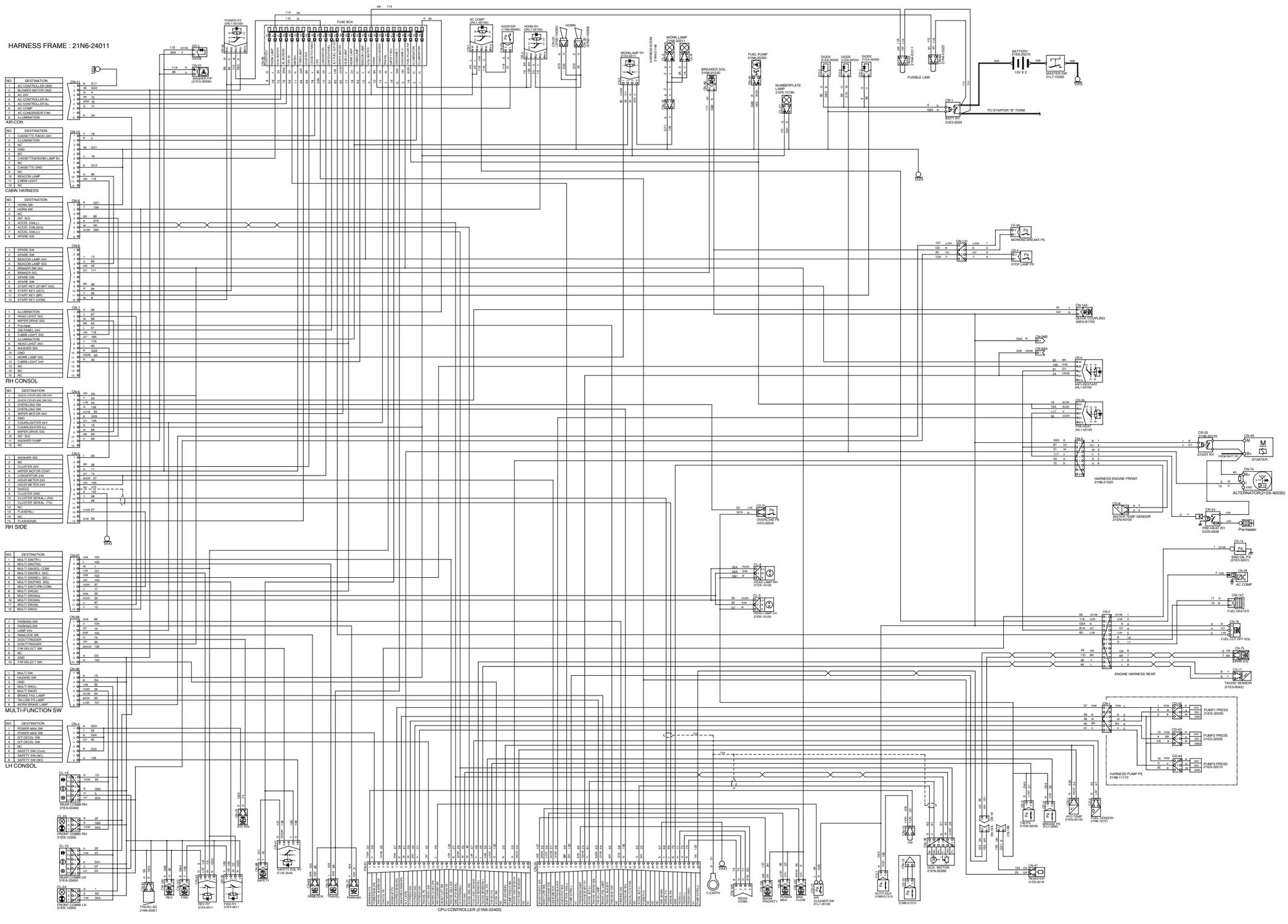
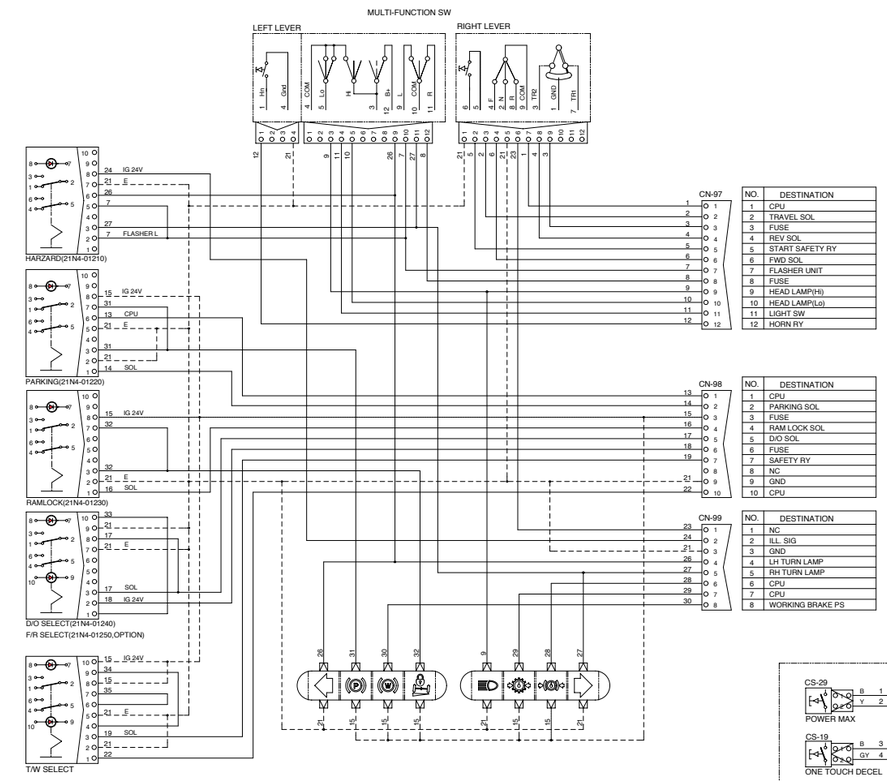
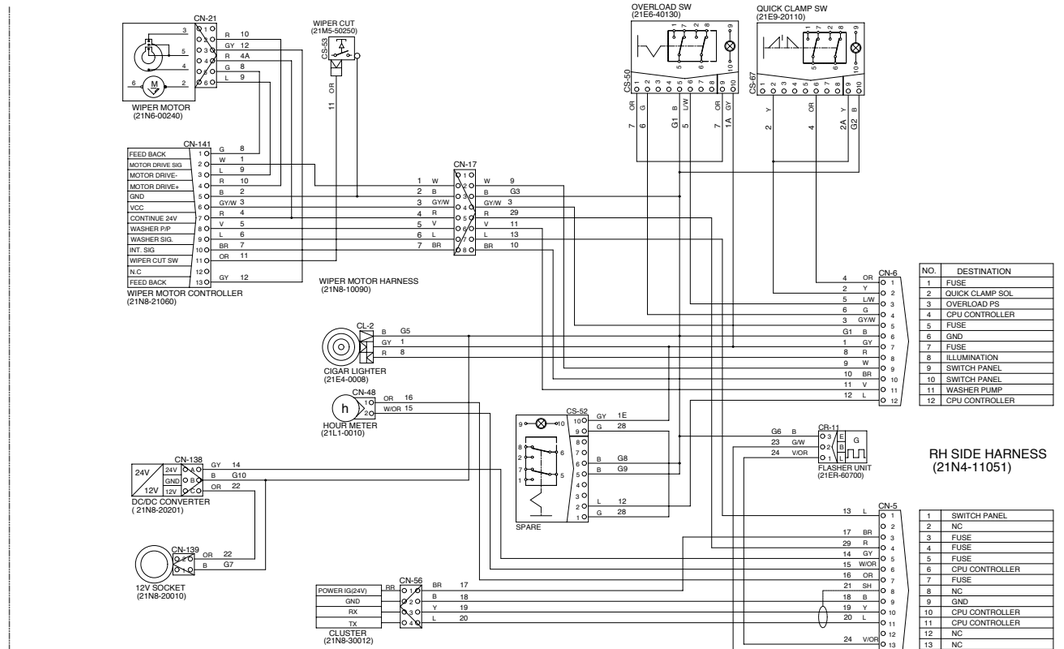

HARNESS FRAME : 21N6-24011
AIR-CON
CABIN HARNESS
RH CONSOL
RH SIDE
MULTI-FUNCTION SW
LH CONSOL
POWER RY. (24L1-00100)
FUSE BOX
AC COMP. (24L1-00100)
FLOOYER (17N6-00090)
HORN RY. (24L1-00100)
HORN
WORKLAMP RY. 21E3-00211
HARNESS BOOM 21N4-71180
WORK LAMP 21N6-20221
BREAKER SOL. 31N6-50230
FUEL PUMP 21N6-20300
NUMBERPLATE LAMP 21EK-10160
DIODE 21EA-50550
FUSIBLE LINK
BATTERY 21E6-00070
MASTER SW 21L7-10500
START RY 21ES-0003
TO:STARTER 'B' TERM
WORKING BREAKE PS
STOP LAMP RS
QUICK COUPLING 34EA-81720
ANTI-RESTART 24L1-05100
PRE-HEAT 24L1-05100
HARNESS ENGINE FRONT 21N6-21020
START RY.
ALTERNATOR(21E6-40030)
WATER TEMP SENDOR 21EN-40100
PRE-HEAT RY E225-0006
Pre-heater
ENG OIL PS (21E3-30001)
AC COMP
FUEL HEATER
FUEL TOT OFF SOL
ENGINE HARNESS REAR
EXPR V/V
TACHO SENSOR (21E3-0042)
HARNESS PUMP PS 21N6-11170
PUMP1 PRESS 21EG-32000
PUMP2 PRESS 21EG-32000
PUMP3 PRESS 21ES-32210
OVERLOAD PS 31ES-50320
HEAD LAMP RH 21EK-10120
HEAD LAMP LH 21EK-10120
REAR COMBI RH 21EK-30460
FRONT COMBI RH 21EK-10350
REAR COMBI LH 21EA-30460
FRONT COMBI LH 21EK-10350
TRAVEL BZ 21N6-20321
REV. FWD
REV.RY 21E4-0011
FWD.RY 21E4-0011
SAFETY SOL 21ES-3045
SAFETY
PARKLOCK
TORQUE
PARKING
CPU CONTROLLER (21N6-32400)
C.EARTH
RS232 CONN.
PRIORITY
MAIN
MAX. FLOW
AIR CLEANER SW 21LJ-20100
AUTO IDLE 31M8-51310
31M8-51310
GOV. MOTOR 21EN-32300
TMP.PS 31EM-30550
BRAKE PS 31L1-00060
HYD.TEMP 21EN-40100
FUEL SENSOR 21NE-10701
MONITOR 21ES-4018
20W74EL04



NO.	DESTINATION
1	CPU
2	TRAVEL SOL
3	FUSE
4	REV SOL
5	START SAFETY RY
6	FWD SOL
7	FLASHER UNIT
8	FUSE
9	HEAD LAMP(HI)
10	HEAD LAMP(Lo)
11	LIGHT SW
12	HORN RY

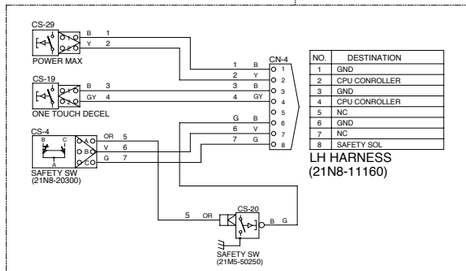
NO.	DESTINATION
1	CPU
2	PARKING SOL
3	FUSE
4	RAM LOCK SOL
5	D/O SOL
6	FUSE
7	SAFETY RY
8	NC
9	GND
10	CPU

NO.	DESTINATION
1	NC
2	ILL. SIG
3	GND
4	LH TURN LAMP
5	RH TURN LAMP
6	CPU
7	CPU
8	WORKING BRAKE PS



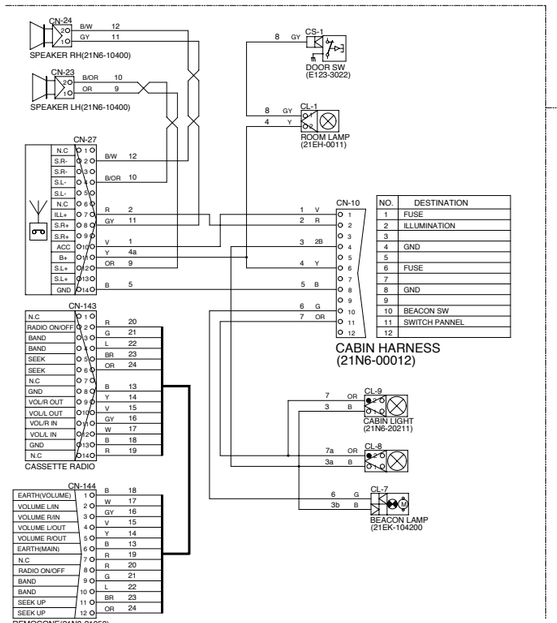
NO.	DESTINATION
1	FUSE
2	QUICK CLAMP SOL
3	OVERLOAD PS
4	CPU CONTROLLER
5	FUSE
6	GND
7	FUSE
8	ILLUMINATION
9	SWITCH PANEL
10	SWITCH PANEL
11	WASHER PUMP
12	CPU CONTROLLER

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	NC
13	NC
14	NC
15	MULTIFUNCTION SW

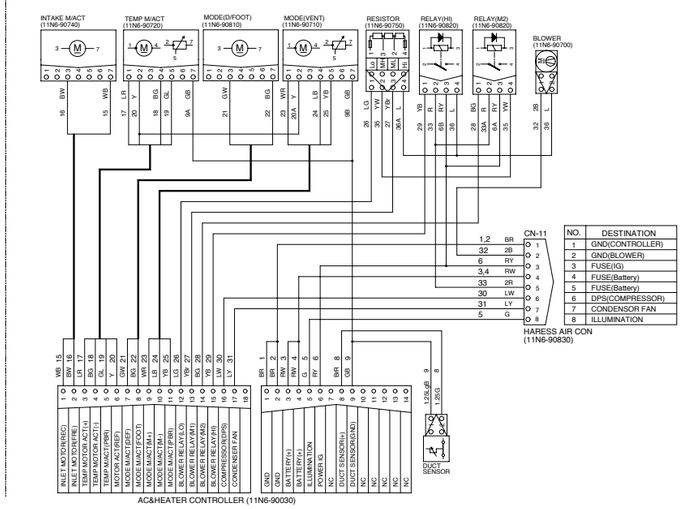


NO.	DESTINATION
1	GND
2	CPU CONROLLER
3	GND
4	CPU CONROLLER
5	NC
6	GND
7	NC
8	SAFETY SOL

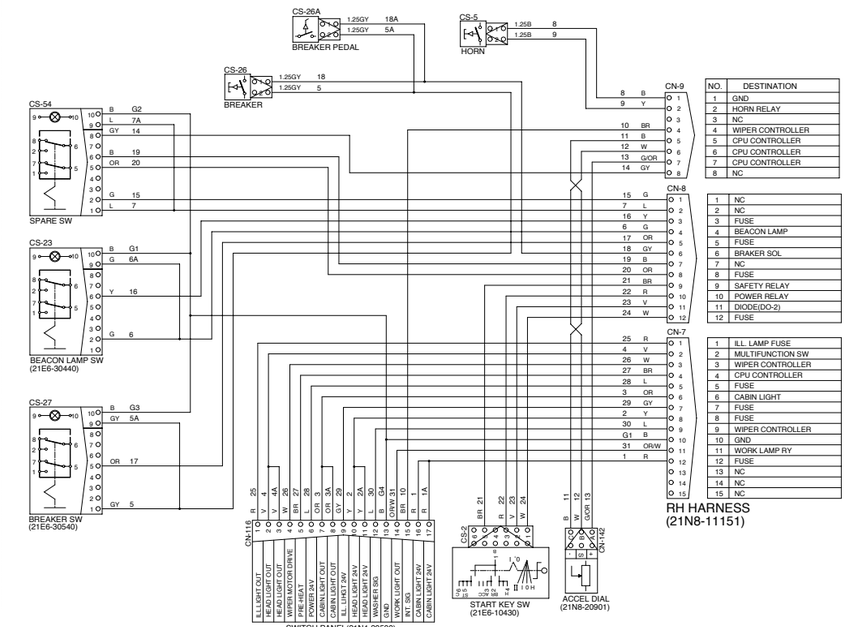
B : BLACK
W : WHITE
R : RED
G : GREEN
L : BLUE
BR : BROWN
OR : ORANGE
Y : YELLOW
V : VIOLET
GY : GREY



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



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



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(DIO-2)
12	FUSE

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

20W74EL03

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

Battery → Battery relay → Fusible link〔CN-60〕

- → Fuse box〔No.1〕
  - → I/conn〔CN-8(12)〕 → Start switch〔CS-2(1)〕
  - → Power relay〔CR-35(30)]
- → Fuse box〔No.2〕 → I/conn〔CN-10(6)〕
  - → Room lamp〔CL-1(2)〕 → Door switch〔CS-1〕
  - → Cassette radio〔CN-27(11)〕
- → Fuse box〔No.3〕 → I/conn〔CN-11(4)〕 → AC & Heater controller〔3, 4〕
- → Fuse box〔No.4〕 → I/conn〔CN-11(5)〕 → Relay(Hi, M2)
- → Fuse box〔No.5〕 → CPU controller〔CN-50(7)〕
- → Fuse box〔No.6〕 → I/conn〔CN - 5(4)〕 → I/conn〔CN -17(5)〕
  - → Wiper motor controller〔CN-141(7)〕
  - → Wiper motor〔CN-21(4)〕

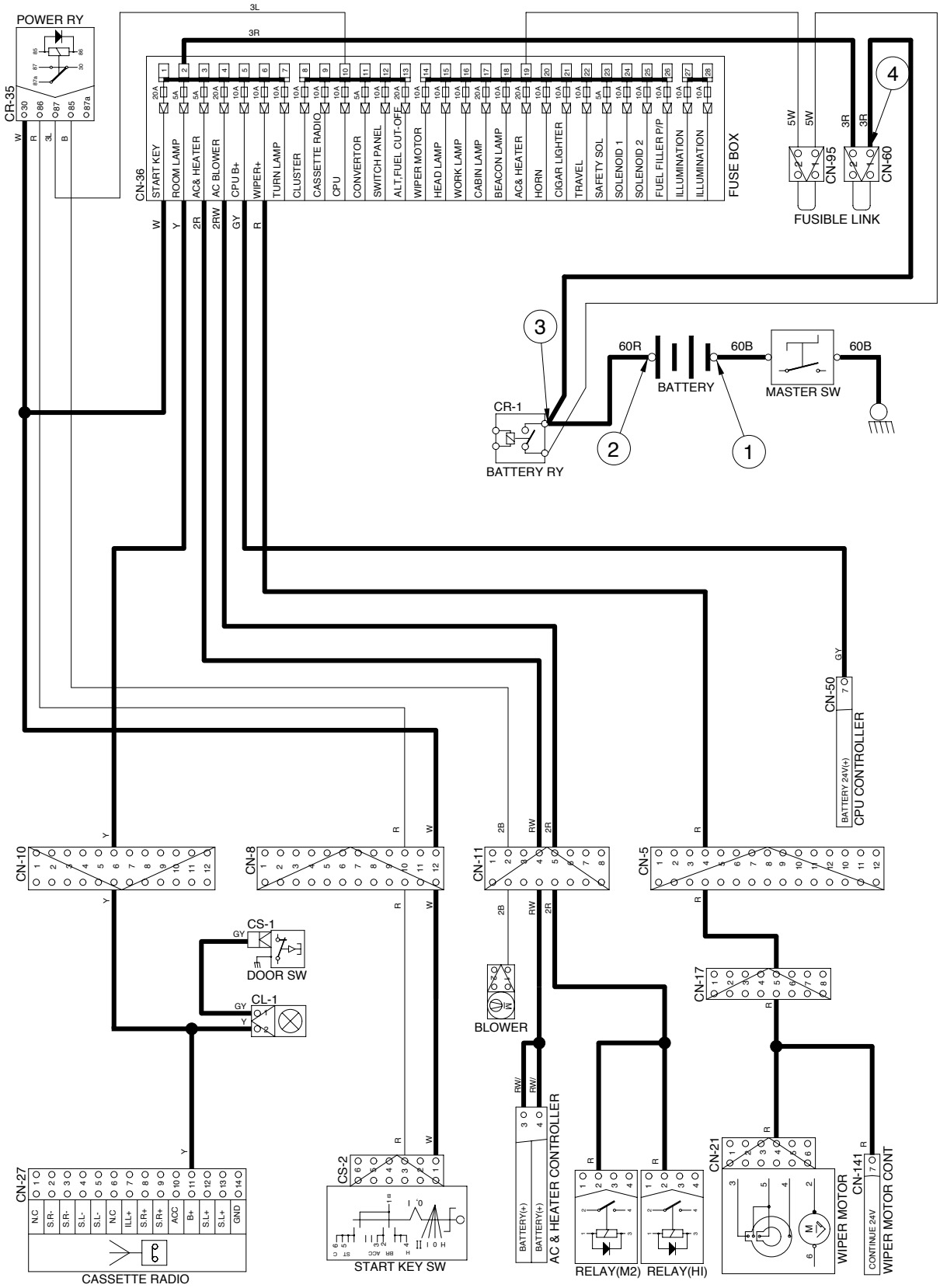
※ I/conn : Intermediate connector

2) CHECK POINT

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

※ GND : Ground

POWER CIRCUIT



20W74EL05

2. STARTING CIRCUIT

1) OPERATING FLOW

Battery(+) terminal → Battery relay〔CR-1〕 → Fusible link〔CN-60〕 → 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

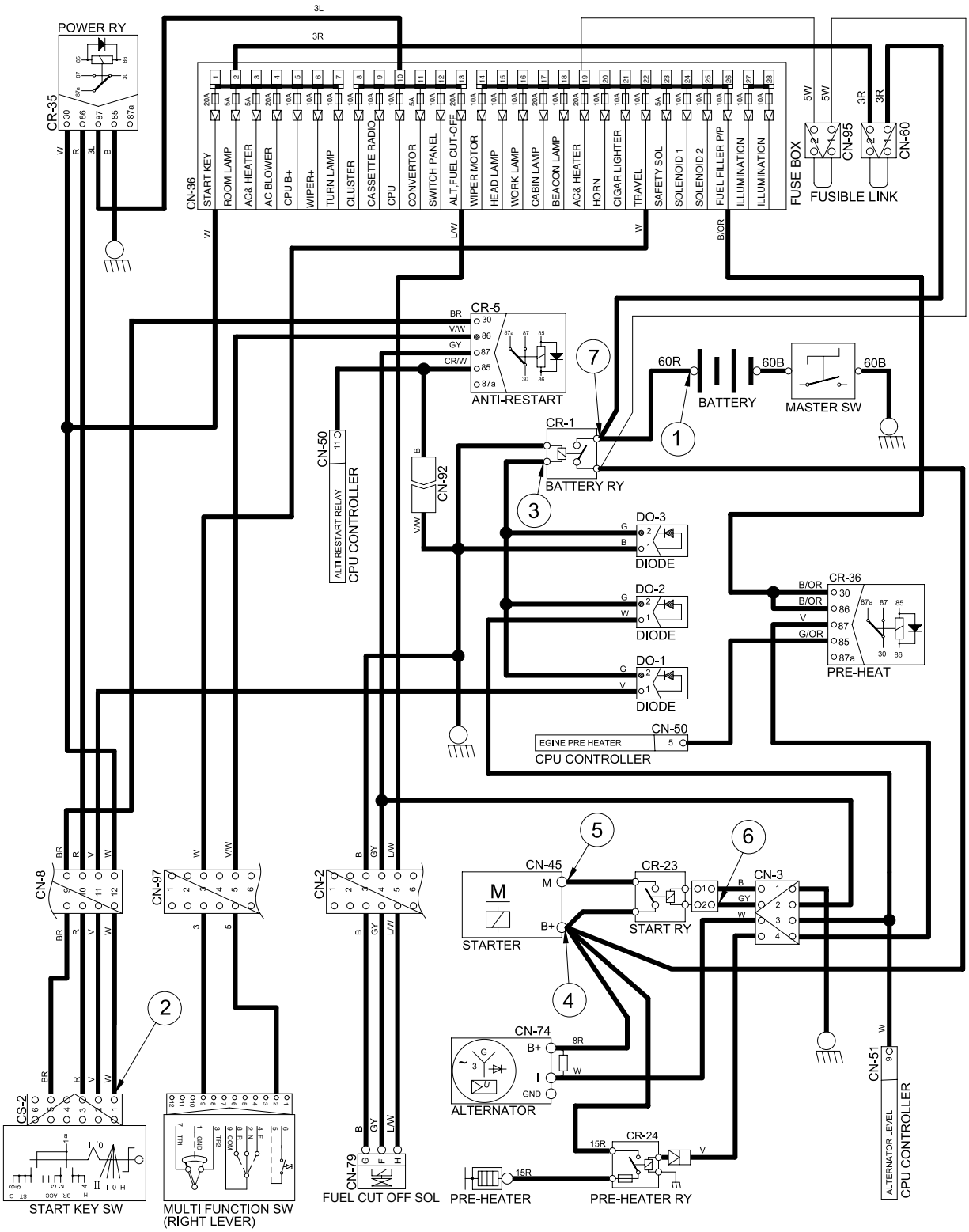
Start switch START〔CS-2(5)〕 → I/conn〔CN-8(9)〕 → Anti restart relay〔CR-5(30) → (87)〕
→ I/conn〔CN-3(2)〕 → Start relay〔CN-23〕

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



20W74EL06

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-2(13)〕→ CPU alternator level〔CN-51(9)〕

Cluster charging warning lamp(Via serial interface)

(2) Charging flow

Alternator "B^+" terminal → Battery relay(M8) → Battery(+) terminal

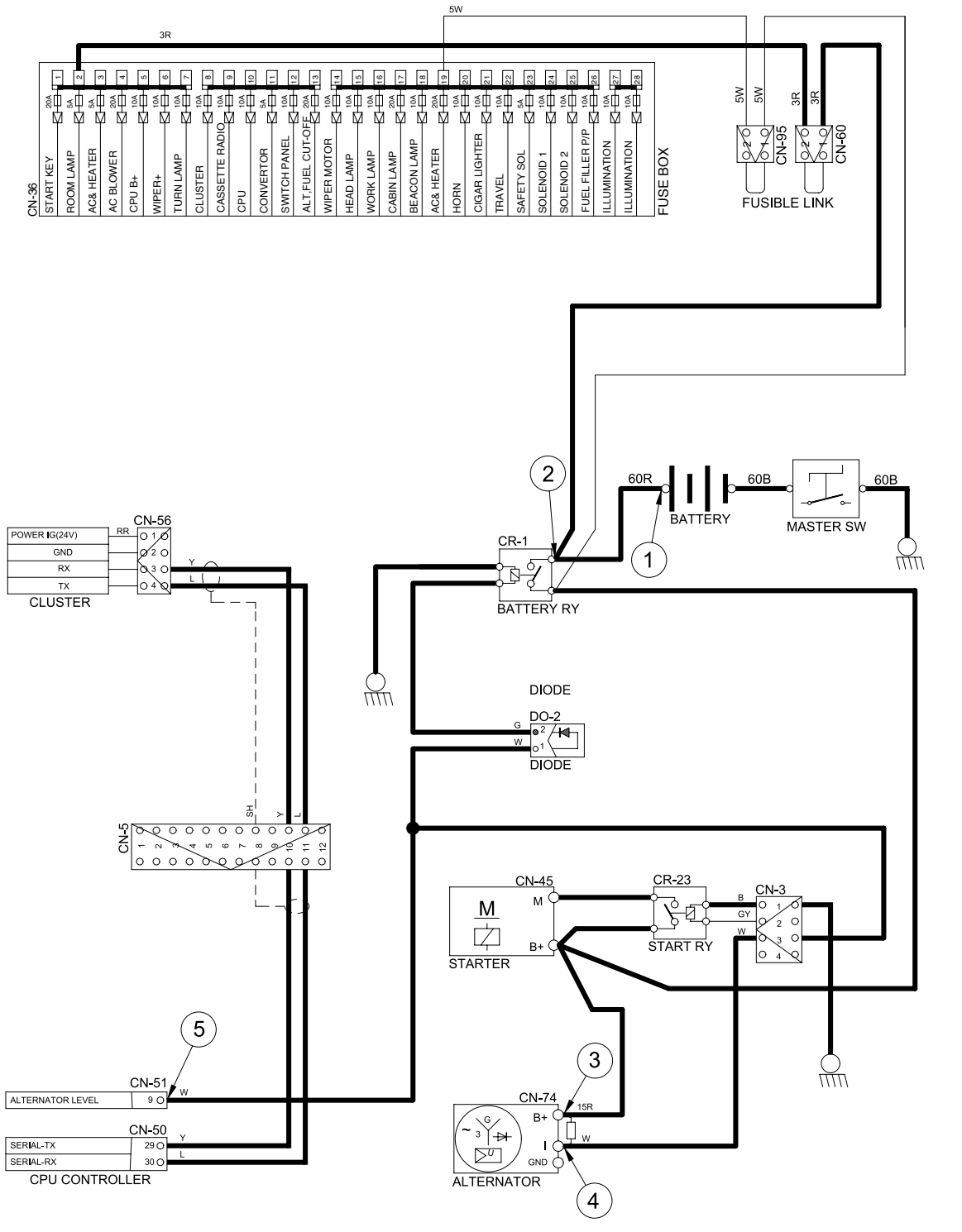
→ Fusible link〔CN-60〕→ Fuse box

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



20W74EL07

4. HEAD AND WORK LIGHT CIRCUIT

1) OPERATING FLOW

Fuse box (No.15) → I/conn〔CN-7(8)〕→ Switch panel〔CN-116(10,11)〕
Fuse box (No.16) → I/conn〔CN-7(7)〕→ Switch panel〔CN-116(9)〕

(1) Main light switch ON : 1st step

Head light switch ON〔CN-116(2,3)〕→ I/conn〔CN-7(2)〕→ I/conn〔CN-97(11)〕→
Mutifunction sw left lever(3) →(5) →〔CN-97(10)〕→Head light ON〔CL-3(1), CL-4(1)〕
: Head lamp ON

(2) Main light switch ON : 2nd step

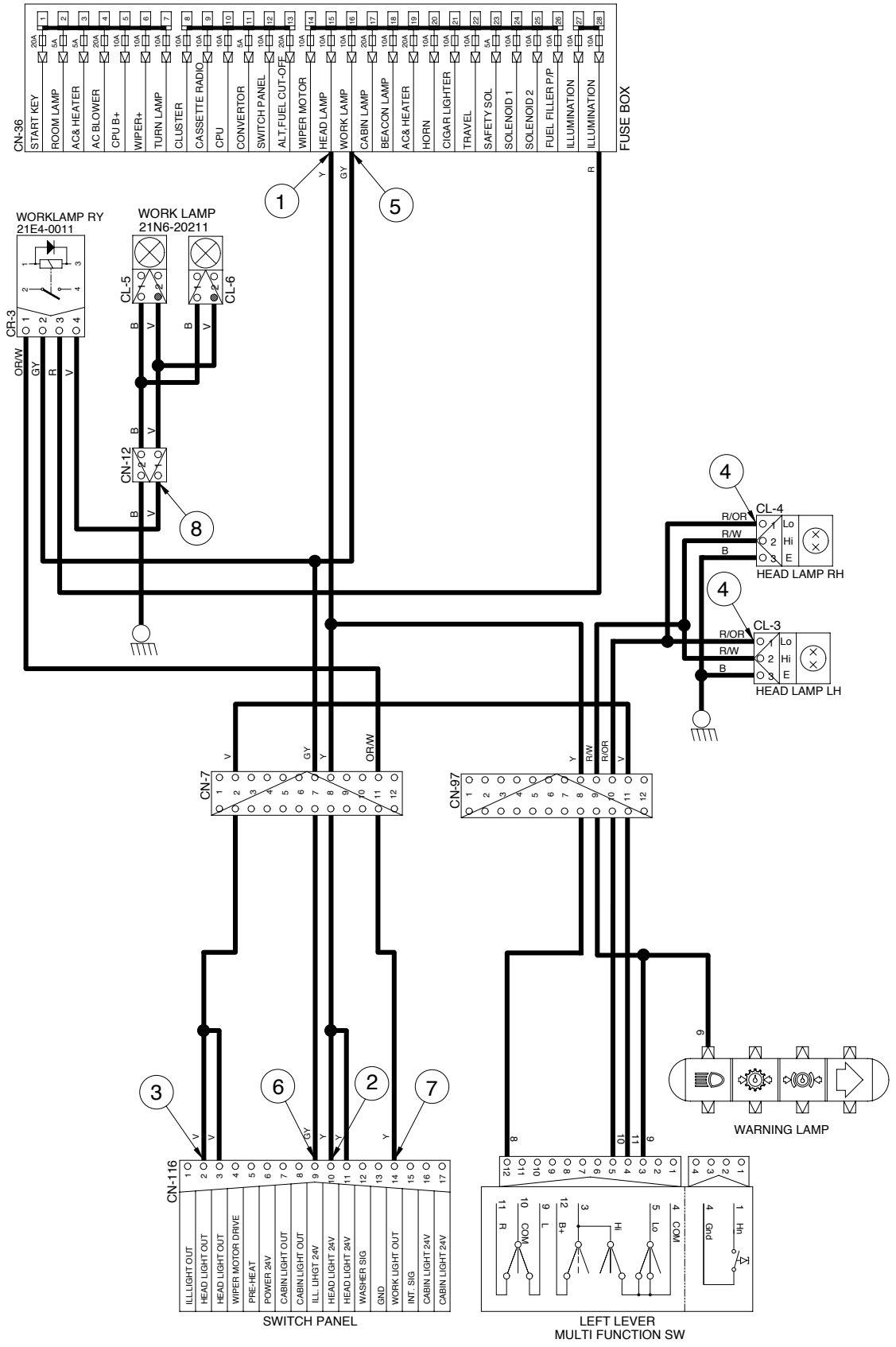
Work light switch ON〔CN-116(14)〕→ I/conn〔CN-7(11)〕→ I/conn〔CN-3(1), (4)〕→
I/conn〔CN-12(1)〕→ Work light ON〔CL-5(2), CL-6(2)〕

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



20W74EL08

5. BEACON LAMP AND CAB LIGHT CIRCUIT

1) OPERATING FLOW

Fuse box (No.18) → I/conn〔CN-8(3)〕→ Beacon lamp switch〔CN-23(6)〕
Fuse box (No.17) → 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(10)〕
→ Beacon lamp ON〔CL-7〕

(2) Cab light switch ON

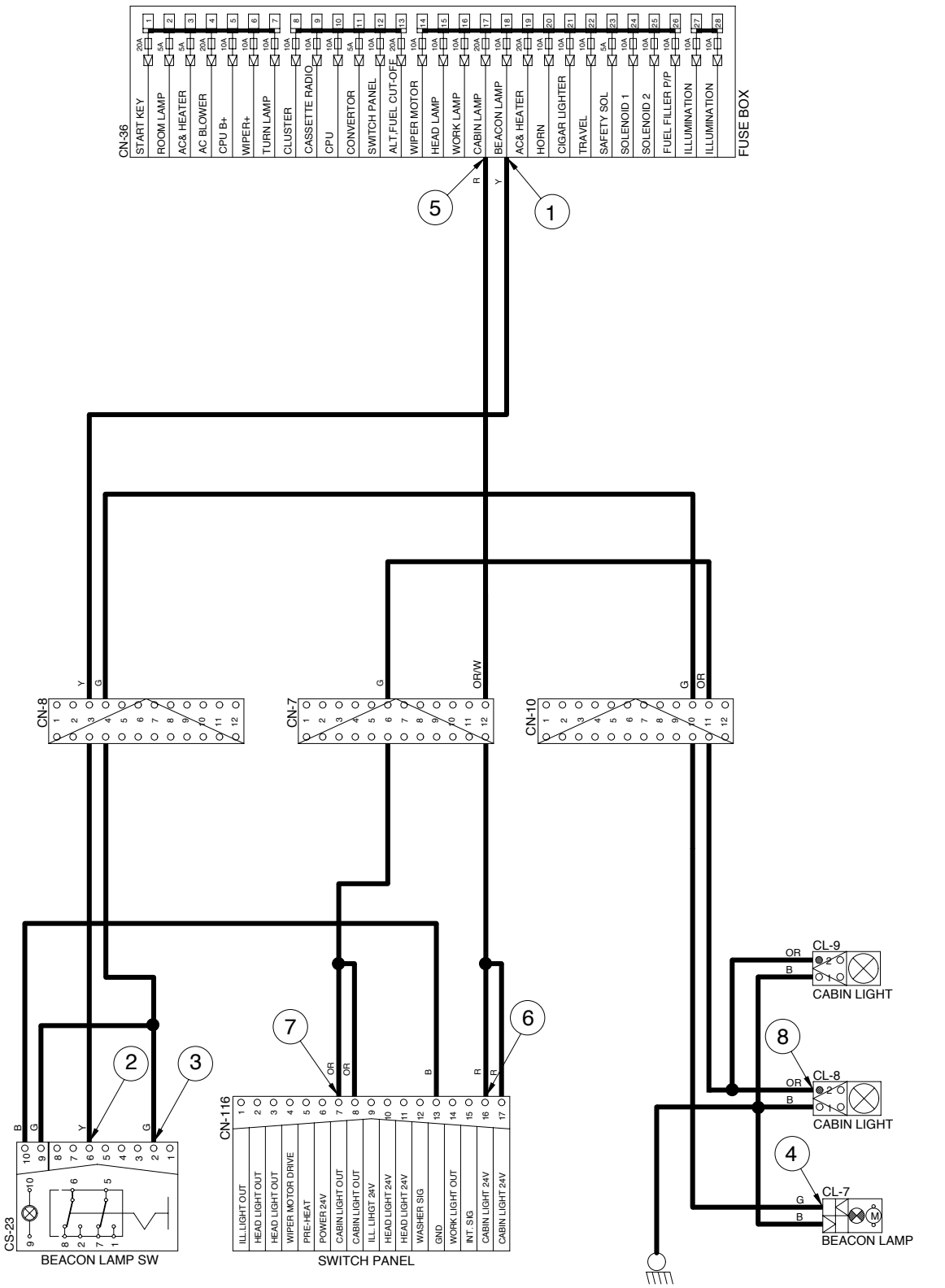
Cab light switch ON〔CN-116(7, 8)〕→ I/conn〔CN-7(6)〕→ I/conn〔CN-10(11)〕
→ Cab light ON〔CL-8(2), CL-9(2)〕

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



20W74EL09

6. WIPER AND WASHER CIRCUIT

1) OPERATING FLOW

(1) Key switch ON

Fuse box (No.12) → I/conn〔CN-7(5)〕→ Switch panel〔CN-116(6)〕

Fuse box (No.6) → I/conn〔CN-5(4)〕→ I/conn〔CN-17(5)〕→ Wiper motor controller〔CN-141(7)〕
→ Wiper motor〔CN-21(4)〕
→ Washer pump〔CN-22(2)〕

Fuse box (No.14) → I/conn〔CN-6(5)〕→ I/conn〔CN-17(4)〕→ Wiper motor controller〔CN-141(6)〕

(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
Fuse box(No.14) → I/conn〔CN-6(5)〕→ I/conn〔CN-17(4)〕→
Wiper motor controller〔CN-141(6) → (4)〕→ Wiper motor operating〔CN-21(2), Low speed〕

(5) Auto parking(When switch OFF)

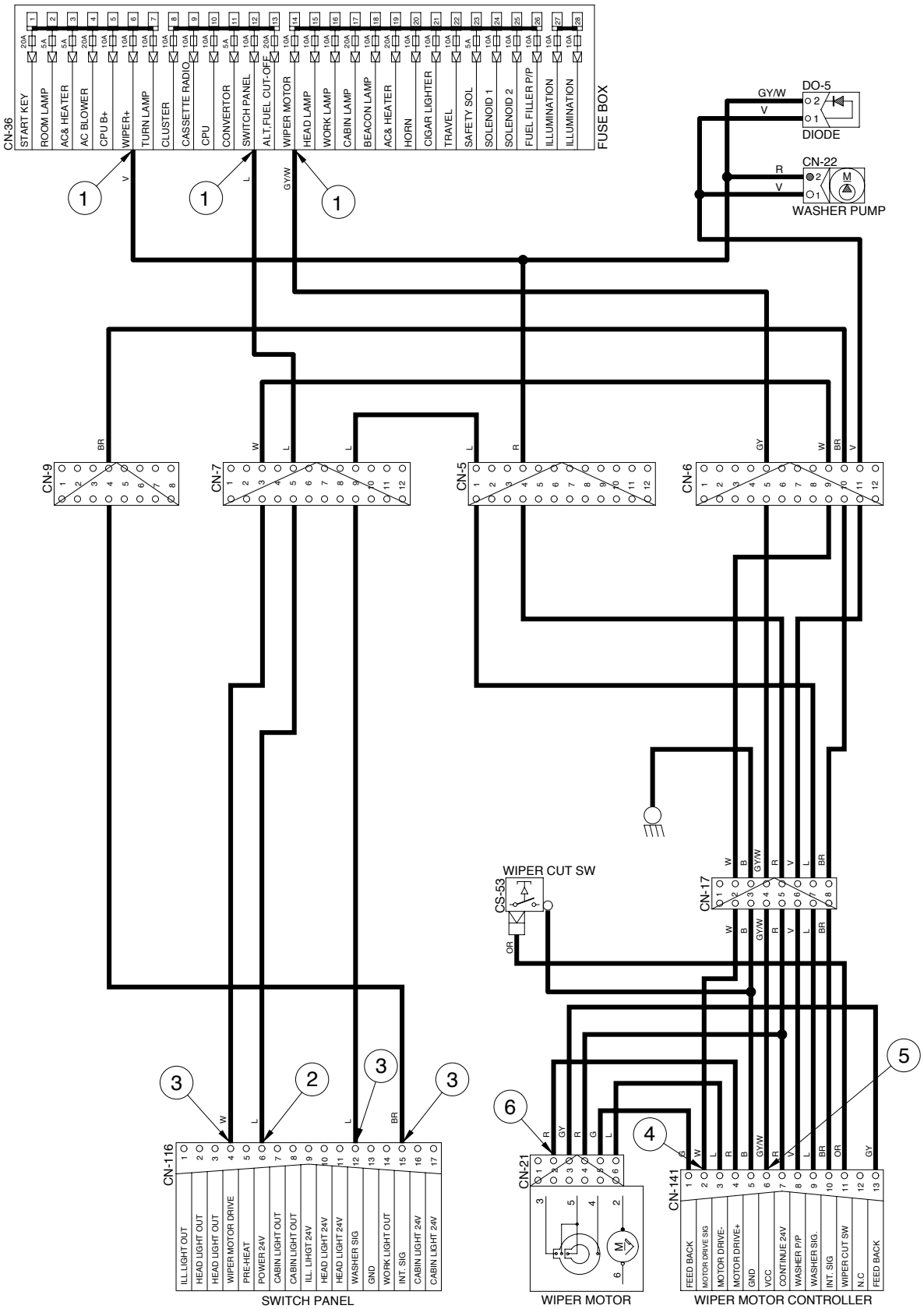
Switch OFF〔CN-116(15)〕→ Wiper motor parking position by wiper motor controller

2) CHECK POINT

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

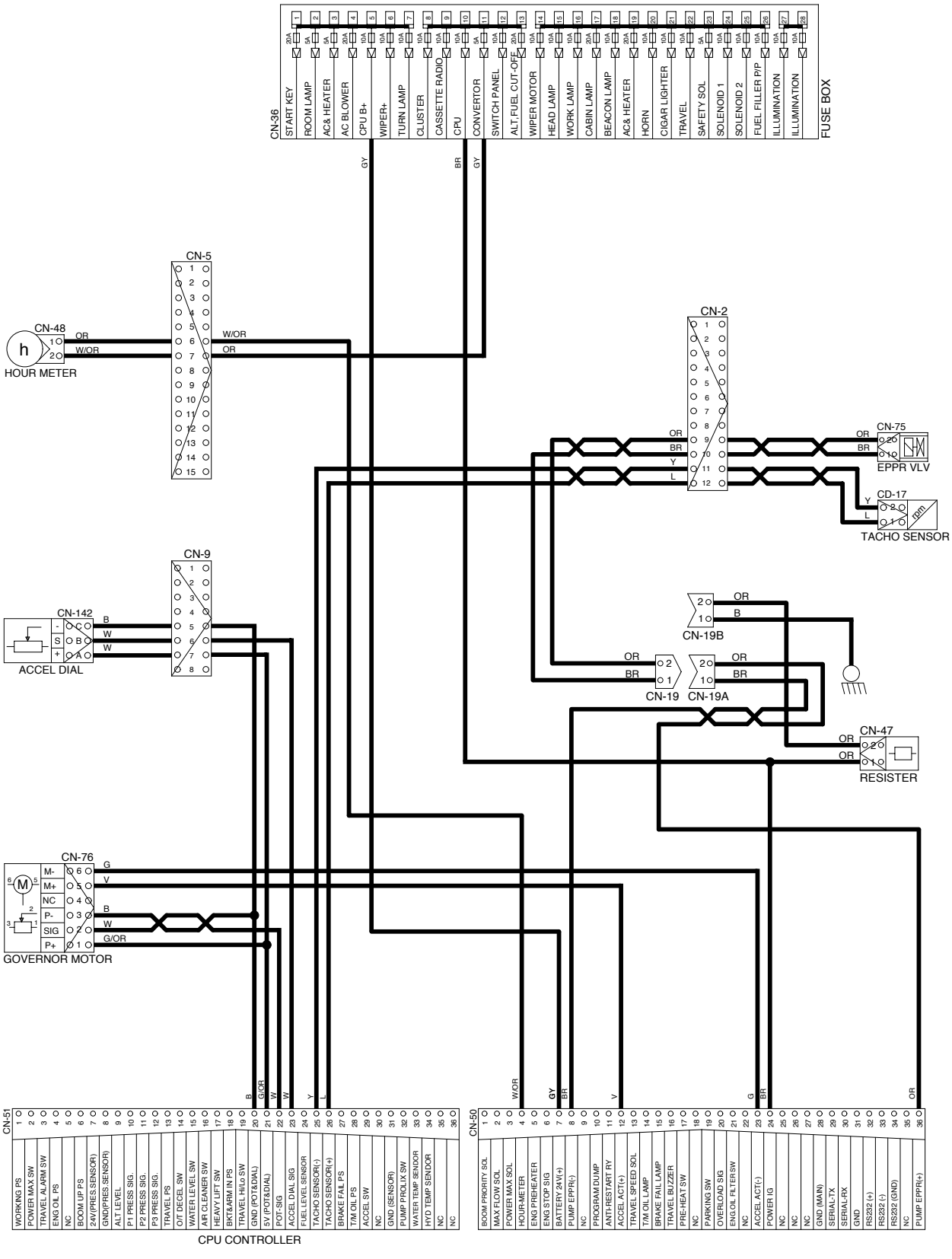
※ GND : Ground

WIPER AND WASHER CIRCUIT



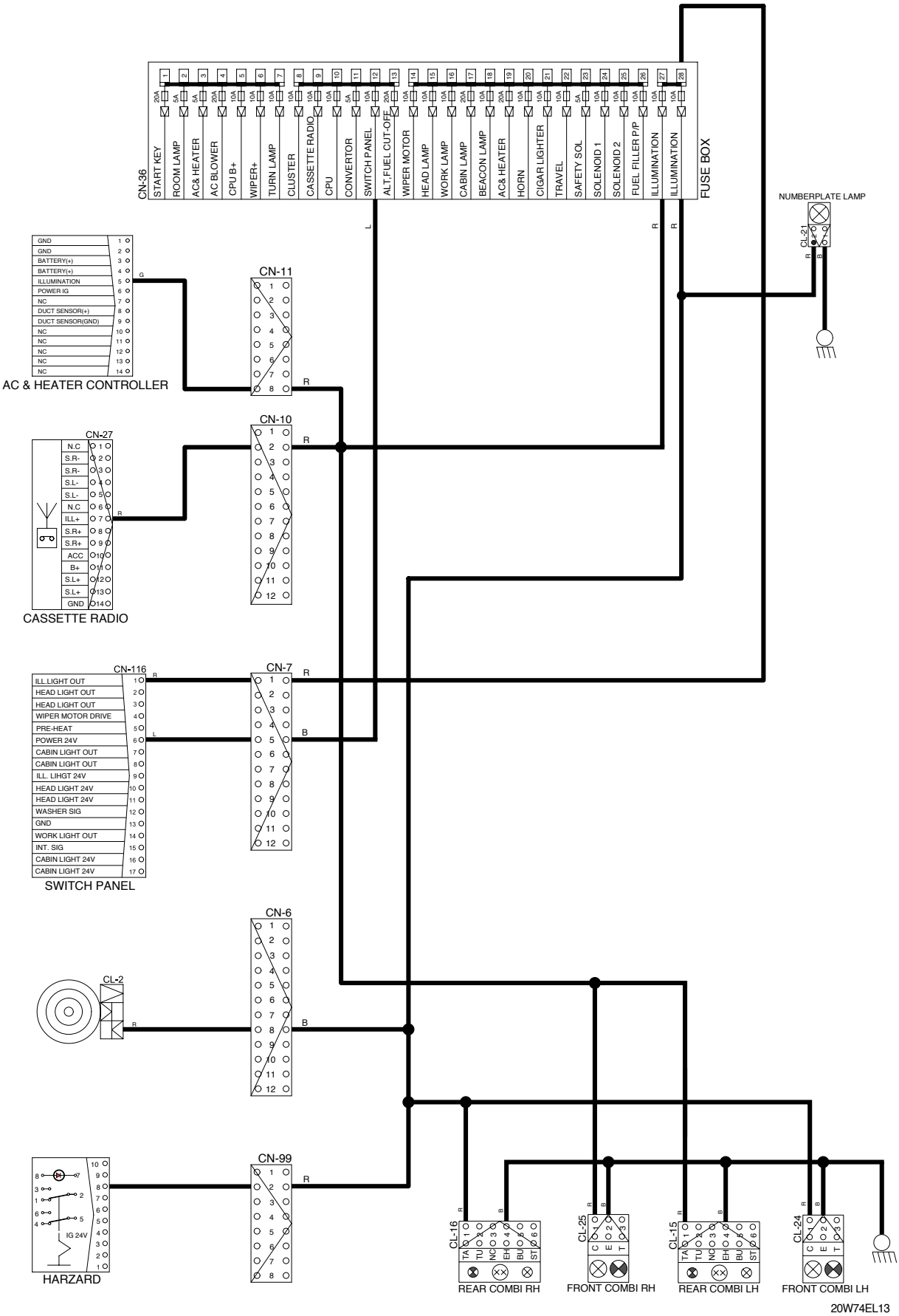
20W74EL10

CONTROLLER CIRCUIT

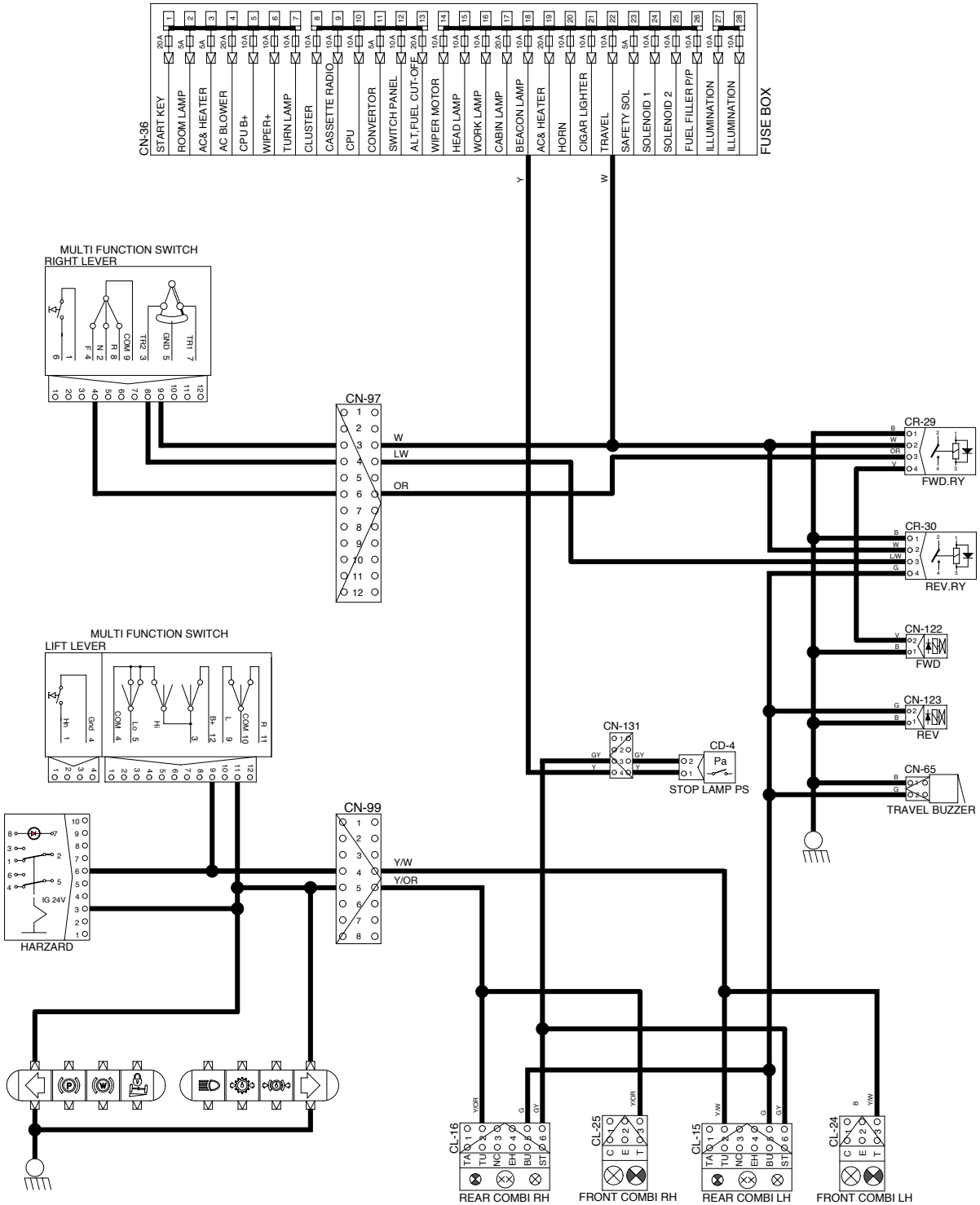


20W74EL11

ILLUMINATION CIRCUIT

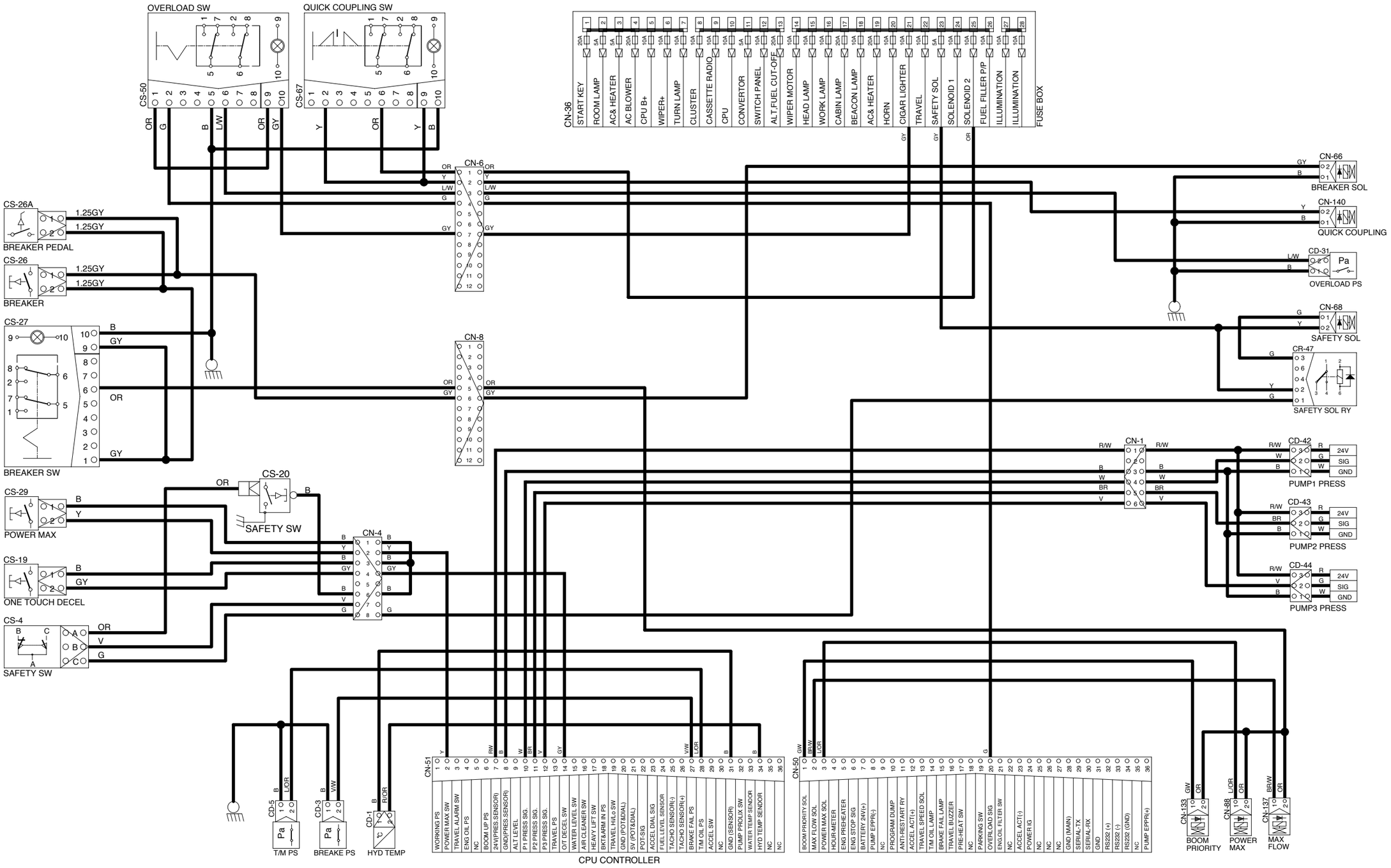


COMBINATION LAMP CIRCUIT



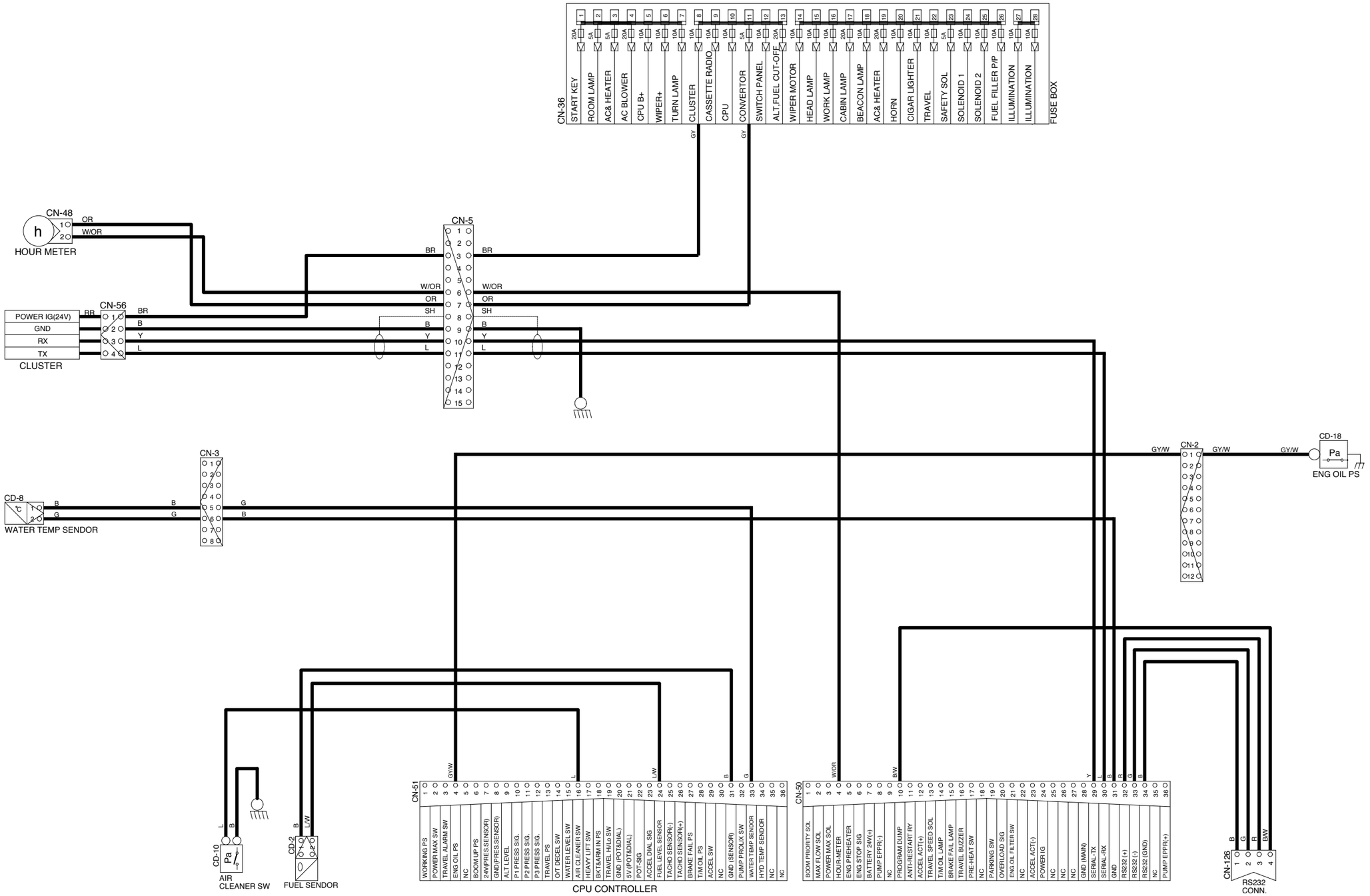
20W74EL14

ELECTRIC CIRCUIT FOR HYDRAULIC



20W74EL15

MONITORING CIRCUIT



20W74EL16