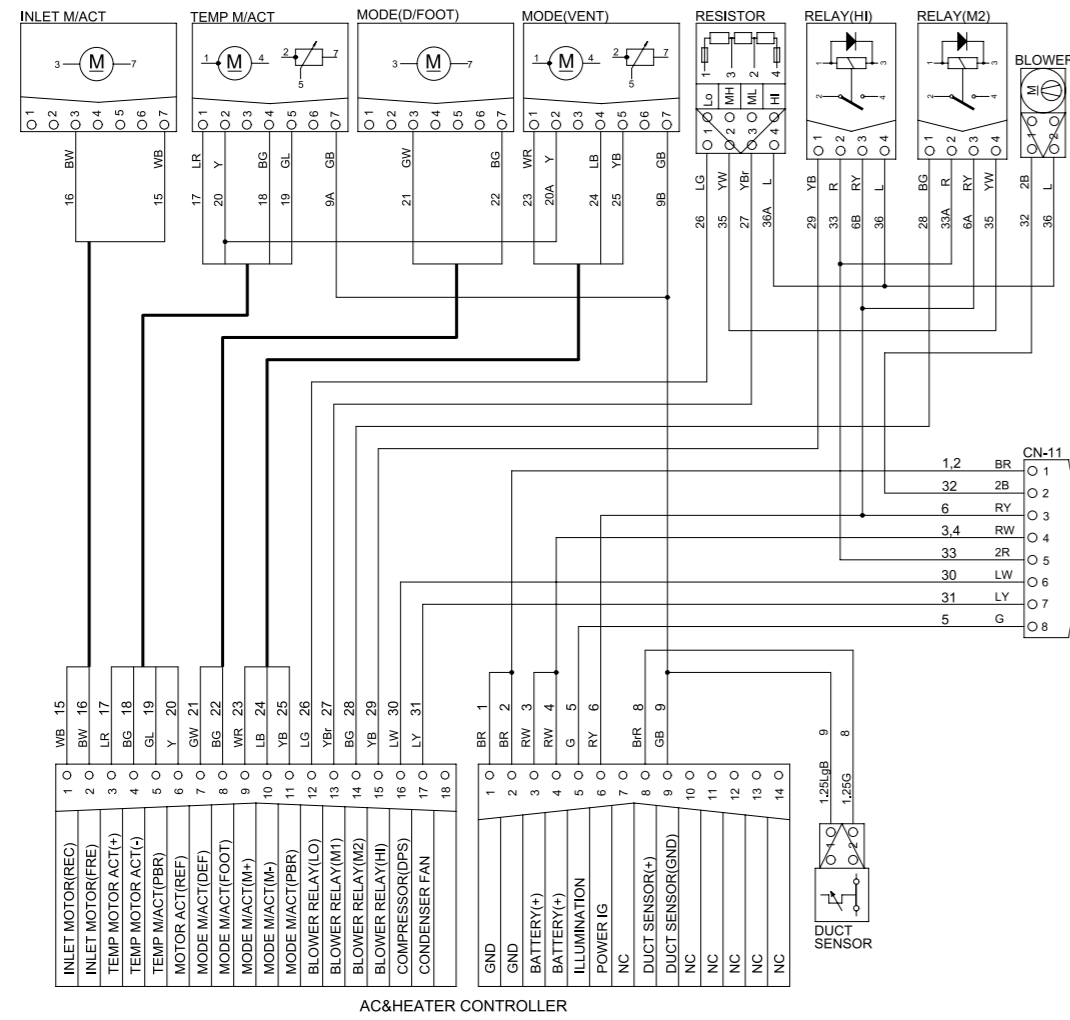


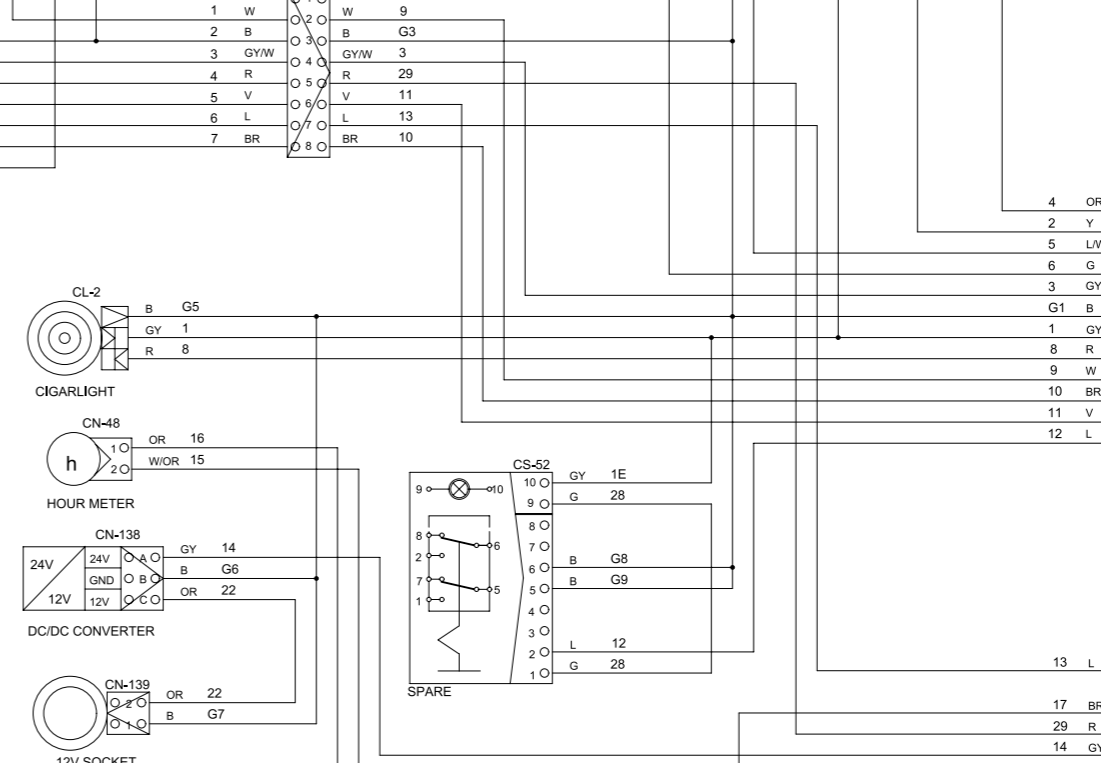
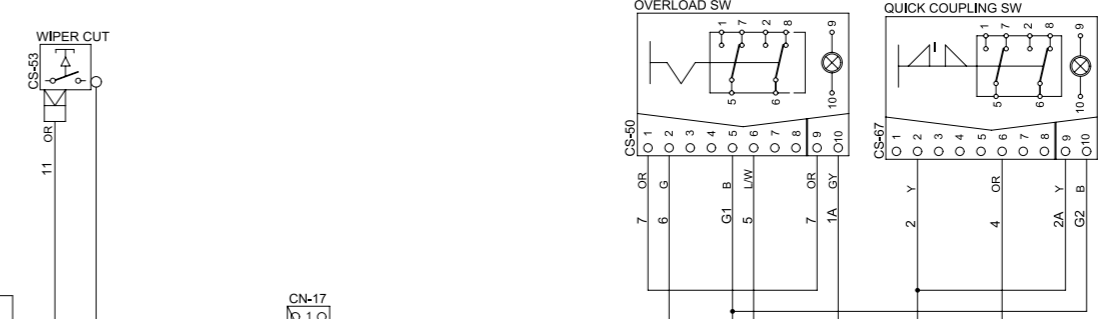
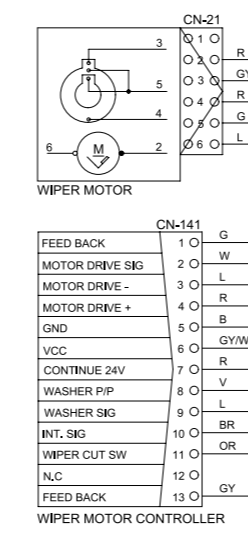
GROUP 2 ELECTRICAL CIRCUIT

ELECTRICAL CIRCUIT(1/2)



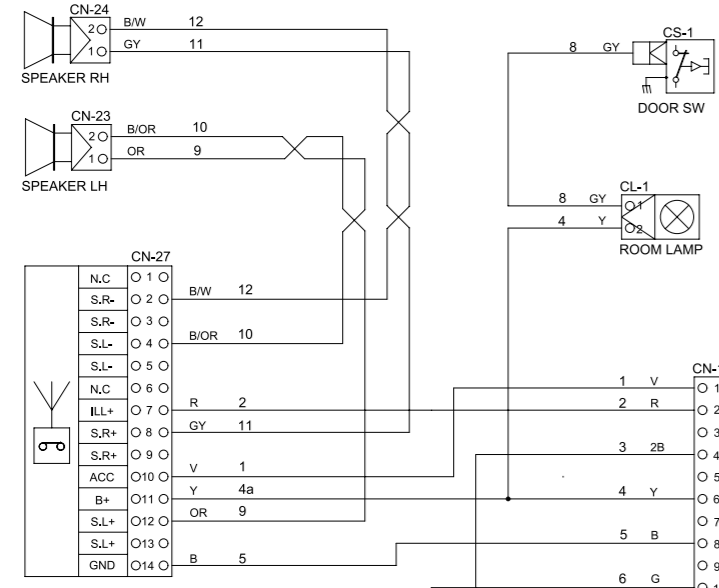
NO	DESTINATION
1	GND(CONTROLLER)
2	GND(BLOWER)
3	FUSE(IG)
4	FUSE(Battery)
5	FUSE(Battery)
6	DPS(COMPRESSOR)
7	CONDENSOR FAN
8	ILLUMINATION
9	ILLUMINATION

NO	DESTINATION
1	GND
2	CPU CONTROLLER
3	GND
4	CPU CONTROLLER
5	NC
6	GND
7	NC
8	SAFETY SOL

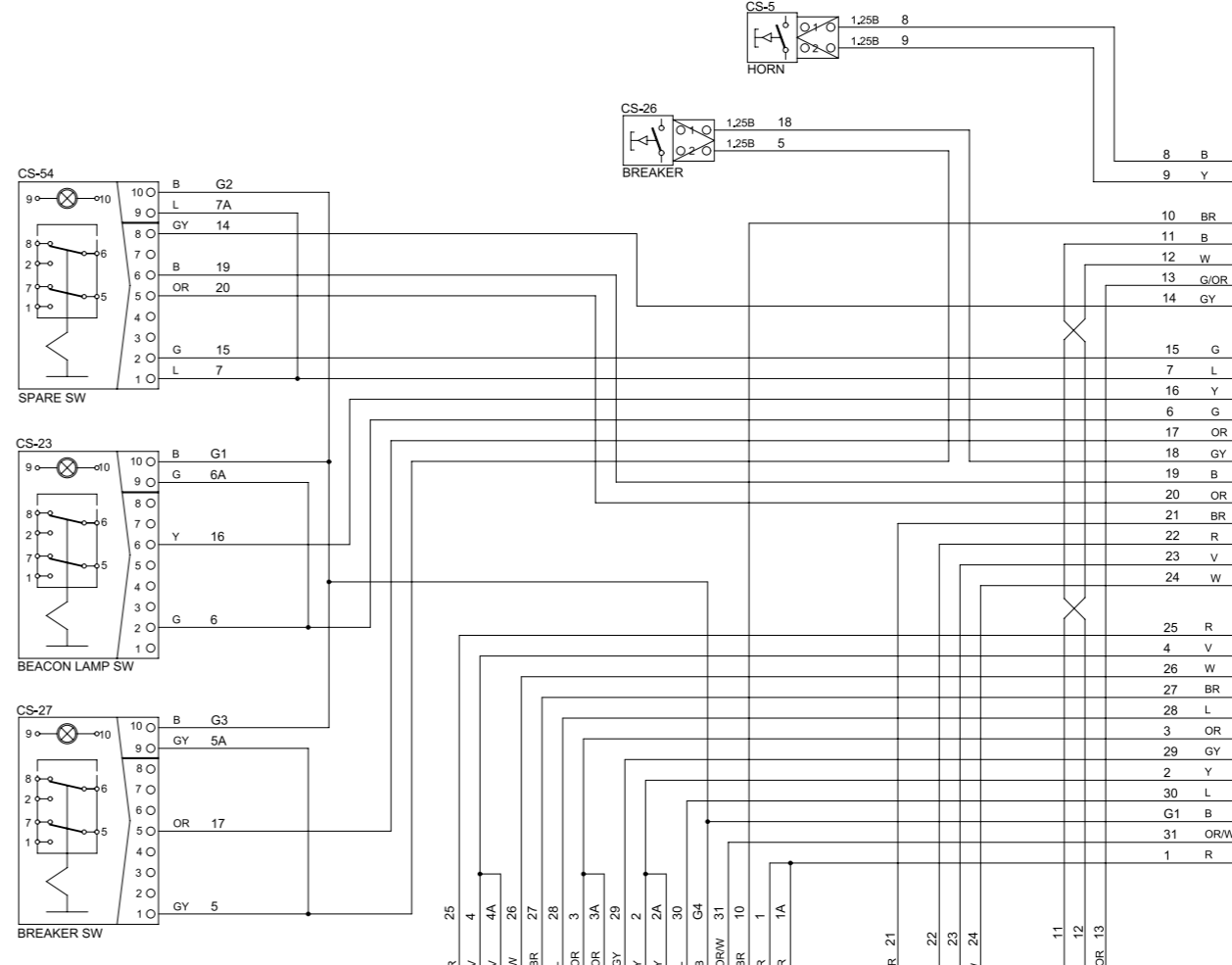
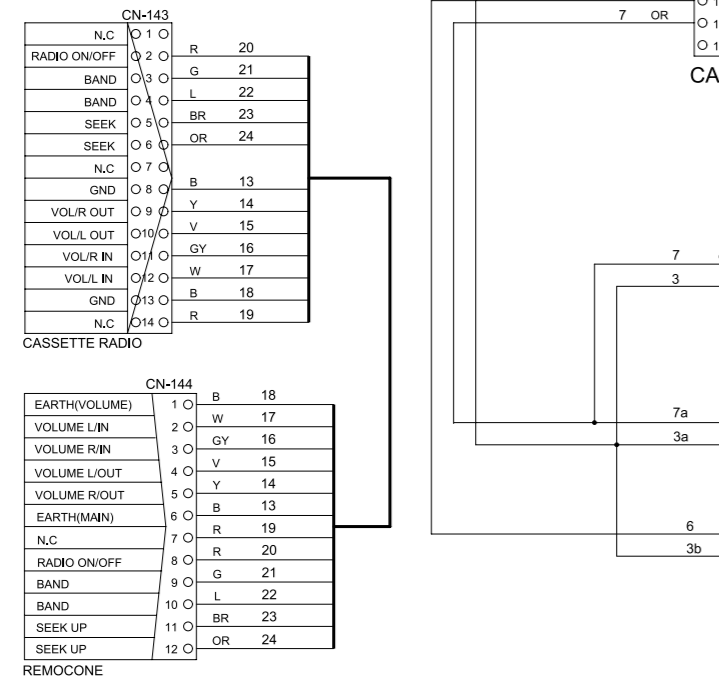


NO	DESTINATION
1	FUSE
2	Y
3	LW
4	OR
5	GYW
6	B
7	GY
8	W
9	BR
10	OR
11	V
12	L

NO	DESTINATION
1	SWITCH PANEL
2	NC
3	FUSE
4	FUSE
5	FUSE
6	CPU CONTROLLER
7	FUSE
8	NC
9	GND
10	CPU CONTROLLER
11	CPU CONTROLLER
12	CPU CASE EARTH
13	NC
14	NC
15	NC



NO	DESTINATION
1	FUSE
2	ILLUMINATION
3	
4	GND
5	
6	FUSE
7	GND
8	GND
9	
10	BEACON SW
11	SWITCH PANNEL
12	

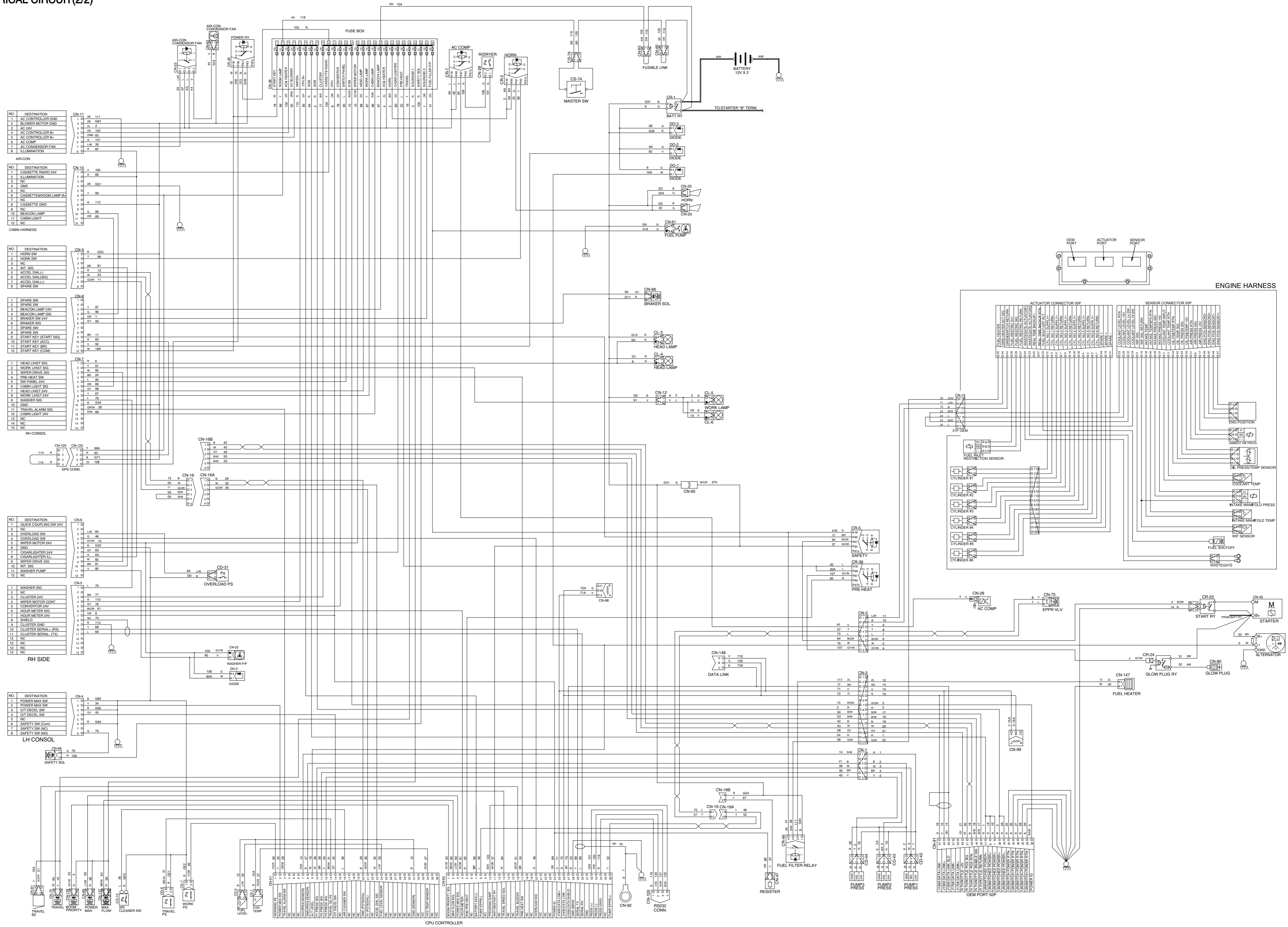


NO	DESTINATION
1	GND
2	HORN RELAY
3	NC
4	WIPER CONTROLLER
5	CPU CONTROLLER
6	CPU CONTROLLER
7	CPU CONTROLLER
8	NC

NO	DESTINATION
1	NC
2	NC
3	FUSE
4	BEACON LAMP
5	FUSE
6	BRAKER SOL
7	NC
8	FUSE
9	SAFETY RELAY
10	POWER RELAY
11	DIODE(DO-2)
12	FUSE

NO	DESTINATION
1	HEAD LAMP
2	WORK LAMP
3	WIPER CONTROLLER
4	CPU CONTROLLER
5	FUSE
6	CABIN LIGHT
7	FUSE
8	FUSE
9	WIPER CONTROLLER
10	GND
11	CPU CONTROLLER
12	FUSE
13	NC
14	NC
15	NC

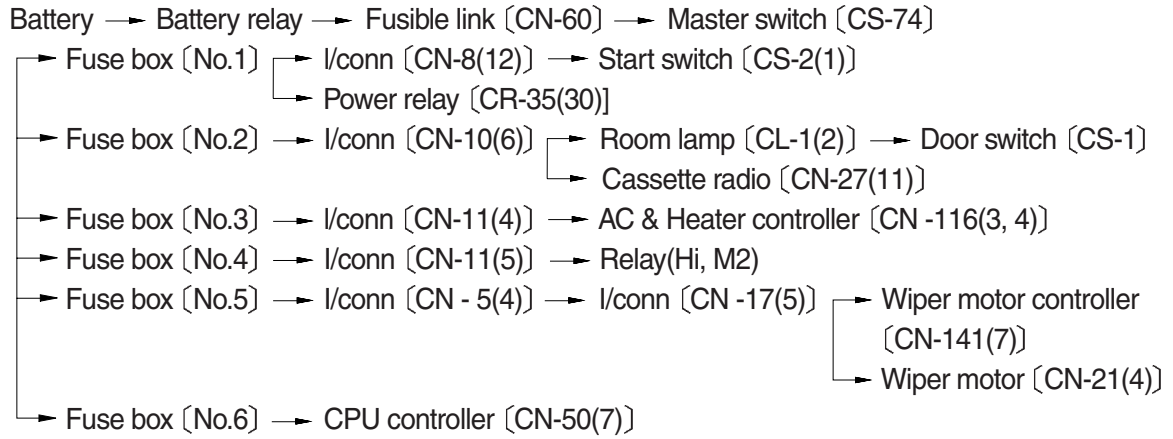
· ELECTRICAL CIRCUIT(2/2)



1. POWER CIRCUIT

The negative terminal of battery is grounded to the machine chassis through master switch.
When the start switch is in the OFF position, the current flows from the positive battery terminal as shown below.

1) OPERATING FLOW



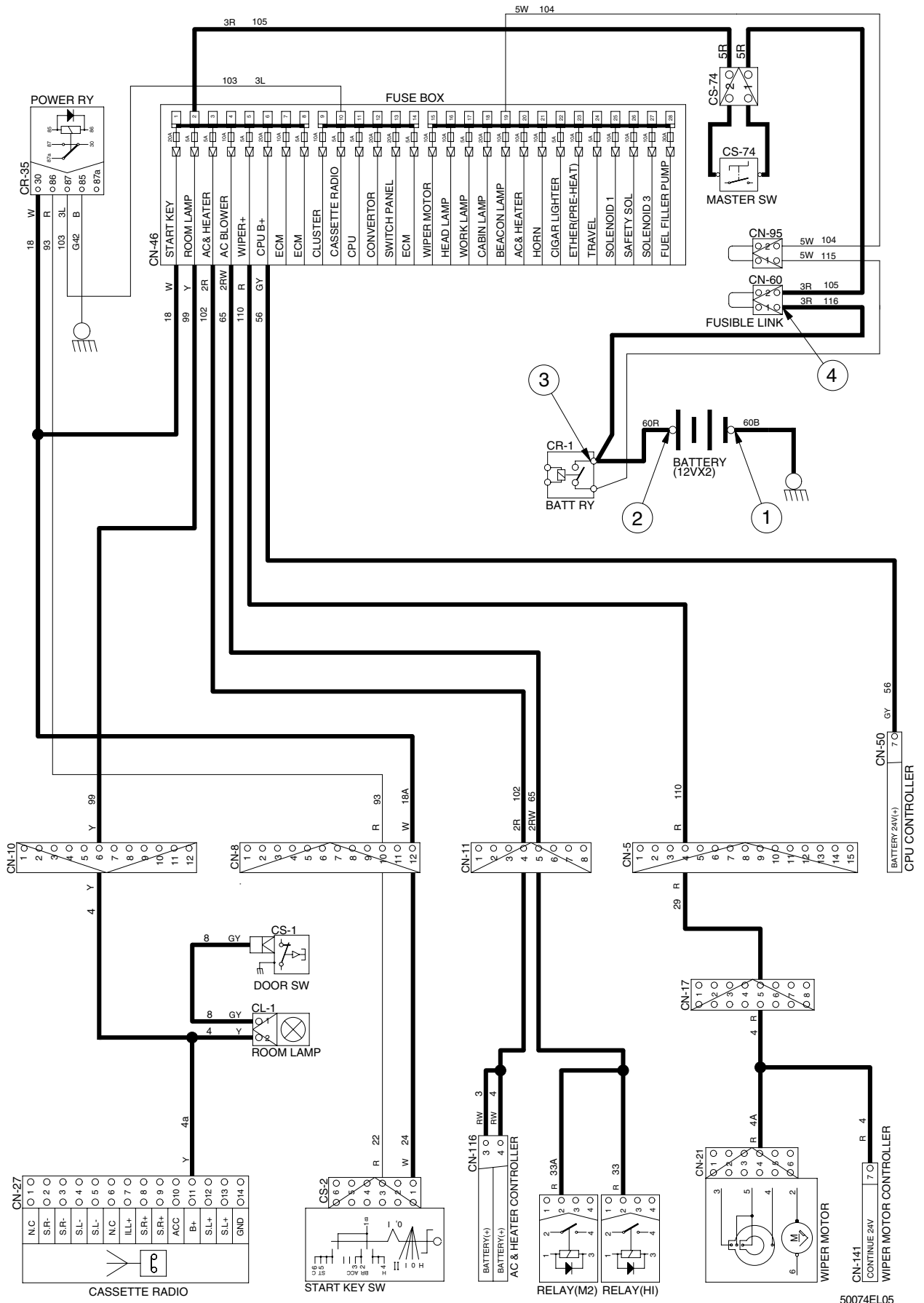
※ I/conn : Intermediate connector

2) CHECK POINT

Engine	Start switch	Check point	Voltage
OFF	OFF	① - GND (Battery 1EA) ② - GND (Battery 2EA) ③ - GND (Battery 2EA) ④ - GND (Fusible link)	10~12.5V 20~25V 20~25V 20~25V

※ GND : Ground

POWER CIRCUIT



2. STARTING CIRCUIT

1) OPERATING FLOW

Battery(+) terminal → Battery relay〔CR-1〕 → Fusible link〔CS-60〕 → Master switch〔CS-74〕
 → Fuse box〔No.1〕 → I/conn〔CN-8(12)〕 → Start switch〔CS-2(1)〕

(1) When start key switch is in ON position

→ Start switch ON〔CS-2(2)〕 → I/conn〔CN-8(11)〕 → Battery relay〔CR-1〕
 → Battery relay operating (All power is supplied with the electric component)
 → Start switch ON〔CS-2(3)〕 → I/conn〔CN-8(10)〕 → Power relay〔CR-35(86) → (87)〕
 → Fuse box〔No.10〕

(2) When start key switch is in START position

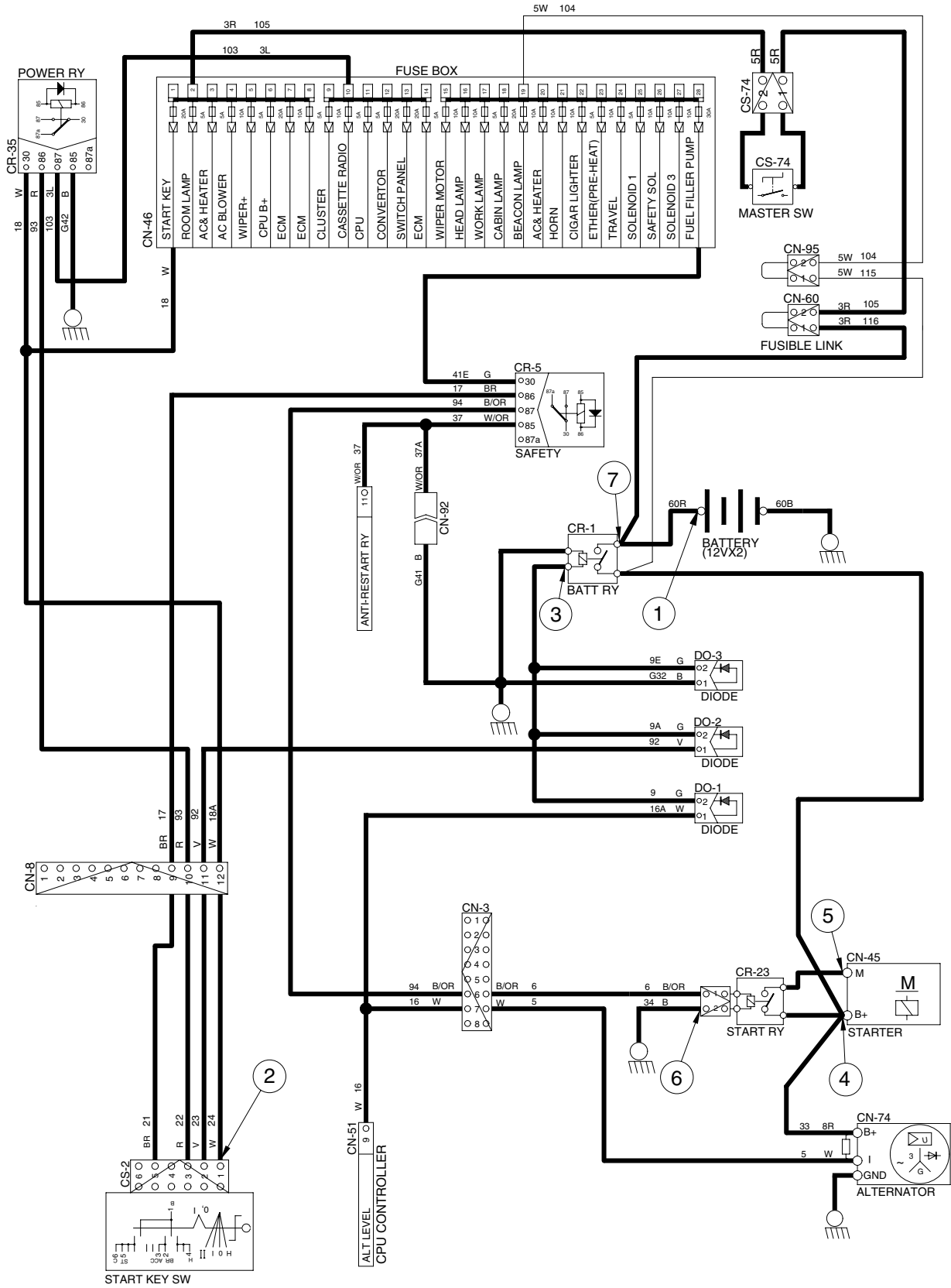
Start switch START〔CS-2(5)〕 → I/conn〔CN-8(9)〕 → Safety relay〔CR-5(86) → (87)〕
 → I/conn〔CN-3(6)〕 → Start relay〔CR-23〕

2) CHECK POINT

Engine	Start switch	Check point	Voltage
OPERATING	START	① - GND(Battery) ② - GND(Start key) ③ - GND(Battery relay M4) ④ - GND(Starter B+) ⑤ - GND(Starter M) ⑥ - GND(Start relay) ⑦ - GND(Battery relay M8)	20~25V

※ GND : Ground

STARTING CIRCUIT



50074EL06

3. CHARGING CIRCUIT

When the starter is activated and the engine is started, the operator releases the key switch to the ON position.

Charging current generated by operating alternator flows into the battery through the battery relay (CR-1).

The current also flows from alternator to each electrical component and controller through the fuse box.

1) OPERATING FLOW

(1) Warning flow

Alternator "I" terminal → I/conn [CN-3(7)] → CPU alternator level [CN-51(9)] → Cluster charging warning lamp(Via serial interface)

(2) Charging flow

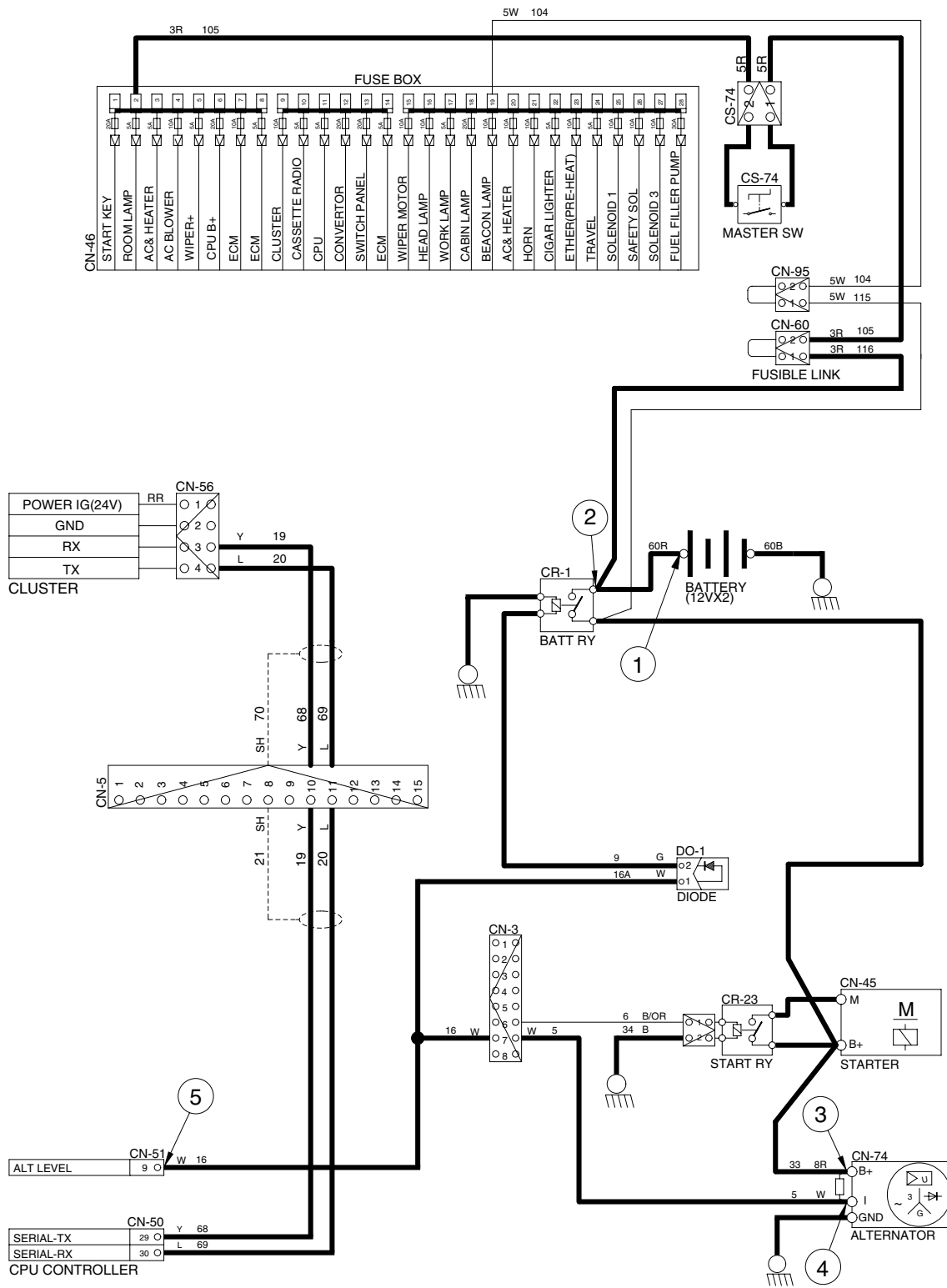
Alternator "B+" terminal → Battery relay(M8) → Battery(+) terminal
 → Fusible link [CS-60] → Master switch [CS-74]
 → Fuse box

2) CHECK POINT

Engine	Start switch	Check point	Voltage
Run	ON	① - GND(Battery voltage) ② - GND(Battery relay) ③ - GND(Alternator B ⁺ terminal) ④ - GND(Alternator I terminal) ⑤ - GND(CPU)	20~30V

※ GND : Ground

CHARGING CIRCUIT



50074EL07

4. HEAD AND WORK LIGHT CIRCUIT

1) OPERATING FLOW

Fuse box (No.16) → I/conn [CN-7(7)] → Switch panel [CN-116(9)]

Fuse box (No.17) → I/conn [CN-7(8)] → Switch panel [CN-116(10,11)]

(1) Head light switch ON

Head light switch ON [CN-116(1)] → I/conn [CN-7(1)]

→ Head light ON [CL-3(2), CL-4(2)]

→ I/conn [CN-10(2)] → Cassette radio illumination ON [CN-27(7)]

→ I/conn [CN-11(8)] → AC & Heater controller illumination ON

→ I/conn [CN-6(8)] → Cigarlight [CL-2]

(2) Work light switch ON

Work light switch ON [CN-116(2,3)] → I/conn [CN-7(2)] → I/conn [CN-12(1)]

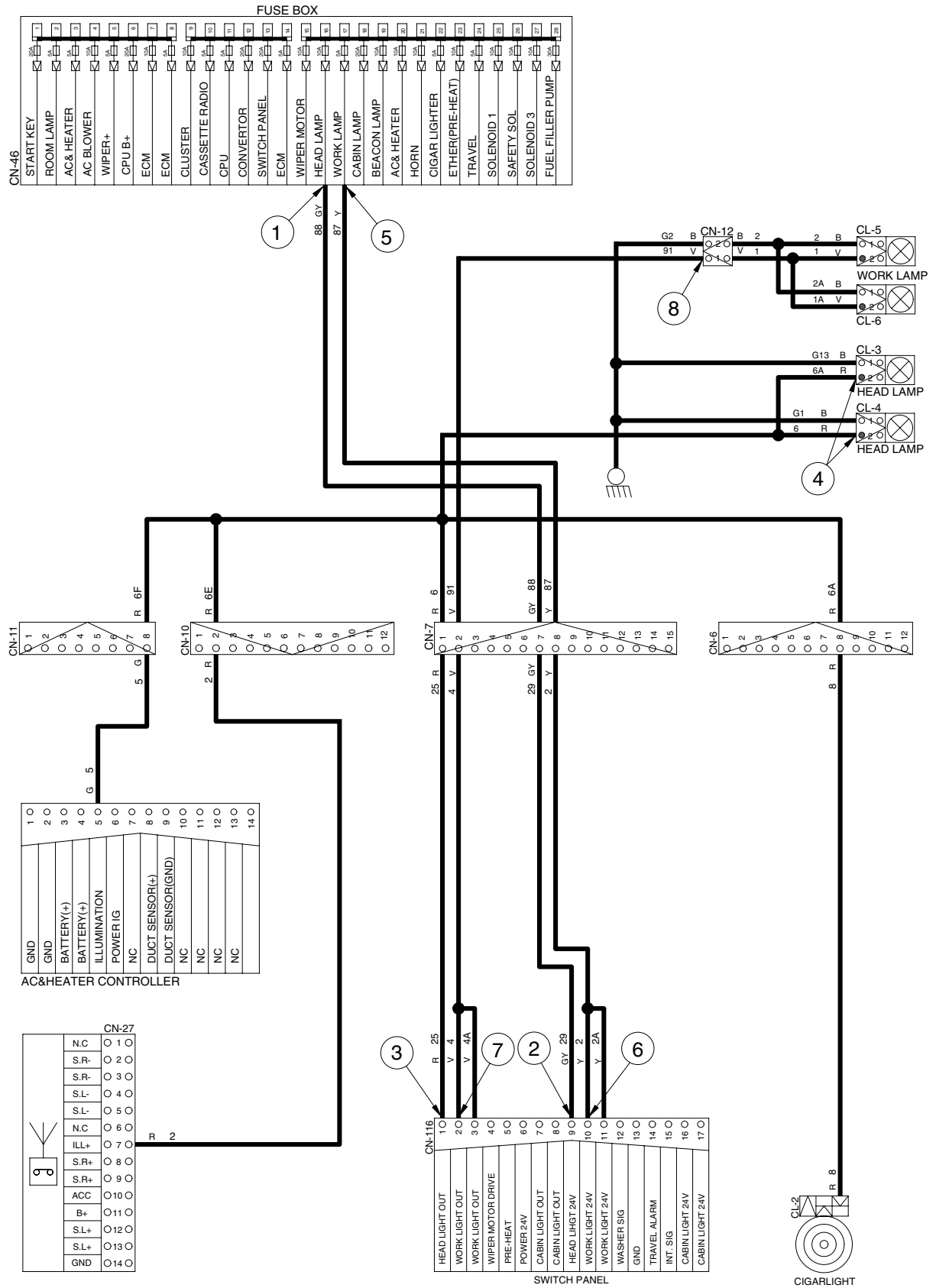
→ Work light ON [CL-5(2), CL-6(2)]

2) CHECK POINT

Engine	Start switch	Check point	Voltage
STOP	ON	① - GND(Fuse box) ② - GND(Switch power input) ③ - GND(Switch power output) ④ - GND(Head light)	20~25V
STOP	ON	⑤ - GND(Fuse box) ⑥ - GND(Switch power input) ⑦ - GND(Switch power output) ⑧ - GND(Work light)	20~25V

※ GND : Ground

HEAD AND WORK LIGHT CIRCUIT



5. BEACON LAMP AND CAB LIGHT CIRCUIT

1) OPERATING FLOW

Fuse box (No.19) → I/conn [CN-8(3)] → Beacon lamp switch [CN-23(6)]

Fuse box (No.18) → I/conn [CN-7(12)] → Switch panel [CN-116(16, 17)]

(1) Beacon lamp switch ON

Beacon lamp switch ON [CS-23(2)] → Switch Indicator lamp ON [CS-23(9)]
 → I/conn [CN-8(4)] → I/conn [CN-10(11)]
 → Beacon lamp ON [CL-7]

(2) Cab light switch ON

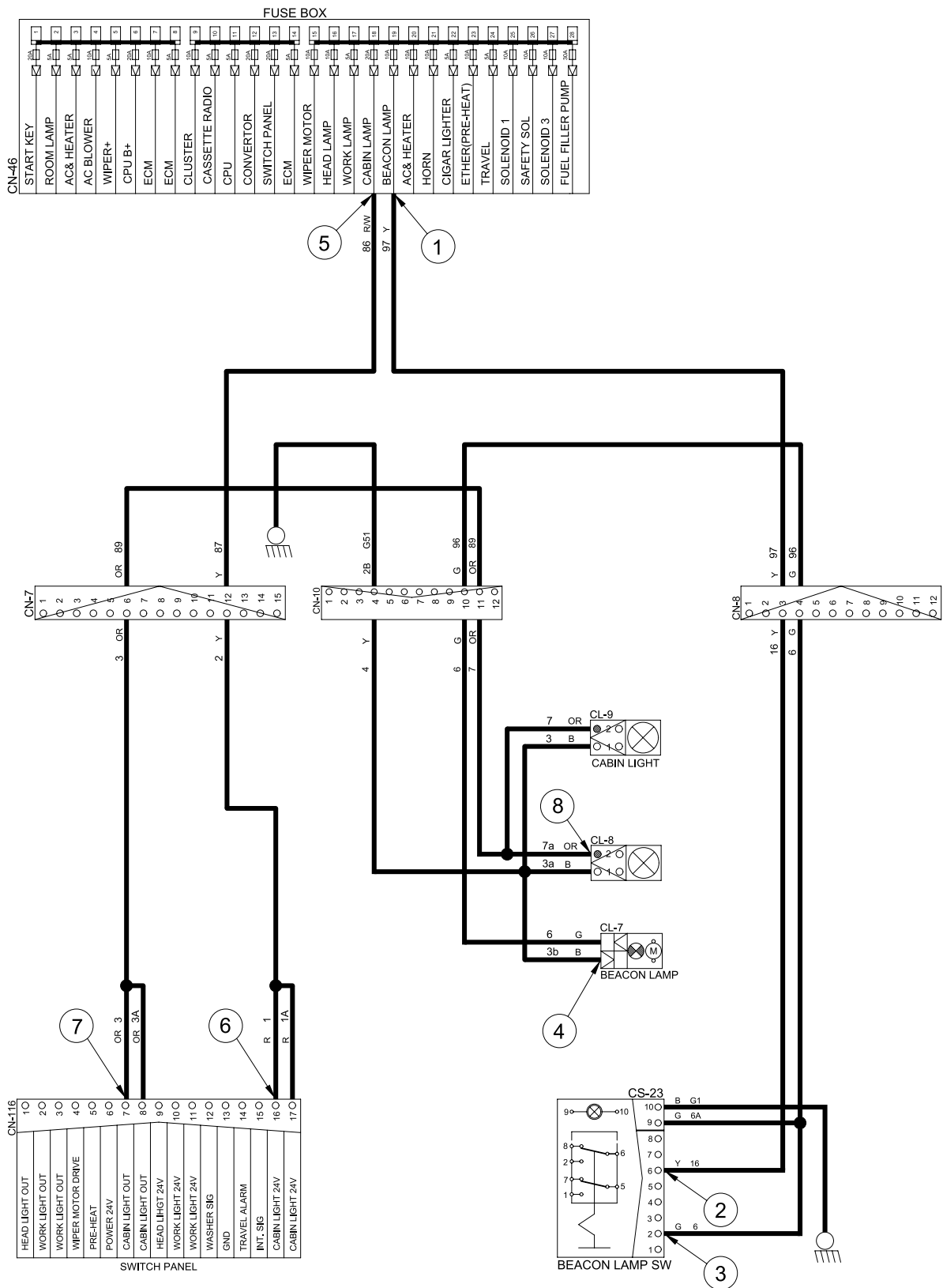
Cab light switch ON [CN-116(7, 8)] → I/conn [CN-7(6)] → I/conn [CN-10(12)]
 → Cab light ON [CL-8(2), CL-9(2)]

2) CHECK POINT

Engine	Start switch	Check point	Voltage
STOP	ON	① - GND(Fuse box) ② - GND(Switch power input) ③ - GND(Switch power output) ④ - GND(Beacon lamp)	20~25V
STOP	ON	⑤ - GND(Fuse box) ⑥ - GND(Switch power input) ⑦ - GND(Switch power output) ⑧ - GND(Cab light)	20~25V

※ GND : Ground

BEACON LAMP AND CAB LIGHT CIRCUIT



6. WIPER AND WASHER CIRCUIT

1) OPERATING FLOW

(1) Key switch ON

Fuse box (No.13) → I/conn [CN-7(5)] → Switch panel [CN-116(6)]

Fuse box (No.5) → I/conn [CN-5(4)] → I/conn [CN-17(5)] → Wiper motor controller [CN-141(7)]
 → Wiper motor [CN-21(4)]

Fuse box (No.15) → I/conn [CN-6(5)] → I/conn [CN-17(4)] → Wiper motor controller [CN-141(6)]
 → Washer pump [CN-22(2)]

(2) Wiper switch ON : 1st step(Intermittent)

Wiper switch ON [CN-116(15)] → I/conn [CN-9(4)] → I/conn [CN-6(10)] → I/conn [CN-17(8)]

Wiper motor controller [CN-141(10) → (3)] → Wiper motor intermittently operating [CN-21(6)]

(3) Wiper switch ON : 2nd step(Low speed)

Wiper switch ON [CN-116(4)] → I/conn [CN-7(3)] → I/conn [CN-6(9)] → I/conn [CN-17(2)]

→ Wiper motor controller [CN-141(2) → (4)] → Wiper motor operating [CN-21(2)]

(4) Washer switch ON

Washer switch ON [CN-116(12)] → I/conn [CN-7(9)] → I/conn [CN-5(1)] → I/conn [CN-17(7)]

→ Wiper motor controller [CN-141(9) → (8)] → I/conn [CN-17(6)] → I/conn [CN-6(11)]

→ Washer pump [CN-22(1)] → Washer operating

Wiper switch ON [CN-116(4)] → I/conn [CN-7(3)] → I/conn [CN-6(9)] → I/conn [CN-17(2)]

→ Wiper motor controller [CN-141(2) → (4)] → Wiper motor operating [CN-21(2)]

(5) Auto parking(When switch OFF)

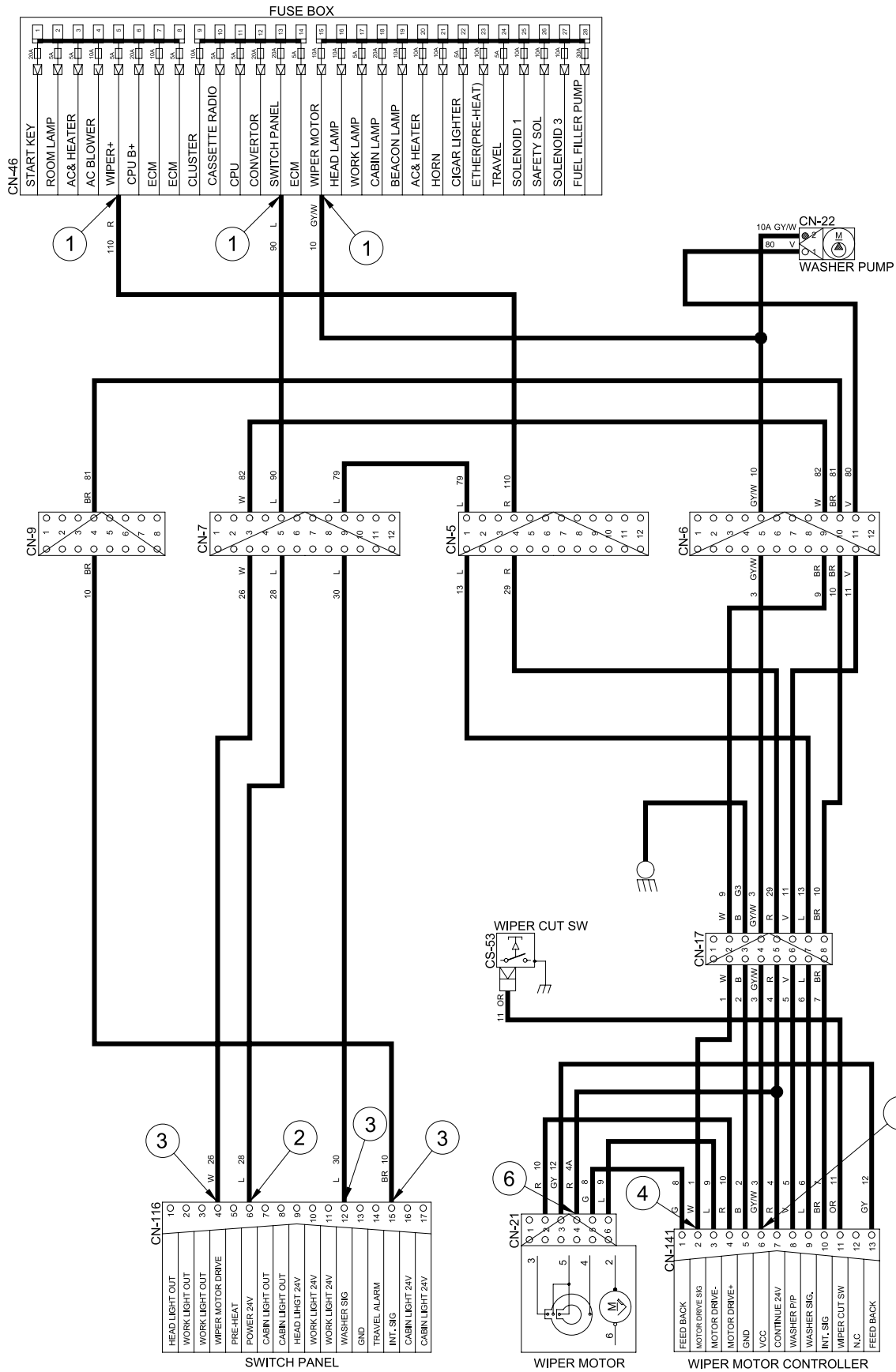
Switch OFF [CN-116(4)] → Wiper motor parking position by wiper motor controller

2) CHECK POINT

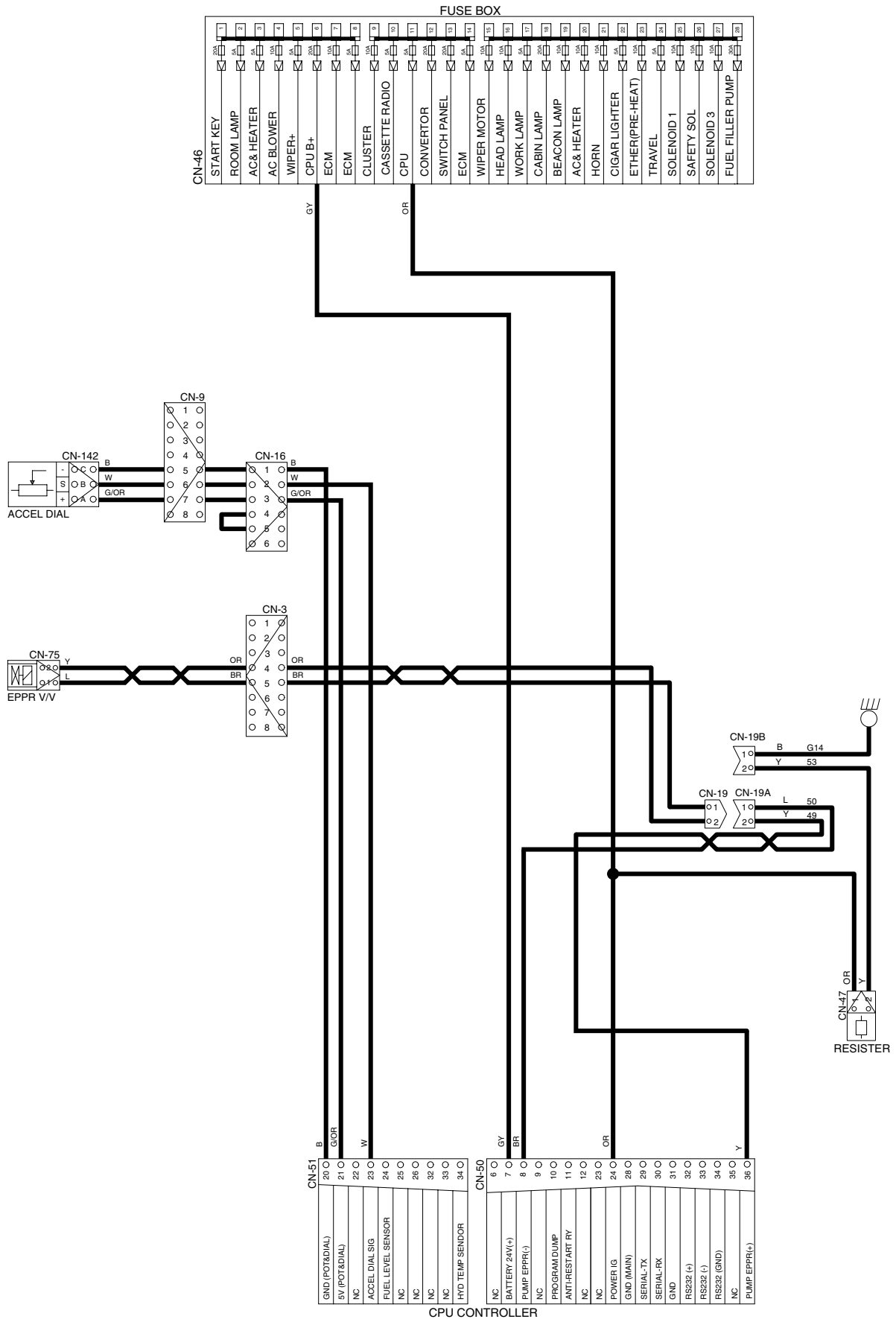
Engine	Start switch	Check point	Voltage
STOP	ON	① - GND(Fuse box)	24V
		② - GND(Switch power input)	
		③ - GND(Switch power output)	0 ~ 5V
		④ - GND(Wiper Power input)	
		⑤ - GND(Wiper power output)	24V
		⑥ - GND(Wiper motor)	

※ GND : Ground

WIPER AND WASHER CIRCUIT

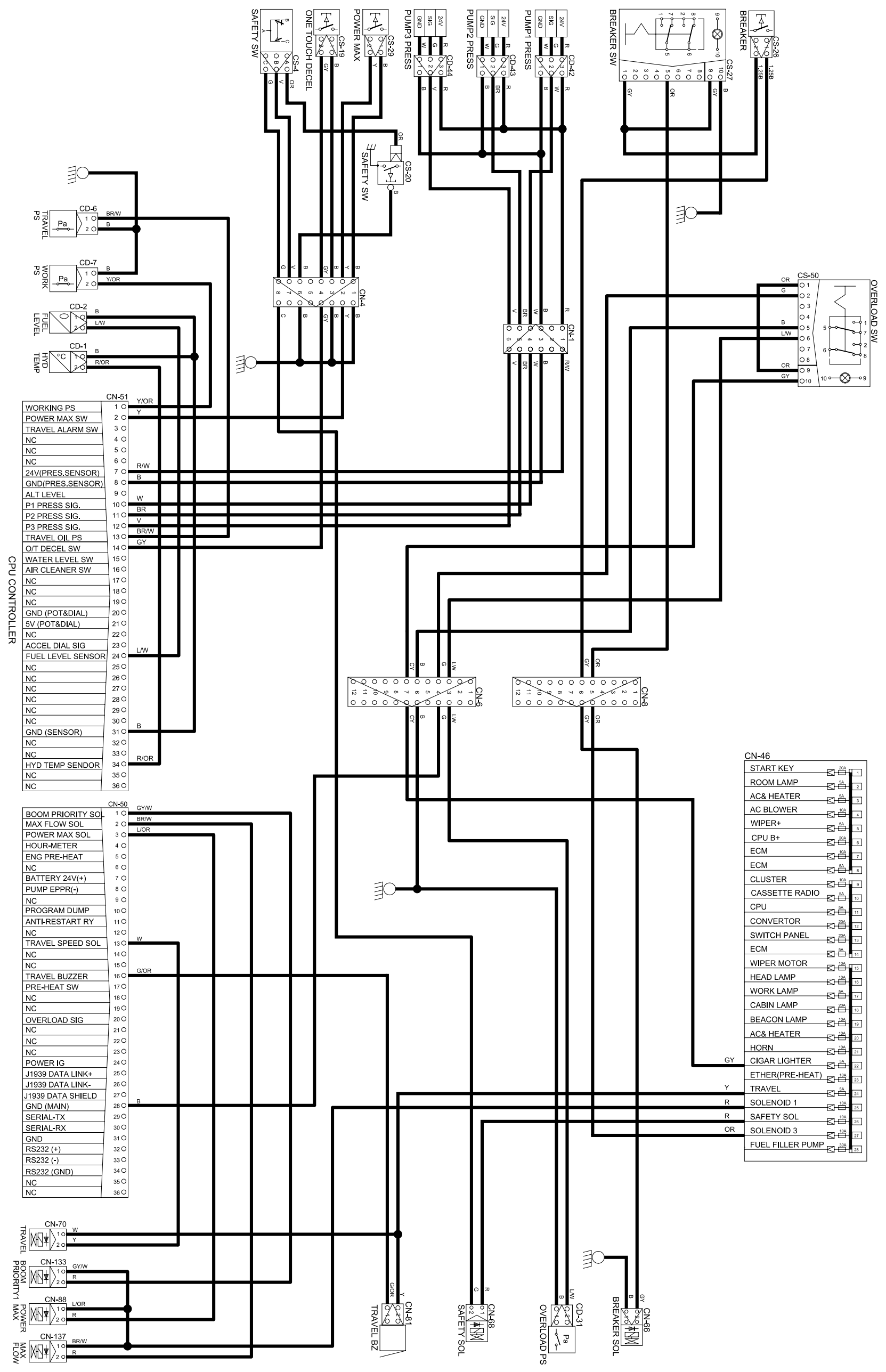


CONTROLLER CIRCUIT



50074EL11

ELECTRIC CIRCUIT FOR HYDRAULIC



CPU CONTROLLER

WORKING PS	1 O	YIOR
POWER MAX SW	2 O	Y
TRAVEL ALARM SW	3 O	
NC	4 O	
NC	5 O	
NC	6 O	
24V(PRES.SENSOR)	7 O	R/W
GND(PRES.SENSOR)	8 O	B
ALT LEVEL	9 O	
P1 PRESS SIG.	10 O	W
P2 PRESS SIG.	11 O	BR
P3 PRESS SIG.	12 O	V
TRAVEL OIL PS	13 O	BRW
O/T DECEL SW	14 O	GY
WATER LEVEL SW	15 O	
AIR CLEANER SW	16 O	
NC	17 O	
NC	18 O	
NC	19 O	
GND (POT&DIAL)	20 O	
5V (POT&DIAL)	21 O	
NC	22 O	
ACCEL DIAL SIG	23 O	LW
FUEL LEVEL SENSOR	24 O	
NC	25 O	
NC	26 O	
NC	27 O	
NC	28 O	
NC	29 O	
NC	30 O	
GND (SENSOR)	31 O	B
NC	32 O	
NC	33 O	
HYD TEMP SENDOR	34 O	R/OR
NC	35 O	
NC	36 O	

CN-50

BOOM PRIORITY SOL	1 O	GY/W
MAX FLOW SOL	2 O	BRW
POWER MAX SOL	3 O	L/O
HOUR-METER	4 O	
ENG PRE-HEAT	5 O	
NC	6 O	
BATTERY 24V(+)	7 O	
PUMP EPPR(-)	8 O	
NC	9 O	
PROGRAM DUMP	10 O	
ANTI-RESTART RY	11 O	
NC	12 O	
TRAVEL SPEED SOL	13 O	W
NC	14 O	
NC	15 O	
TRAVEL BUZZER	16 O	G/OR
PRE-HEAT SW	17 O	
NC	18 O	
NC	19 O	
OVERLOAD SIG	20 O	
NC	21 O	
NC	22 O	
NC	23 O	
POWER IG	24 O	
J1939 DATA LINK+	25 O	
J1939 DATA LINK-	26 O	
J1939 DATA SHIELD	27 O	
GND (MAIN)	28 O	B
SERIAL-TX	29 O	
SERIAL-RX	30 O	
GND	31 O	
RS232 (+)	32 O	
RS232 (-)	33 O	
RS232 (GND)	34 O	
NC	35 O	
NC	36 O	

CN-46

START KEY	1
ROOM LAMP	2
AC& HEATER	3
AC BLOWER	4
WIPER+	5
CPU B+	6
ECM	7
ECM	8
CLUSTER	9
CASSETTE RADIO	10
CPU	11
CONVERTOR	12
SWITCH PANEL	13
ECM	14
WIPER MOTOR	15
HEAD LAMP	16
WORK LAMP	17
CABIN LAMP	18
BEACON LAMP	19
AC& HEATER	20
HORN	21
CIGAR LIGHTER	22
ETHER(PRE-HEAT)	23
TRAVEL	24
SOLENOID 1	25
SAFETY SOL	26
SOLENOID 3	27
FUEL FILLER PUMP	28

MONITORING CIRCUIT

