
HDB15,IDC
J30
MINIFIT 2X6
J26
IDC, 20PIN
J13
UMNL 3X3
J19
IDC, 1X8 PIN
J21
IDC, 14PIN
J24
MINIFIT 2X4
PD WHT 22
BRN 22
BLU 22
BRN 22
BLK 22
BLUE 22
+24V
GND
+24V
FLYOFF
GND
220-00772A
10-5117A
PD+
PD-
RLY1-
RLY1+
RLY2-
10-9070A
220-00094A
REG. PROBE ASSY
11-1122B
J1
220-00287A
MINIFIT
2X4
BRN 24 PROBE 2
RED24 PROBE 3
ORG24 PROBE 4
YEL 24 PROBE 5
GRN 24 PROBE 1
BLU 24 PD+
WHT 24 PD-
BLK 24 PROBE 6
REG. PINS on DRUM
220-00337A
BLK 22
CONTINUITY SW ASSY
500-00855A
RED 22
ENGINE TEMPERATURE SENSOR
10-0967A
THERMISTOR
10-5148A
MATE 1X3
TEMP1+ YEL 22
TEMP1- BLK 22
CARRIAGE DRIVE CONTROL
10-5117A
PFO RECEIVER
36-3118
36-3145
PFO TRANSMITTER
PLATE FLYOFF SENSOR
11-0506B
M 2
CARRIAGE MOTOR
GND
CHASSIS
BLK 18 (RED PR)
WHT 18
RED 18
BLK 18 (WHT PR)
MATE 2X3
10-9062A
PHA:VO+
PHB:VO-
PHA:VO-
PHB:VO+
SHIELD
Gain 2 A/V
YEL 18
J3
MINIFIT 2X4
J2 IDC, 20PIN
503-00265A
CARRIAGE DRIVE
J1
MATE 1X2
CARRIAGE DRIVE POWER
+48V SAFE BRN 16
RTN BLK 16
220-00059A
[5] CARRIAGE DRIVE 48VDC
WHT 22
GRN 22
ORG 22
YEL 22
BLU 22
RED 22
WHT 22
GRN 22
+24V (1)
PD+ (3)
PD- (4)
SEND+ (5)
SEN1+ (6)
SEN2+ (7)
GRN+ (14)
PD.PROBES+
PD.PROBES-
PD.BRD+
PD.BRD-
SEN. OUT 0
SEN. OUT 1
SEN. OUT 2
DRIVE1.EN
DRIVE2.EN
J1
MINIFIT 2X6
6-PIN REGISTRATION BOARD
10-9053A
J2
DRIVE 1 BRN 22
SENSOR 0 RED22
DRIVE 2 ORG22
SENSOR 1 YEL 22
DRIVE0 GRN 22
PD.BKBN+ BLU 22
PD.BKBN- WHT 22
SENSOR 2 BLK 22
MINIFIT 2X4
10-9069A
MINIFIT 2X4
See details on PAGE 7
J4
J5
J6
creo
MTA SEMI-AUTOMATIC
MCE BOARD
WIRING DIAGRAM
\\Ccaeng1\Engineering\Projects\Manta\System\Magnus Production Sep_04\MANUAL\MTA SEMI-AUTO_VerB-B.ddb - Documents\PAGE 6_ MASTER CONTROL ELECTRONICS
DESIGNED BY: S.FOUDIMOV
DOCUMENT NUMBER: 705-00005B-B SD01
LAST ECO:
DRAWN BY: S.FOUDIMOV
LAST REVISED BY:
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DESIGN DATE: 2002:10:29
LAST MODIFIED DATE: 2005:04:11
SHEET: 6 of 13

DETAILS OF J4, J5, J6 WIRING FROM PAGE 6

TurboMCE BOARD
10-4766D

J4 DB37M, IDC

J5 DB25,IDC

J6 DB37F, IDC

10-5129A

10-5130A

10-5131A

RLR_DOWN Away Side — 36-3125 — 10-4982A
LED+ RED 22 — RED 24 — TO DSEN1 LED+ (3)
LED- BLK 22 — BLK 24 — TO DSEN1 LED- (22)
COLLECTOR WHT 22 — WHT 24 — TO DSEN1 C (4)
EMITTER GRN 22 — GRN 24 — TO DSEN1 E (23)

RLR_UP Away Side — 36-3125 — 10-4982A
LED+ RED 22 — ORG 24 — TO DSEN2 LED+ (5)
LED- BLK 22 — BRN 24 — TO DSEN2 LED- (24)
COLLECTOR WHT 22 — BLU 24 — TO DSEN2 C (6)
EMITTER GRN 22 — YEL 24 — TO DSEN2 E (25)

LEC_DOWN Away Side — 36-3125 — 10-4982A
LED+ RED 22 — RED 24 — TO DSEN3 LED+ (7)
LED- BLK 22 — BLK 24 — TO DSEN3 LED- (26)
COLLECTOR WHT 22 — WHT 24 — TO DSEN3 C (8)
EMITTER GRN 22 — GRN 24 — TO DSEN3 E (27)

LEC_UP Away Side — 36-3125 — 10-4982A
LED+ RED 22 — ORG 24 — TO DSEN4 LED+ (9)
LED- BLK 22 — BRN 24 — TO DSEN4 LED- (28)
COLLECTOR WHT 22 — BLU 24 — TO DSEN4 C (10)
EMITTER GRN 22 — YEL 24 — TO DSEN4 E (29)

(11) TO DSEN5 LED+ — RED 22 — RED 22 — 10-4982A — LED+ — 36-3125
(30) TO DSEN5 LED- — BLK 22 — BLK 22 — LED-
(12) TO DSEN5 C — WHT 22 — WHT 22 — COLLECTOR — CAR_AWAY
(31) TO DSEN5 E — GRN 22 — GRN 22 — EMITTER

(13) TO DSEN6 LED+ — BLU 24 — 10-4733A — 36-3125
(32) TO DSEN6 LED- — BLU/BLK 24 — BAL_DETECT Away Side
(14) TO DSEN6 C — BLU/WHT 24
(33) TO DSEN6 E — BLU/RED 24

(15) TO DSEN 7 LED+ — GRN 24 — 10-4982A — 36-3125
(34) TO DSEN7 LED- — GRN/BLK 24 — BAL_EXTEND Away Side
(16) TO DSEN7 C — GRN/WHT 24
(35) TO DSEN7 E — BLK/WHT 24

(17) TO DSEN8 LED+ — ORG 24 — 10-4982A — 36-3125
(36) TO DSEN8 LED- — ORG/BLK 24 — BAL_RETRACT Away Side
(18) TO DSEN8 C — BLK/RED 24
(37) TO DSEN8 E — ORG/RED 24

10-5065A — RSW1 RSW2 RSW3 RSW4 RSW5 RSW6 RSW7 RSW8 RSW9 RSW10

(1) TO DSEN 0 LED+ — RED 22 — 10-9060A — WHT 22
(20) TO DSEN0 LED- — BLK 22 — RED 22
(2) TO DSEN0 C — WHT 22 — BLK 22
(21) TO DSEN0 E — GRN 22

(1) TO DSEN 18 LED+ — RED 24 — 10-4733A — 36-3125
(14) TO DSEN 18 LED- — RED/BLK 24 — BM_FORWARD Away Side
(2) TO DSEN 18 C — RED/WHT 24
(15) TO DSEN 18 E — RED/GRN 24

(3) TO DSEN 19 LED+ — GRN 24 — 10-4733A — 36-3125
(16) TO DSEN 19 LED- — GRN/BLK 24 — BM_CENTER BACK Away Side
(4) TO DSEN 19 C — GRN/WHT 24
(17) TO DSEN 19 E — BLK/WHT 24

(5) TO DSEN 20 LED+ — WHT 24 — 10-4733A — 36-3125
(18) TO DSEN 20 LED- — WHT/BLK 24 — BM_CENTER FORWARD Away Side
(6) TO DSEN 20 C — WHT/RED 24
(19) TO DSEN 20 E — BLK 24

(7) TO DSEN21 LED+ — BLU 24 — 10-4733A — 36-3125
(20) TO DSEN21 LED- — BLU/BLK 24 — BM_ BACK Away Side
(8) TO DSEN21 C — BLU/WHT 24
(21) TO DSEN21 E — BLU/RED 24

(9) TO DSEN22 LED+ — RED 22 — RED 22 — LED+
(22) TO DSEN22 LED- — BLK 22 — BLK 22 — LED-
(10) TO DSEN22C — WHT 22 — WHT 22 — COLLECTOR — PD_OPEN Away Side
(23) TO DSEN22E — GRN 22 — GRN 22 — EMITTER — 10-4982A

(11) TO DSEN23 LED+ — ORG 22 — RED 22 — LED+
(24) TO DSEN23 LED- — BRN 22 — BLK 22 — LED-
(12) TO DSEN23 C — BLU 22 — WHT 22 — COLLECTOR — PD_CLOSED Away Side
(25) TO DSEN23 E — YEL 22 — GRN 22 — EMITTER — 10-4982A

K1-ENG 15-3248 — 1 BLK 22 — 3 BLK 22 — 5 — 2 — 4 — 6 — 7 — 8
To PDB0- J37 [5] K1-ENG — 10-9068A — RED 22 — BLK 22

CAR_HOME — 36-3125 — 10-4982A
RED 22 — BLK 22 — WHT 22 — GRN 22 — LED+ — LED- — COLLECTOR — EMITTER

CAR_HOME CLEANING — 36-3125 — 10-4982A
RED 22 — BLK 22 — WHT 22 — GRN 22 — LED+ — LED- — COLLECTOR — EMITTER

(11) TO DSEN14 LED+ — RED 22 — RED 22 — 220-00446A
(30) TO DSEN14 LED- — BLK 22 — BLK 22
(12) TO DSEN14 C — WHT 22 — WHT 22
(31) TO DSEN14 E — GRN 22 — GRN 22

(9) TO DSEN13 LED+ — RED 22 — 220-00238A — WHT 22 — 500-00271A START BUTTON 2 — Text Text
(28) TO DSEN13 LED- — BLK 22 — BLK 22
(10) TO DSEN13 C — WHT 22 — WHT 22
(29) TO DSEN13 E — GRN 22 — GRN 22
(8) TO DSEN12 C — BRN 22 — BLK 22 — RED 22
(27) TO DSEN12 E — BLU 22 — RED 22 — DROP LEAF TABLE SWITCH — 10-5065A RSW11
MINIFIT 2X3

(13) TO DSEN15 LED+ — ORG 24 — 10-4733A — 36-3125
(32) TO DSEN15 LED- — ORG/BLK 24 — BAL_DETECT Home Side
(14) TO DSEN15 C — BLK/RED 24
(33) TO DSEN15 E — ORG/RED 24

(3) TO DSEN10 LED+ — BLU 24 — 10-4982A — 36-3125
(22) TO DSEN10 LED- — BLU/BLK 24 — BAL_EXTEND Home Side
(4) TO DSEN10 C — BLU/WHT 24
(23) TO DSEN10 E — BLU/RED 24

(5) TO DSEN 11 LED+ — GRN 24 — 10-4982A — 36-3125
(24) TO DSEN11 LED- — GRN/BLK 24 — BAL_RETRACT Home Side
(6) TO DSEN11 C — GRN/WHT 24
(25) TO DSEN11 E — BLK/WHT 24

LOAD RAMP PLATE SENSOR 2 — 36-3210
RED 22 — TO DSEN16 LED+ (15)
WHT 22 — TO DSEN16 C (16)
GRN 22 — TO DSEN16 E (35)

LOAD RAMP PLATE SENSOR 3 — 36-3210
RED 22 — TO DSEN17 LED+ (17)
WHT 22 — TO DSEN17 C (18)
GRN 22 — TO DSEN17 E (37)

CAR_HOME — 36-3125 — 10-4982A
LED+ RED 22 — RED 22 — TO DSEN14 LED+ (11)
LED- BLK 22 — BLK 22 — TO DSEN14 LED- (30)
COLLECTOR WHT 22 — WHT 22 — TO DSEN14 C (12)
EMITTER GRN 22 — GRN 22 — TO DSEN14 E (31)

RED 22 — TO DSEN9 LED+ (1)
BLK 22 — TO DSEN9 LED- (20)
WHT 22 — TO DSEN9 C (2)
GRN 22 — TO DSEN9 E (21)

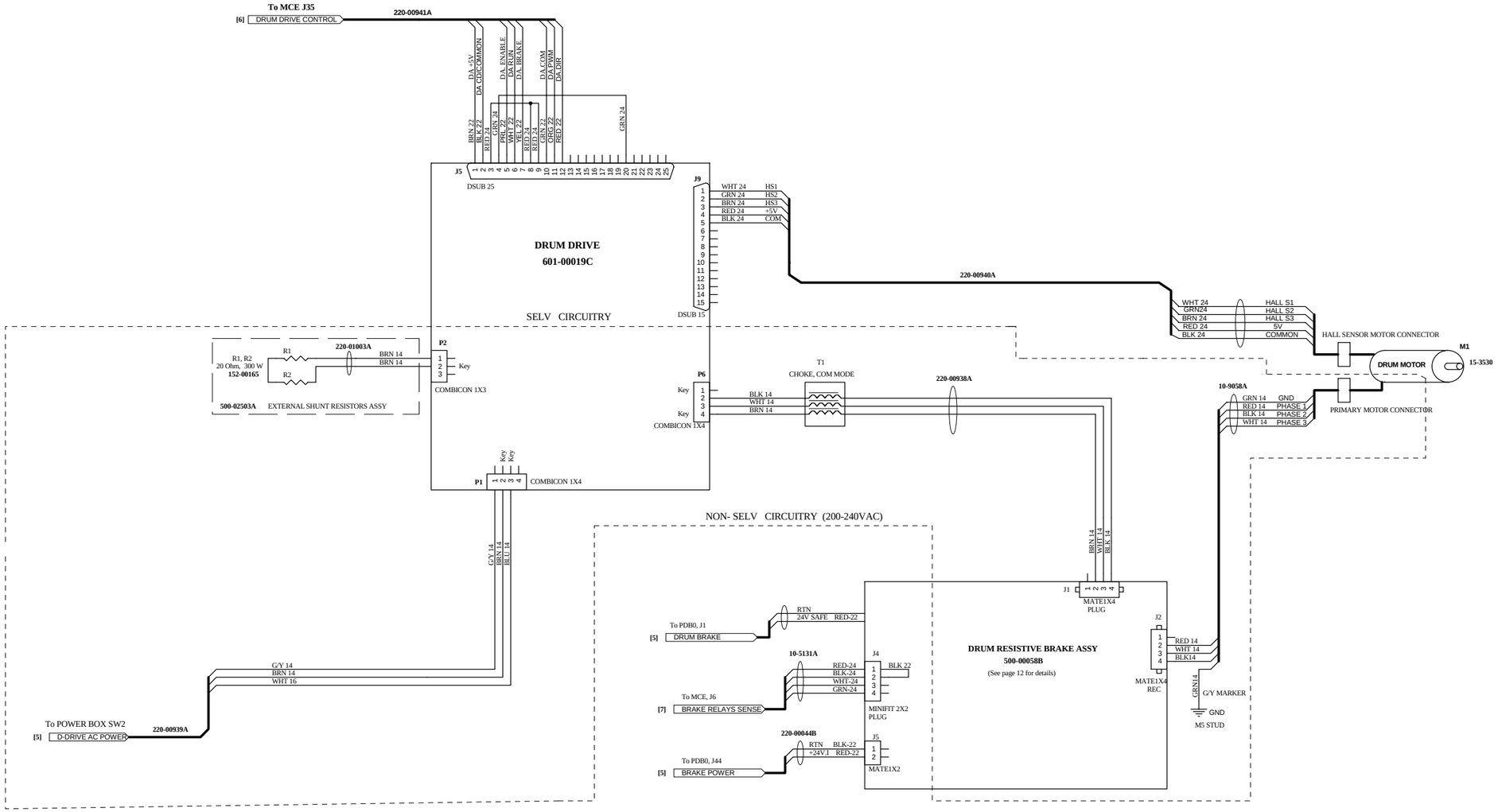
To RESISTIVE BRAKES ASSY [8] BRAKE RELAYS SENSE

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MTA SEMI-AUTOMATIC
DIGITAL SENSORS
WIRING DIAGRAM

\\Ccaeng1\Engineering\Projects\Manta\System\Magnus Production Sep_04\MANUAL\MTA SEMI-AUTO_VerB-B.ddb - Documents\PAGE 7_ DIGITAL SENSORS WIRING

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S.FOUDIMOV	705-00005B-B SD01	
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S.FOUDIMOV		
DESIGN DATE:	LAST MODIFIED DATE:	SHEET:
2002:10:29	2005:04:11	7 of 13



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MTA SEMI-AUTOMATIC
DRUM DRIVE & MOTOR
WIRING DIAGRAM

\\Ccaeng1\Engineering\Projects\Manta\System\Magnus Production Sep_04\MANUAL\MTA SEMI-AUTO_VerB-B.ddb - Documents\PAGE 8_ MANTA DRUM DRIVE AND MOTOR

DESIGNED BY:	DOCUMENT NUMBER:	LAST ECO:
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S.FOUDIMOV		
DESIGN DATE:	LAST MODIFIED DATE:	SHEET:
2002:10:29	2005:06:06	8 of 13

NOTE: INSTALL POLYSWITCH F2, F5, F6 ON THE LIONEL BOARD

LIONEL0 BOARD
10-4801B
Board Address = 0x40h

SCON1

J9 — SCON2 — 2X5 MINIFIT JR

+48V SAFE	BRN 18
+48V SAFE RTN	BLU 18
+24V SAFE	GRN 18
+24V SAFE RTN	WHT 18
+24V	RED 18
CAN H	RED 24
CAN L	BLK 24
CHASSIS	GRN 24
TERM DET	WHT 24
+24 RTN	BLK 18
DRAIN WIRE	

To PDB J13 — [5] SCON BUS — 10-5138A

J7 — DIG_IN2 — IDC_20PIN

J21 — 2X3 MINI-MATE

J8 — DIG_IN3 — HDR 2X15

J16 AN_2 1X6 MTA

J17 AN_1 1X6 MTA

J13 — SCON 1 — MINIFIT 2X8 CAN

SAT_+48SAFE	
SAT_+48SRTN	
SAT_+24SAFE	
SAT_+24SRTN	
SAT_+24V	
BRD_LOC+	
BRD_LOC1-	
BRD_LOC3-	
CAN_H	
CAN_L	
CHASSIS	
TERM_DET	
SAT_+24RTN	
BRD_LOC+	
BRD_LOC0-	
BRD_LOC2-	

220-00169A — To GENINE 0 J24 — SCON BUS [13]

J5 — PWM_OUT1 — MINIFIT 2X3 REC

J2 — SOL_DRV1 — SAMTEC, 2X8

BLK 22		
PD		
ACT 3	BLK-22	
+24 V	RED-22	
ACT 4	GRN-22	
+24 V	WHT-22	
ACT 5	BRN-22	
+24 V	ORG-22	
ACT 6	BLU-22	
ACT 7	YEL-22	

220-00141A — MINIFIT 2X4 — 220-00143A — MINIFIT 1X2

J11 — IDC, 14PIN

(1)	+24V	RED-22	
(12)	RTN	BLK-22	
(5)	EREG.SEN0+	RED-22	RED-22
(6)	EREG.SEN0-	BLK-22	BLK-22
(7)	EREG.SEN1+	ORG-22	RED-22
(8)	EREG.SEN1-	GRN-22	BLK-22
(9)	EREG.SEN2+	WHT-22	RED-22
(10)	EREG.SEN2-	BRN-22	BLK-22

220-00142B — To RELEASE SV ADAPTOR — RELEASE ADPT 2 [6] — MINIFIT 2X3 — 220-00144A

HOME SIDE
J1 — REGISTRATION LEDS BRD — 10-5216A — MINIFIT 2X2
RED 22, BLK 22 — MINIFIT 1X2 — +24V LEDs, PD+, PD-

AWAY SIDE
J1 — REGISTRATION LEDS BRD — 10-5216A — MINIFIT 2X2
RED 22, BLK 22 — MINIFIT 1X2 — +24V LEDs, PD+, PD-

J1 — STATUS LIGHT LEDS BRD — 10-9063A — (Will be replaced with 503-09063B) — 1ROW IDC
RED 22, BLK 22, WHT 22, GRN 22 — MINIFIT 2X2 — +24V GRN LEDs, BLUE LEDs, GRN 22 YEL LEDs, PD+, PD-

CHILLER PRESSURE SWITCH
172-00045 — PS — NO, C
220-00411B — RED 22, BLK 22, BLK 22 — MATE1X4
10-9085A

RED-22	TO DSEN9. LED+	(1)
WHT-22	TO DSEN9.C	(2)
GRN-22	TO DSEN9.E	(3)
BLK-22	TO DSEN9. LED-	(4)
RED-22	DSEN10.C	(6)
BLK-22	DSEN10.E	(7)

To DEBRIS REMOVAL — [11] DEBRIS REMOVAL SENSORS

RED-22	TO DSEN11 LED+	(9)
WHT-22	TO DSEN11 C	(10)
GRN-22	TO DSEN11 E	(11)
BLK-22	TO DSEN11 LED-	(12)
ORG-22	TO DSEN12 LED+	(13)
BLU-22	TO DSEN12 C	(14)
YEL-22	TO DSEN12 E	(15)
BRN-22	TO DSEN12 LED-	(16)
RED-22	TO DSEN13 LED+	(17)
WHT-22	TO DSEN13 C	(18)
GRN-22	TO DSEN13 E	(19)
BLK-22	TO DSEN13 LED-	(20)
ORG-22	TO DSEN14 LED+	(21)
BLU-22	TO DSEN14 C	(22)
YEL-22	TO DSEN14 E	(23)
BRN-22	TO DSEN14 LED-	(24)

TEC_LOCK — 36-3125 — 10-4982A — 220-00145A — MINIFIT 2X4

LED+	RED 22	RED 24	TO DSEN11 LED+	(9)	RED-22
LED-	BLK 22	BLK 24	TO DSEN11 LED-	(12)	BLK-22
COLLECTOR	WHT 22	WHT 24	TO DSEN11 C	(10)	WHT-22
EMITTER	GRN 22	GRN 24	TO DSEN11 E	(11)	GRN-22
					ORG-22
					BRN-22
					BLU-22
					YEL-22

TEC_UNLOCK — 36-3125 — 10-4982A — 220-00145A — MINIFIT 2X4

LED+	RED 22	ORG 24	TO DSEN12 LED+	(13)	RED-22
LED-	BLK 22	BRN 24	TO DSEN12 LED-	(16)	BLK-22
COLLECTOR	WHT 22	BLU 24	TO DSEN12 C	(14)	WHT-22
EMITTER	GRN 22	YEL 24	TO DSEN12 E	(15)	GRN-22
					ORG-22
					BRN-22
					BLU-22
					YEL-22

LEC_LOCK — 36-3125 — 10-4982A — 220-00146A — MINIFIT 2X4

LED+	RED 22	RED 24	TO DSEN13 LED+	(17)	RED-22
LED-	BLK 22	BLK 24	TO DSEN13 LED-	(20)	BLK-22
COLLECTOR	WHT 22	WHT 24	TO DSEN13 C	(18)	WHT-22
EMITTER	GRN 22	GRN 24	TO DSEN13 E	(19)	GRN-22
					ORG-22
					BRN-22
					BLU-22
					YEL-22

LEC_UNLOCK — 36-3125 — 10-4982A — 220-00146A — MINIFIT 2X4

LED+	RED 22	ORG 24	TO DSEN14 LED+	(21)	RED-22
LED-	BLK 22	BRN 24	TO DSEN14 LED-	(24)	BLK-22
COLLECTOR	WHT 22	BLU 24	TO DSEN14 C	(22)	WHT-22
EMITTER	GRN 22	YEL 24	TO DSEN14 E	(23)	GRN-22
					ORG-22
					BRN-22
					BLU-22
					YEL-22

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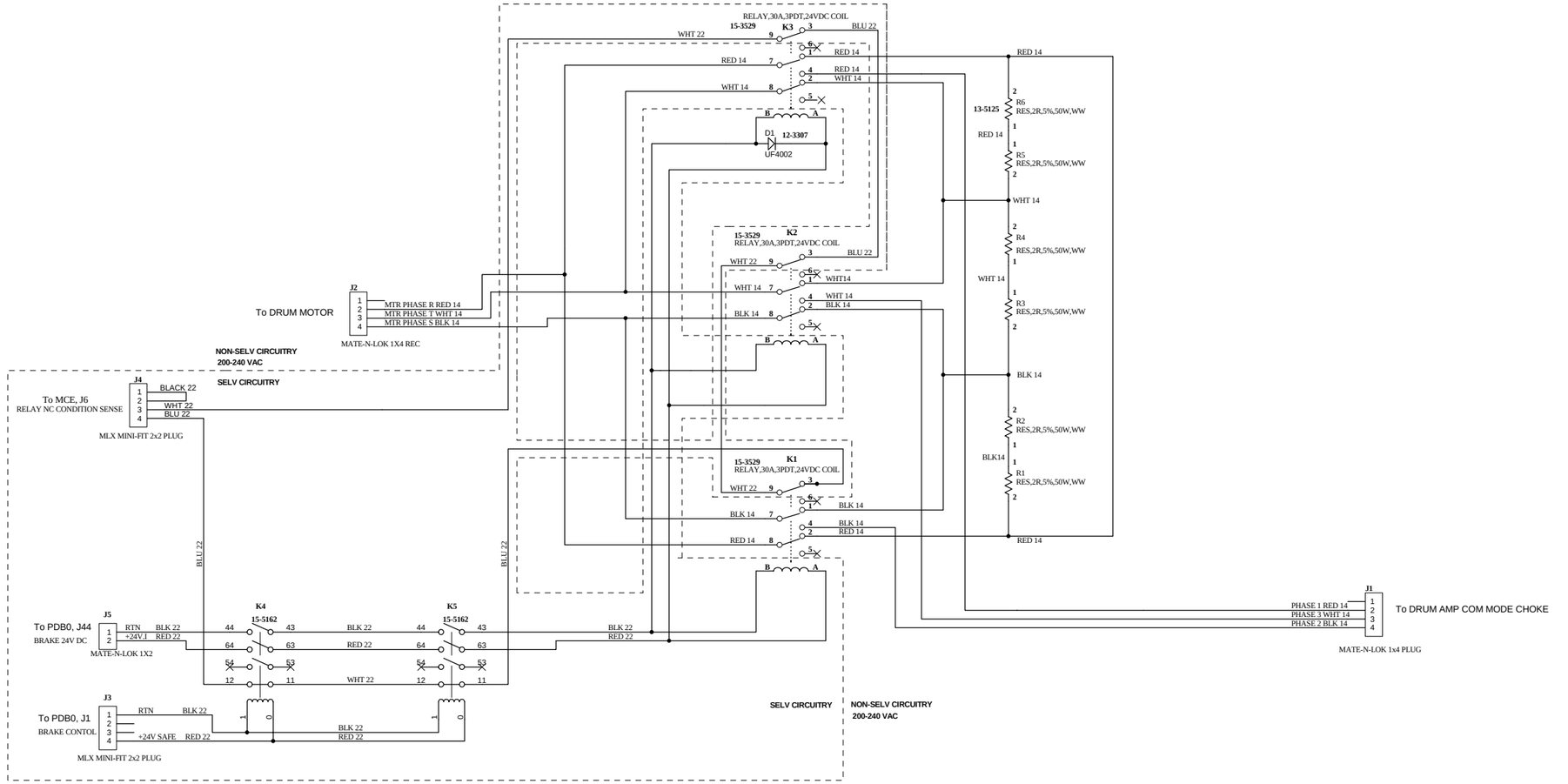
MTA SEMI-AUTOMATIC
LIONEL BOARD
WIRING DIAGRAM

\\Ccaeng1\Engineering\Projects\Manta\System\Magnus Production Sep_04\MANUAL\MTA SEMI-AUTO_VerB-B.ddb - Documents\PAGE 9_ MANTA LIONEL BOARD WIRING

DESIGNED BY: S.FOUDIMOV	DOCUMENT NUMBER: 705-00005B-B SD01	LAST ECO:
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DRUM RESISTIVE BRAKE ASSEMBLY 500-00058B

(See page 8 for details)



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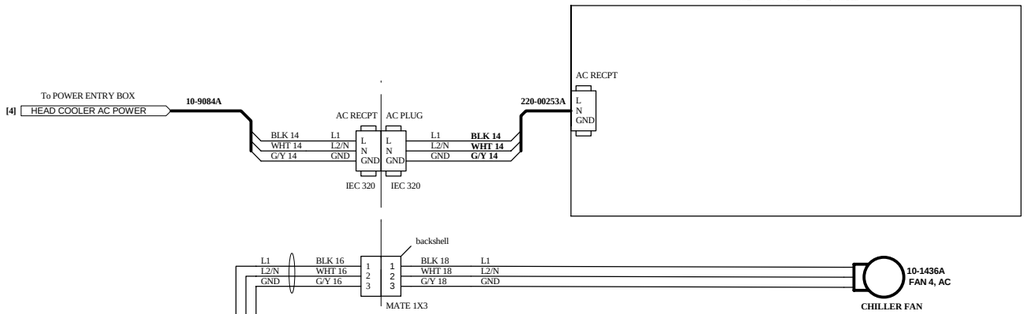
MTA SEMI-AUTOMATIC
DRUM RESISTIVE BRAKE
WIRING DIAGRAM

\\Ccaeng1\Engineering\Projects\Manta\System\Magnus Production Sep_04\MANUAL\MTA SEMI-AUTO_VerB-B.ddb - Documents\PAGE 10_MANTA DRUM RESISTIVE BRAKE

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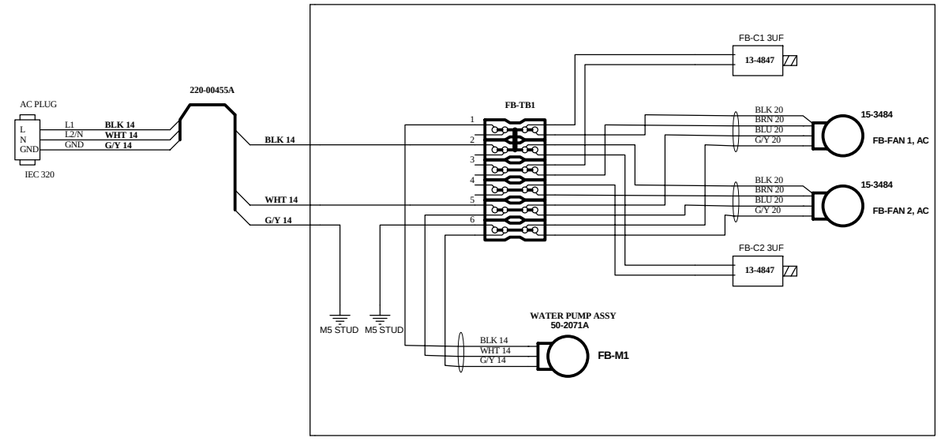
INTERNAL CHILLER

602-00076 for 200-230V, 60Hz or 200V, 50Hz
602-00075 for 230V, 50Hz



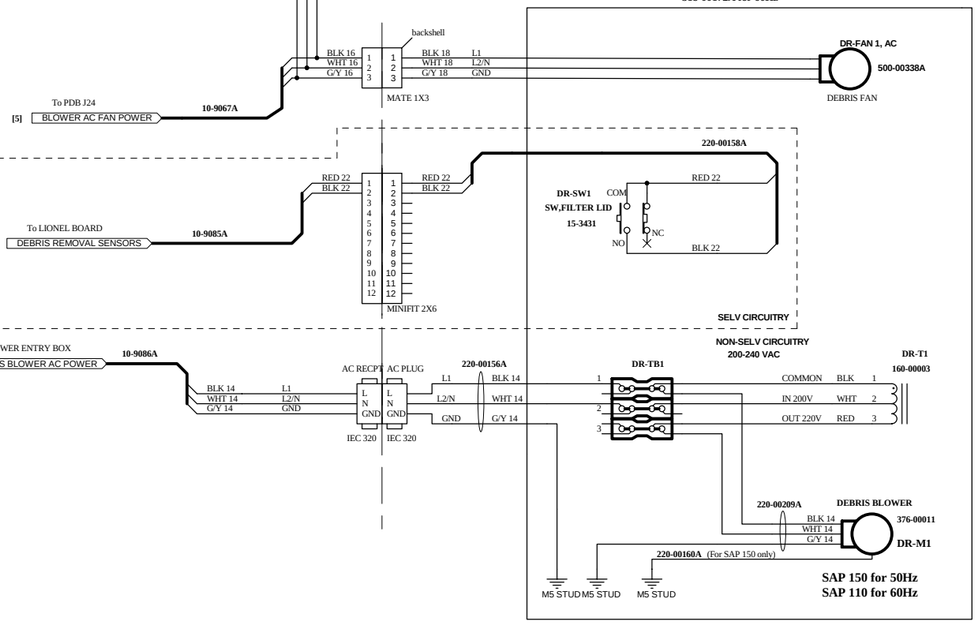
INTERNAL HEAT EXCHANGER (FAN BOX) ASSY

11-1049A for 200-240V, 50/60 Hz



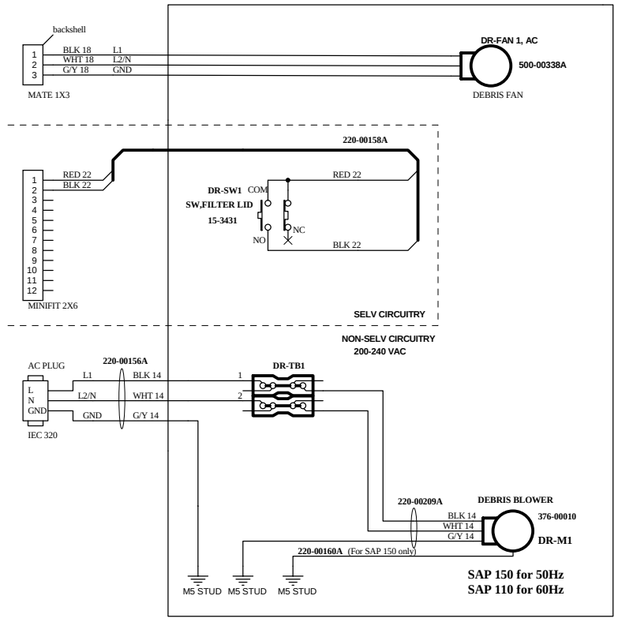
INTERNAL DEBRIS REMOVAL ASSY

200-208V INPUT POWER ONLY
518-00171A for 50Hz
518-00172A for 60Hz



INTERNAL DEBRIS REMOVAL ASSY

220-240V INPUT POWER ONLY
518-00639A for 50Hz
518-00640A for 60Hz



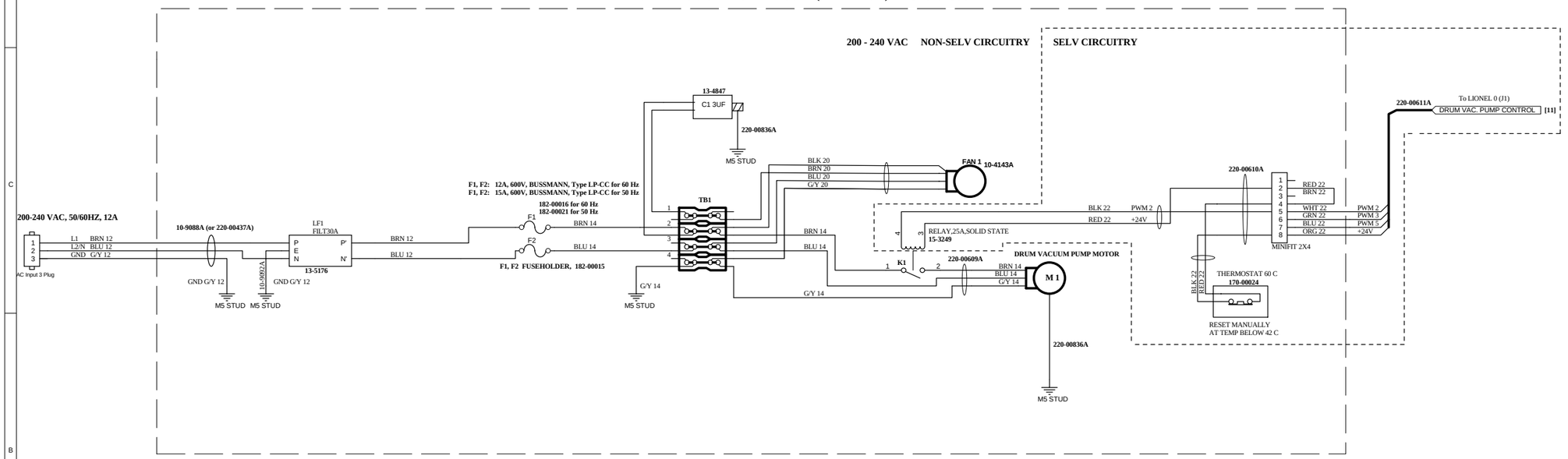
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MTA SEMI-AUTOMATIC
HEAD COOLER & DEBRIS
WIRING DIAGRAM

\\Ccaeng1\Engineering\Projects\MANTA\Semi-Automatic\Production Sep_04\MANUAL\MTA SEMI-AUTO_VerB-B.ddb - Documents\PAGE11_MANTA INTERNAL PUMP & DEBRIS

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MTA DRUM VACUUM PUMP ASSY (MTA-DVP) 518-01555B

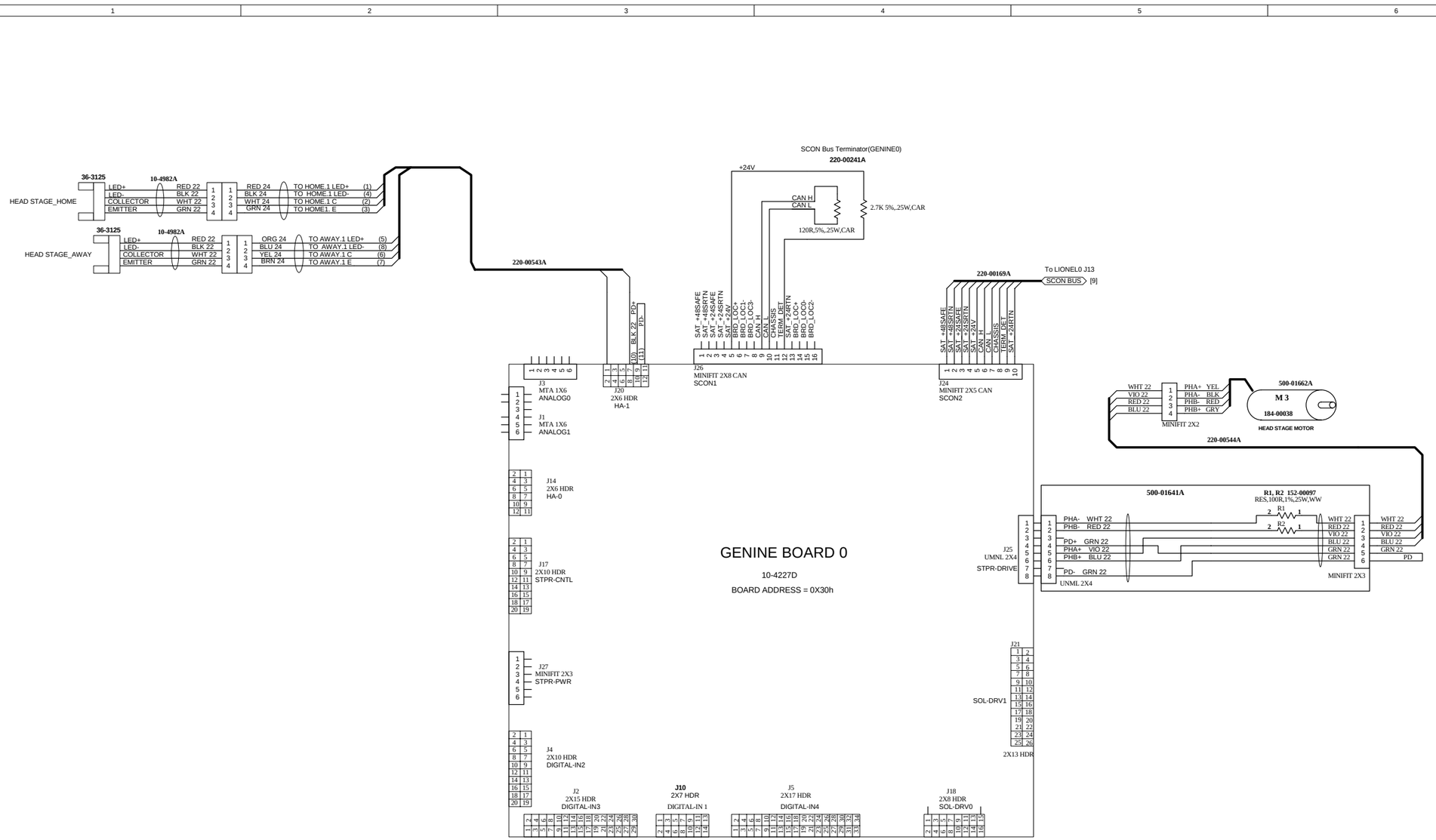


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MTA SEMI-AUTOMATIC
DRUM VACUUM PUMP
WIRING DIAGRAM

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MTA SEMI-AUTOMATIC
GENINE 0 BOARD
WIRING DIAGRAM

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2003:12:09	2005:04:11	13 of 13