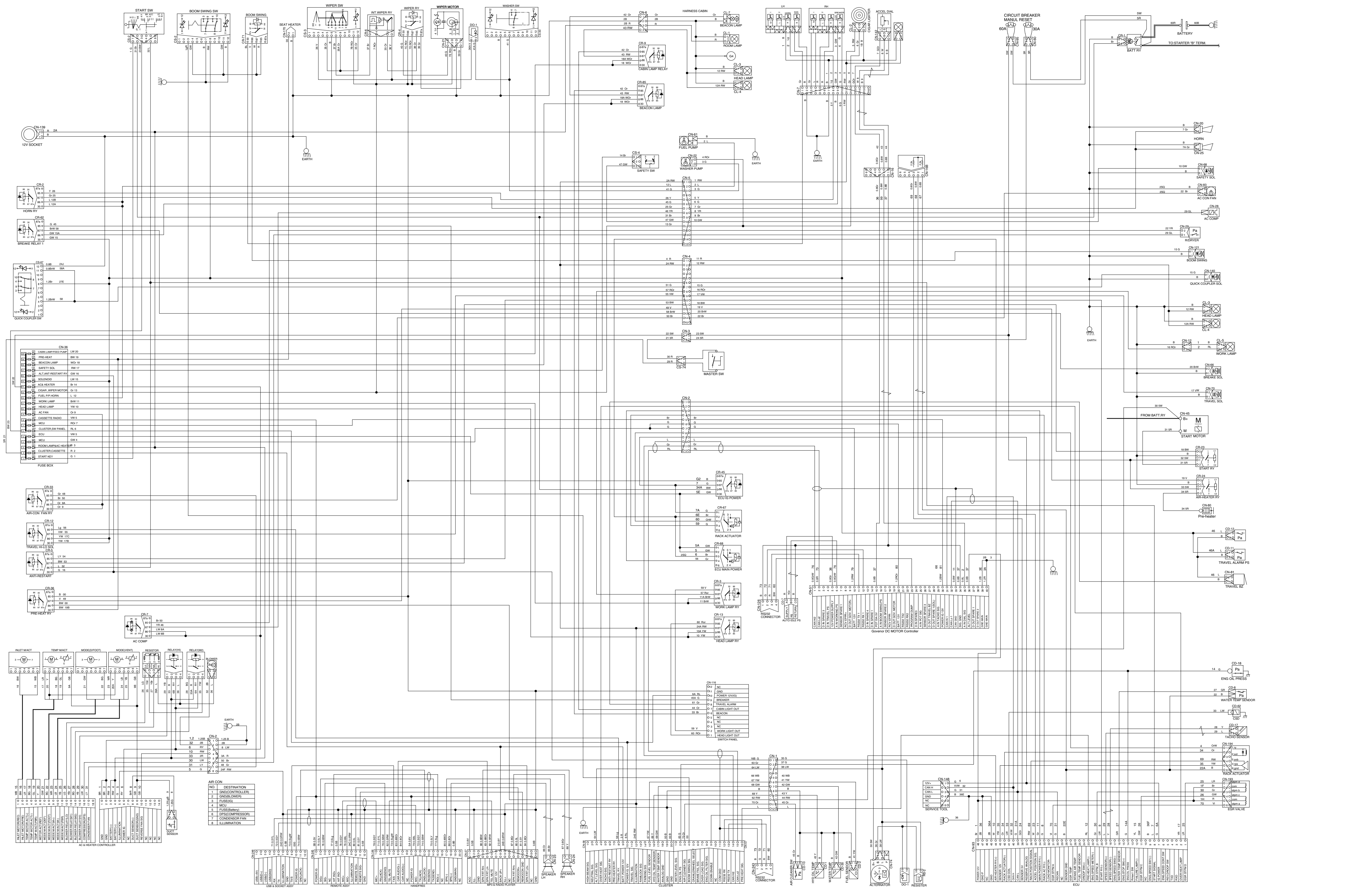

START SW
BOOM SWING SW
WIPER SW
WIPER MOTOR
WASHER SW
HARNESS CABIN
BEACON LAMP
ROOM LAMP
HEAD LAMP
CABIN LAMP RELAY
CIRCUIT BREAKER MANUL RESET
BATTERY
BATT RY
TO STARTER "B" TERM.
12V SOCKET
FUEL PUMP
WASHER PUMP
SAFETY SW
EARTH
HORN RY
BREAKE RELAY 1
QUICK COUPLER SW
FUSE BOX
AIR-CON FAN RY
TRAVEL HI-LO SOL
ANTI-RESTART
PRE-HEAT RY
AC COMP
HORN
SAFETY SOL
AC CON FAN
BOOM SWING
QUICK COUPLER SOL
WORK LAMP
BREAKE SOL
TRAVEL SOL
FROM BATT RY
START MOTOR
START RY
AIR-HEATER RY
Pre-heater
TRAVEL ALARM PS
TRAVEL BZ
MASTER SW
ECU G POWER
RACK ACTUATOR
ECU MAIN POWER
WORK LAMP RY
HEAD LAMP RY
Governor DC MOTOR Controller
SWITCH PANEL
AIR CON
DESTINATION
AC & HEATER CONTROLLER
ENG OIL PRESS
WATER TEMP SENSOR
TACHO SENSOR
EGR VALVE
SERVICE TOOL
SPEAKER LH
SPEAKER RH
CLUSTER
ALTERNATOR
REGISTER
ECU

5594EL01

MEMORANDUM

1. POWER CIRCUIT

The negative terminal of battery is grounded to the machine chassis.

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) → I/conn [CN-3 (2)] → Master switch [CS-74]

- → Fuse box [No.1] → Start switch [CS-2 (1)]
- → Fuse box [No.2]
  - → MP3 & Radio player [CN-27 (8)]
  - → Cluster [CN-56 (9)]
- → Fuse box [No.3]
  - → I/conn [CN-2 (5)] → AC & Heater controller
  - → I/conn [CN-6 (3)] → Room lamp [CL-1 (2)]
  - → 12V socket [CN-139 (2)]
- → Fuse box [No.4]
  - → I/conn [CN-2 (7)] → DC motor controller [CN-51 (10)]
  - → I/conn [CN-2 (6)] → DC motor controller [CN-51 (20)]

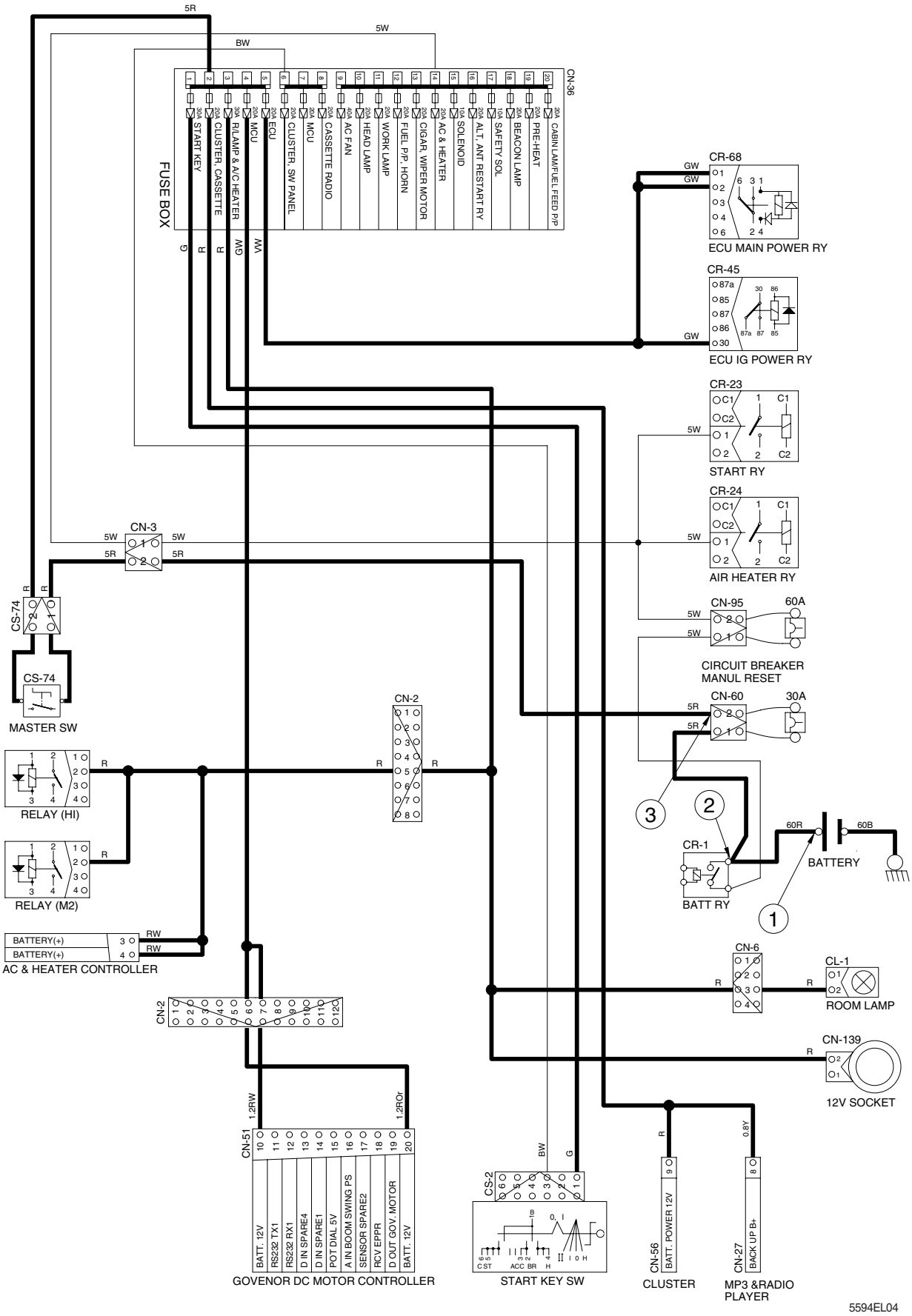
※ I/conn : Intermediate connector

2) CHECK POINT

Engine	Start switch	Check point	Voltage
OFF	OFF	① - GND (battery) ② - GND (battery relay) ③ - GND (fusible link)	10~12.5V

※ GND : Ground

POWER CIRCUIT



2. STARTING CIRCUIT

1) OPERATING FLOW

Battery (+) terminal → Battery relay [CR-1] → Fusible link [CN-60]
→ I/conn [CN-3 (2)] → Master switch [CS-74] → Fuse box No.1 → Start key [CS-2 (1)]

※ Start switch : ON

- Start switch ON [CS-2 (2)] → ECU IG power relay [CR-45 (86)]
  → I/conn [CN-5 (9)] →
  Battery relay [CR-1]:Battery relay operating (all power is supplied with the electric component)
- Start switch ON [CS-2 (3)] → Fuse box (all power is supplied with electric component)

※ Start switch : START

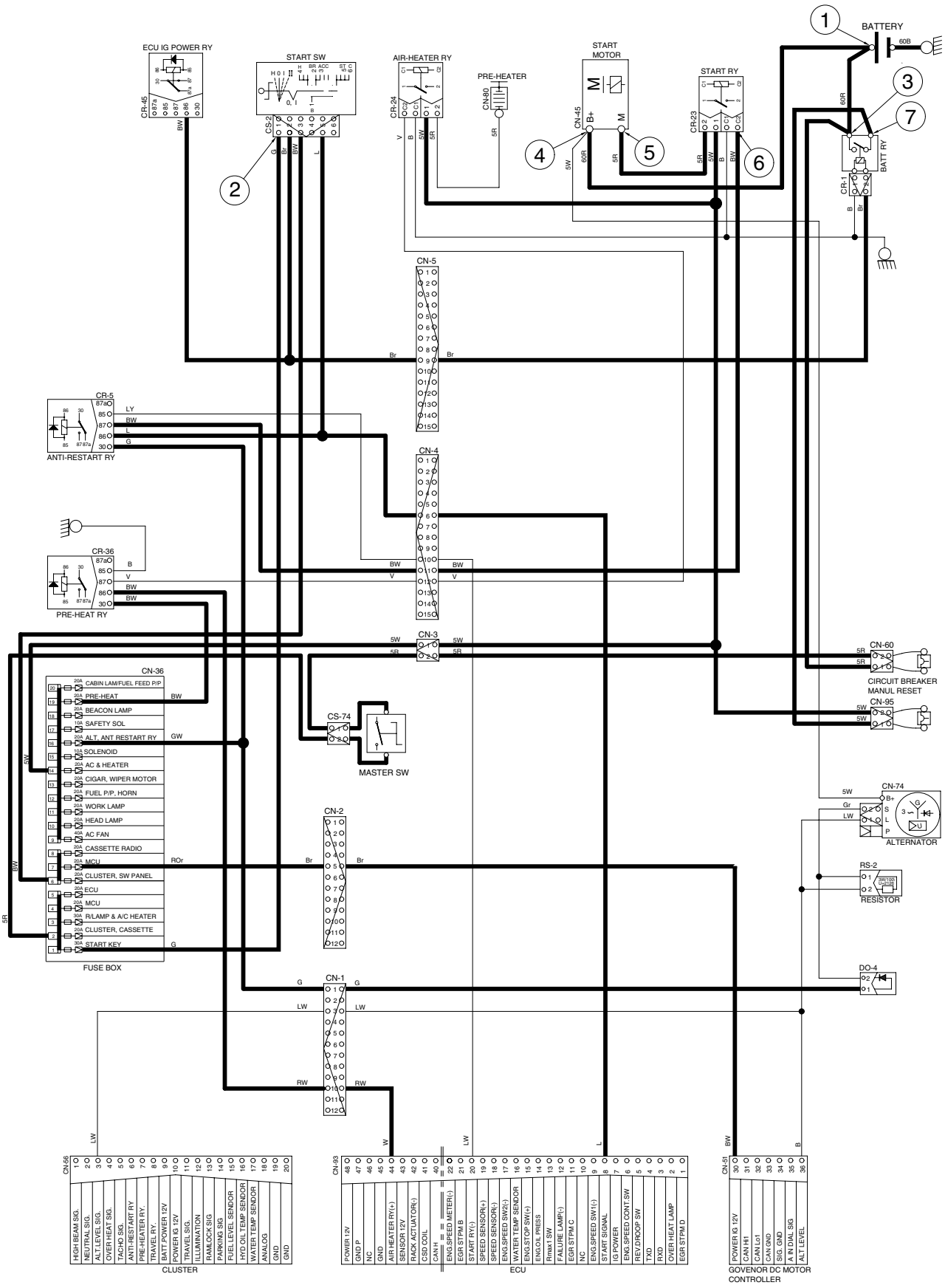
Start switch START [CS-2 (5)] → Anti-restart relay [CR-5 (86) → (87)] → I/conn [CN-4 (11)]
→ Start relay [CR-23 (C2) → (2)] → Starter motor operating
→ I/conn [CN-4 (6)] → ECU [CN-93 (8)]

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)	10~12.5V

※ GND : Ground

STARTING CIRCUIT



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 "L" terminal → I/conn [CN-1 (3)] → Cluster [CN-56 (3)] → Cluster warning lamp
Alternator "L" terminal → Governor DC motor controller [CN-51 (36)]

(2) Charging flow

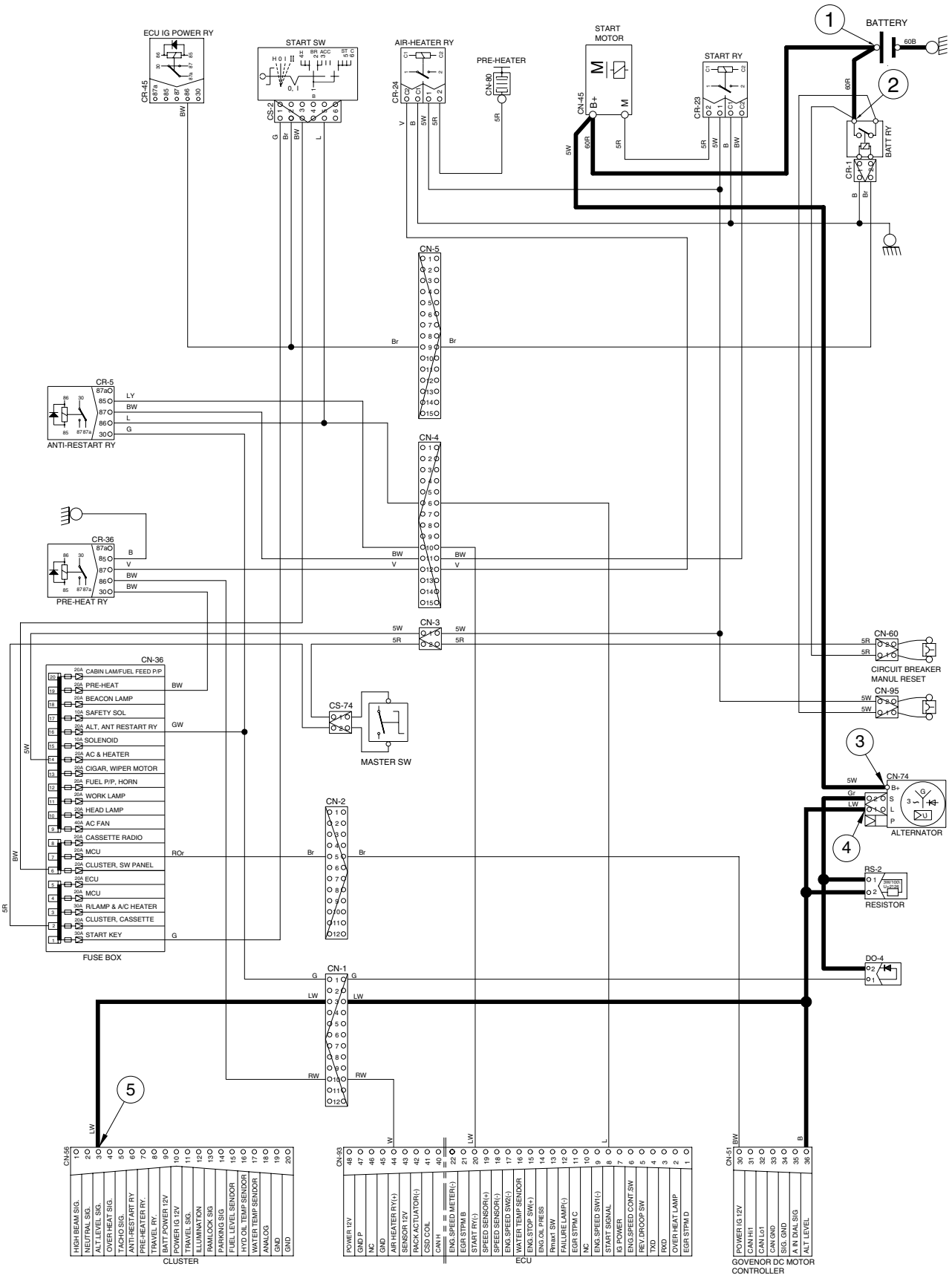
Alternator "B^+" terminal → Battery relay → Battery (+) terminal

2) CHECK POINT

Engine	Start switch	Check point	Voltage
Operating	Start	① - GND (battery voltage) ② - GND (battery relay) ③ - GND (alternator B^+ terminal) ④ - GND (alternator L terminal) ⑤ - GND (cluster)	10~12.5V

※ GND : Ground

CHARGING CIRCUIT



4. HEAD AND WORK LAMP CIRCUIT

1) OPERATING FLOW

Fuse box (No.10) → Head lamp relay [CR-13 (86) → (85)] → Switch panel [CN-116 (1)]
Fuse box (No.11) → Work lamp relay [CR-3 (86) → (85)] → Switch panel [CN-116 (21)]

(1) Head lamp switch ON

Head lamp switch ON [CN-116(1)] → Head lamp relay [CR-13 (85) → (87)]
- → I/conn [CN-4 (2)] → Head lamp ON [CL-3, 4 (2)]
- → I/conn [CN-5 (1)] → I/conn [CN-7 (11)] → Cigar lighter [CL-2 (1)]
- → Remote controller illumination ON [CN-245 (9)]
- → MP3 & Radio player illumination ON [CN-27 (9)]
- → USB & Socket illumination ON [CN-246 (7)
- → Cluster illumination ON [CN-56 (12)]
- → I/conn [CN-2 (8)] → AC/Heater controller illumination ON

(2) Work lamp switch ON

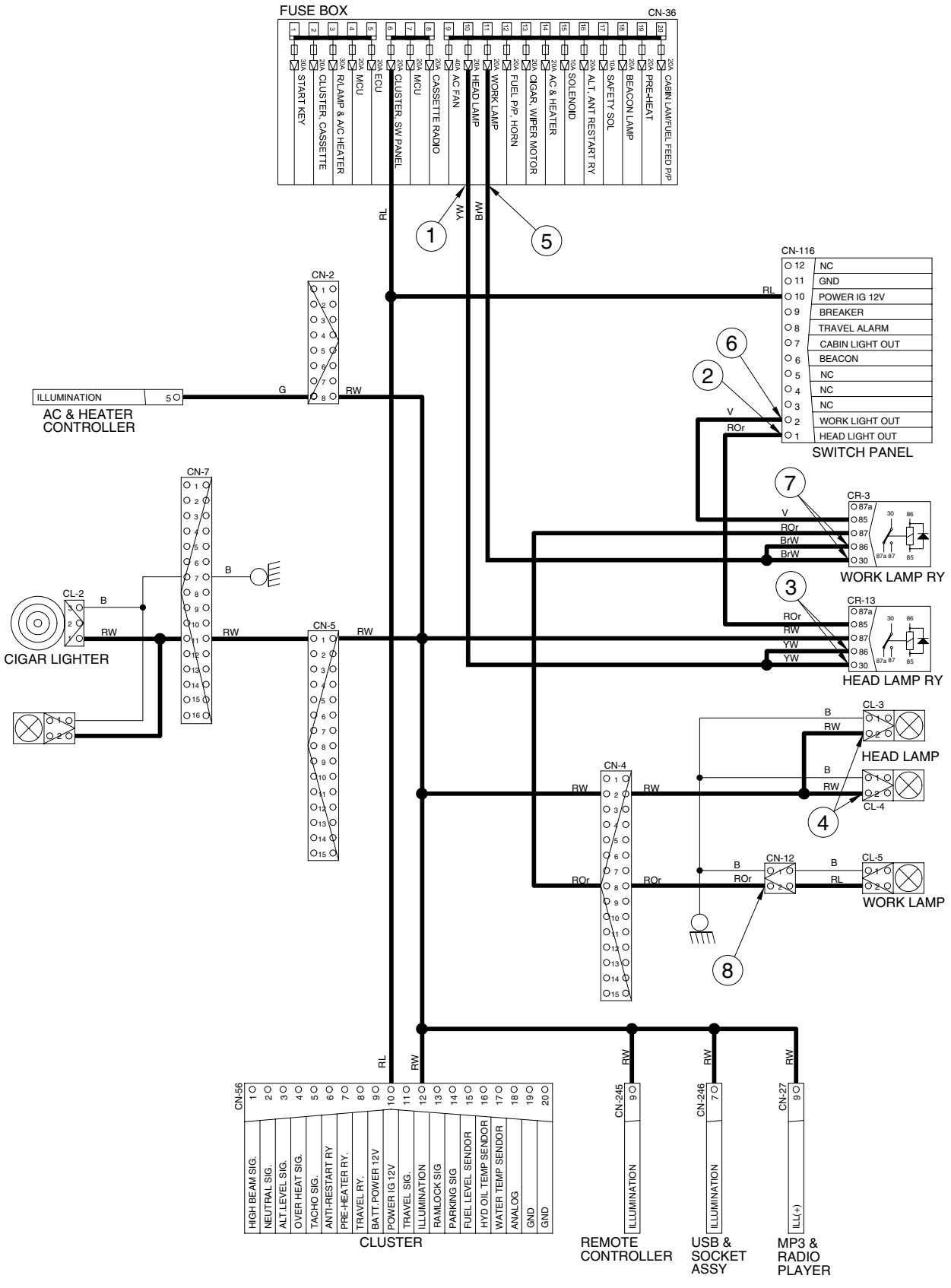
Work light switch ON [CN-116 (2)] → Work lamp [CR-3 (85) → (87)] → I/conn [CN-4 (8)]
I/conn [CN-12 (2)] → Work lamp ON [CL-5 (2)]

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)	10~12.5V
STOP	ON	⑤ - GND (fuse box) ⑥ - GND (switch power input) ⑦- GND (switch power output) ⑧ - GND (work light)	10~12.5V

※ GND : Ground

HEAD AND WORK LAMP CIRCUIT



5594EL07

5. BEACON LAMP AND CAB LAMP CIRCUIT

1) OPERATING FLOW

Fuse box (No.18) → Beacon lamp relay [CR-85(30) → (85)] → Switch panel [CN-116 (6)]
Fuse box (No.20) → Cab lamp relay [CR-9 (30) → (85)] → Switch panel [CN-116 (7)]

(1) Beacon lamp switch ON

Beacon lamp switch ON [CN-116 (6)] → Beacon lamp relay [CR-85 (87)] → I/conn [CN-6 (1)] → Beacon lamp ON [CL-7]

(2) Cab lamp switch ON

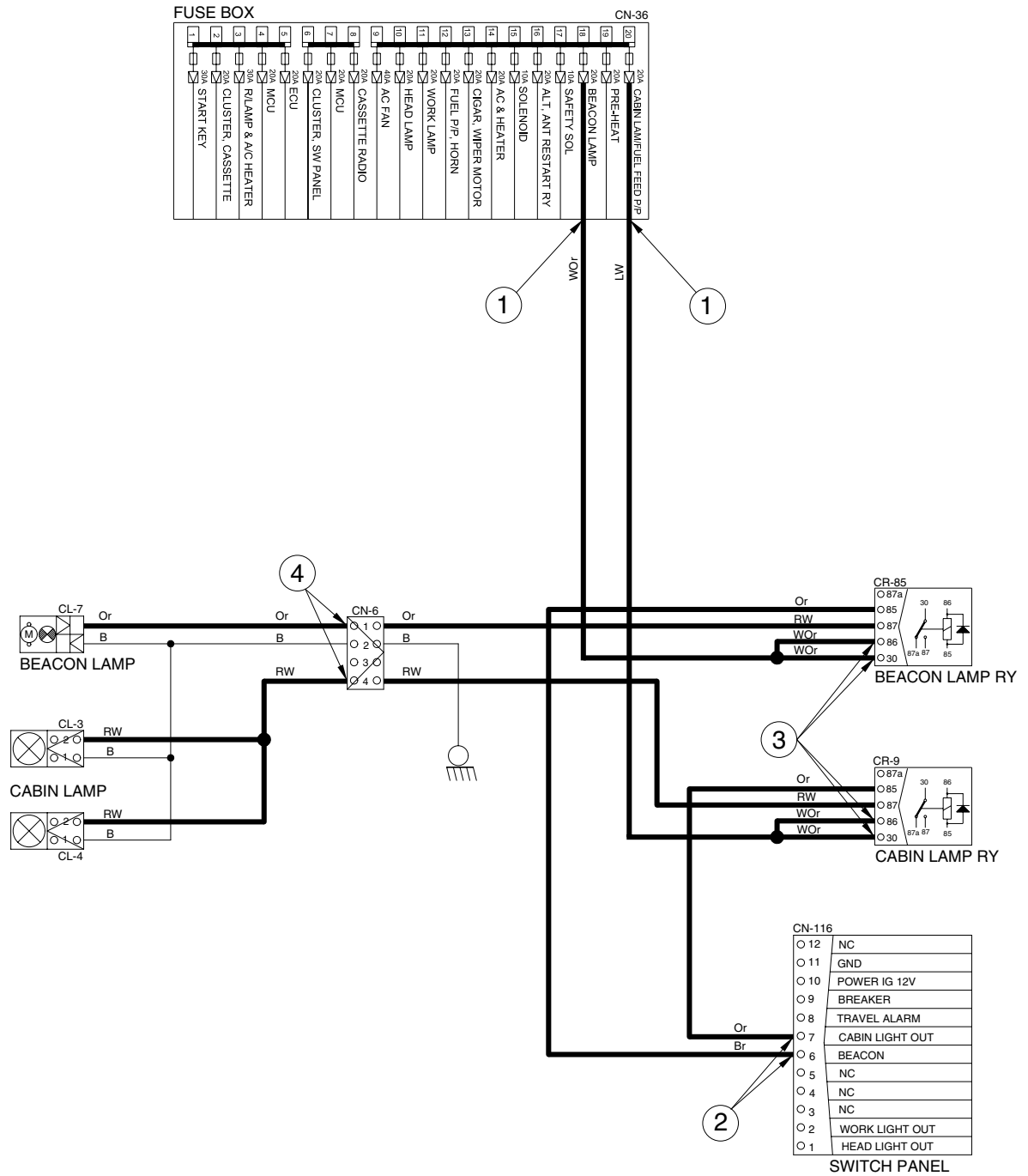
Cab lamp switch ON [CN-116 (7)] → Cab lamp relay [CR-9 (87)] → I/conn [CN-6 (4)] → Cab lamp ON [CL-3, 4]

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 & cab lamp)	10~12.5V

※ GND : Ground

BEACON LAMP CIRCUIT



5594EL08

6. WIPER AND WASHER CIRCUIT

1) OPERATING FLOW

(1) Key switch ON

Fuse box (No.13) → Wiper relay [CR-4 (86)]
→ Int wiper relay [CR-6 (4)]
→ Wiper switch [CS-3 (11)]
→ Wiper motor [CN-21 (3)]
→ I/conn [CN-5 (11)] → Washer pump [CN-22 (2)]

(2) Wipe switch ON : 1st step (low speed)

Wiper switch ON [CS-3 (8)→(7)] → Int wiper relay [CR-6 (6)→(3)] → Wiper relay [CR-4 (85)→(30)]
→ Washer motor operating [CN-21 (4)]

(3) Wiper switch ON : 2nd step (washer)

Wiper switch ON [CS-3 (7)] → Int wiper relay [CR-6 (1)] → Washer switch [CS-30 (6)]
→ Wiper relay [CR-4 (85) → (30)]
→ Wiper motor operating[CN-21(1)]

Washer switch ON [CS-30 (6)] → I/conn [CN-5 (3)] → Washer pump operating [CN-22 (1)]

(4) Auto parking (when switch OFF)

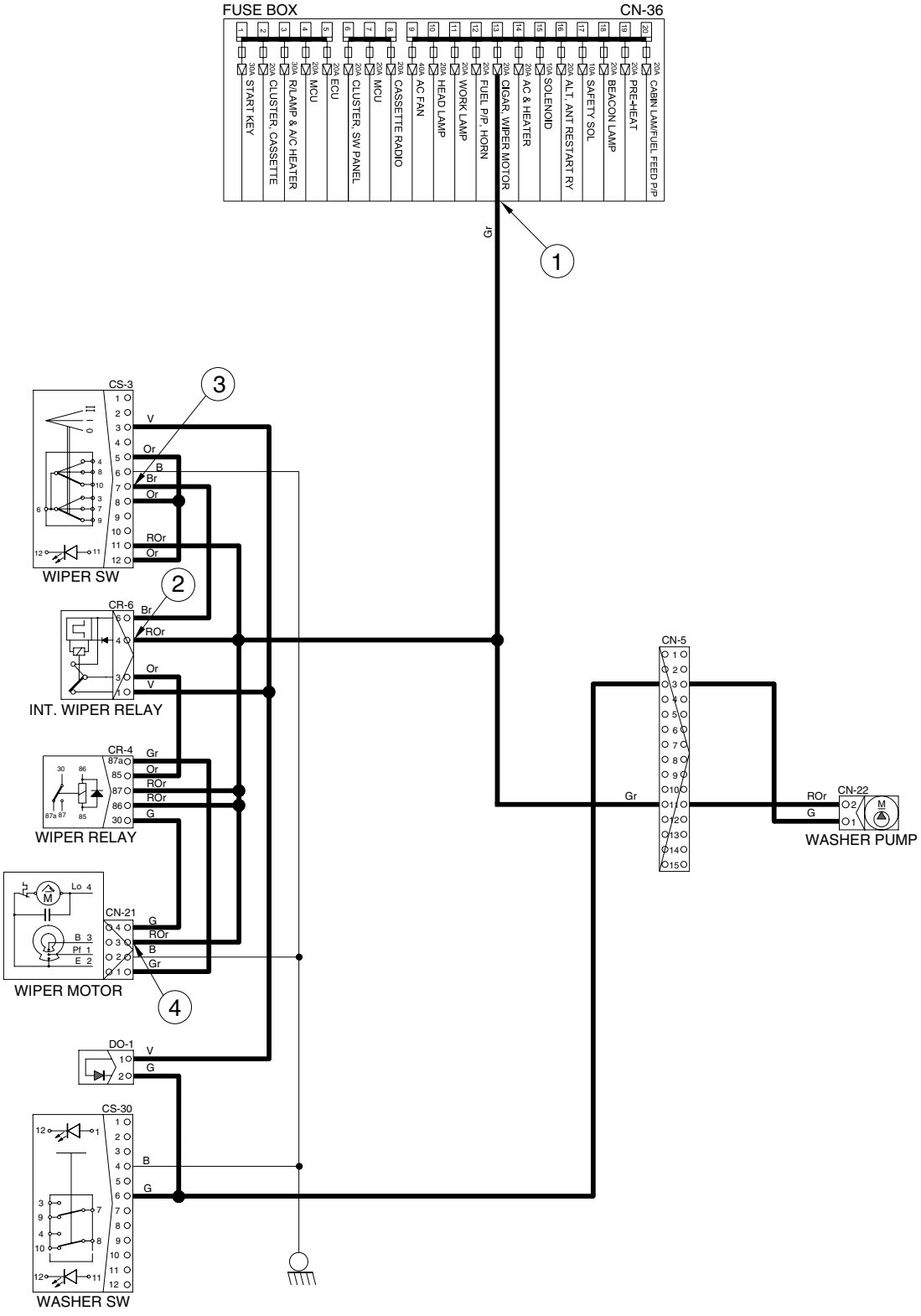
Switch OFF → Wiper motor [CN-21 (1)] → Wiper switch [CS-3 (5)→(8)] → Int wiper relay [CR-6 (6)→(3)]
→ Wiper relay [CR-4 (85) → (30)] → Wiper motor [CN-21 (4)]
→ Wiper motor parking position by wiper motor controller

2) CHECK POINT

Engine	Start switch	Check point	Voltage
STOP	ON	① - GND (fuse box) ② - GND (switch power input) ③ - GND (switch power output) ④ - GND (wiper motor)	10~12.5V

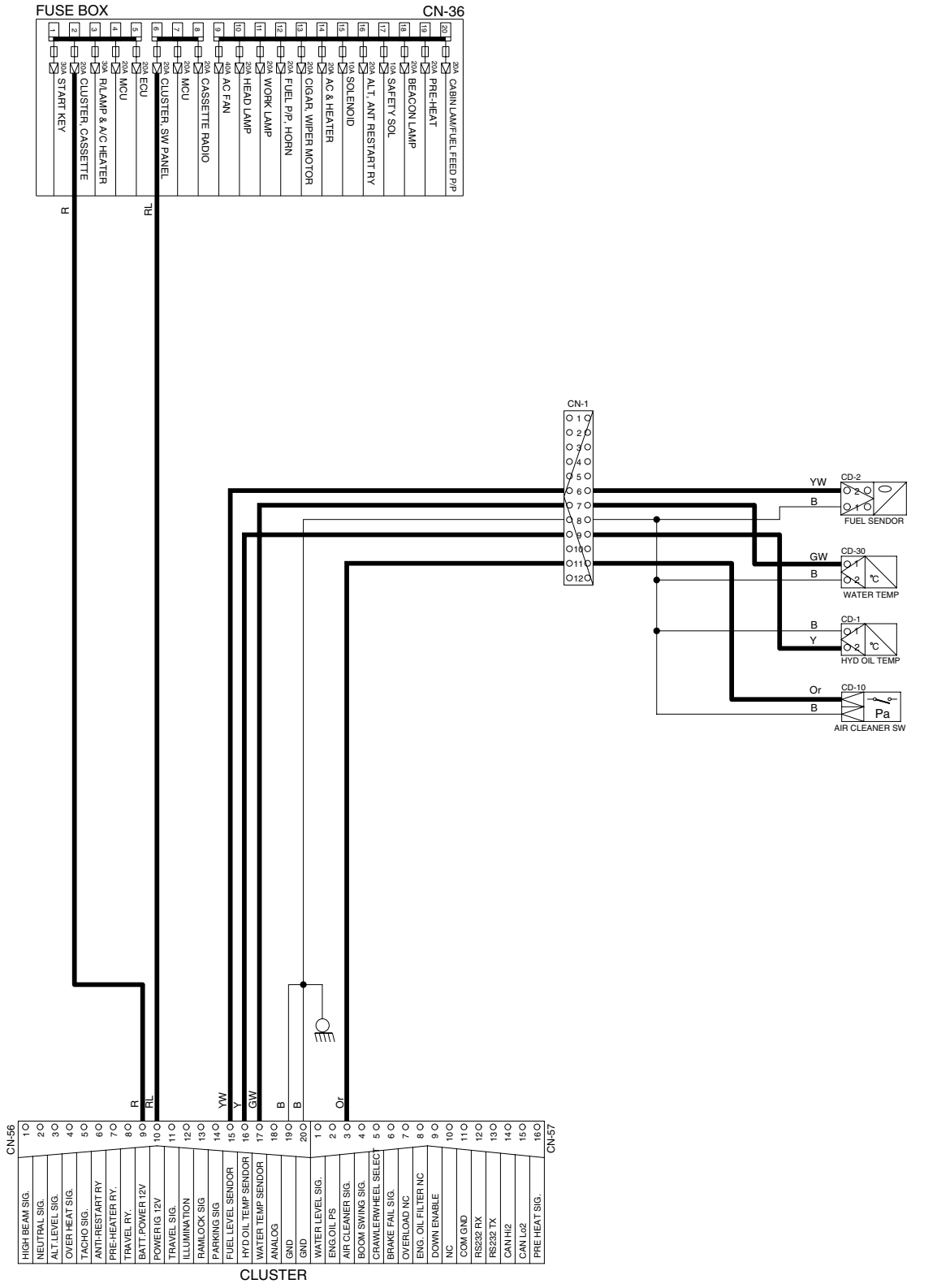
※ GND : Ground

WIPER AND WASHER CIRCUIT



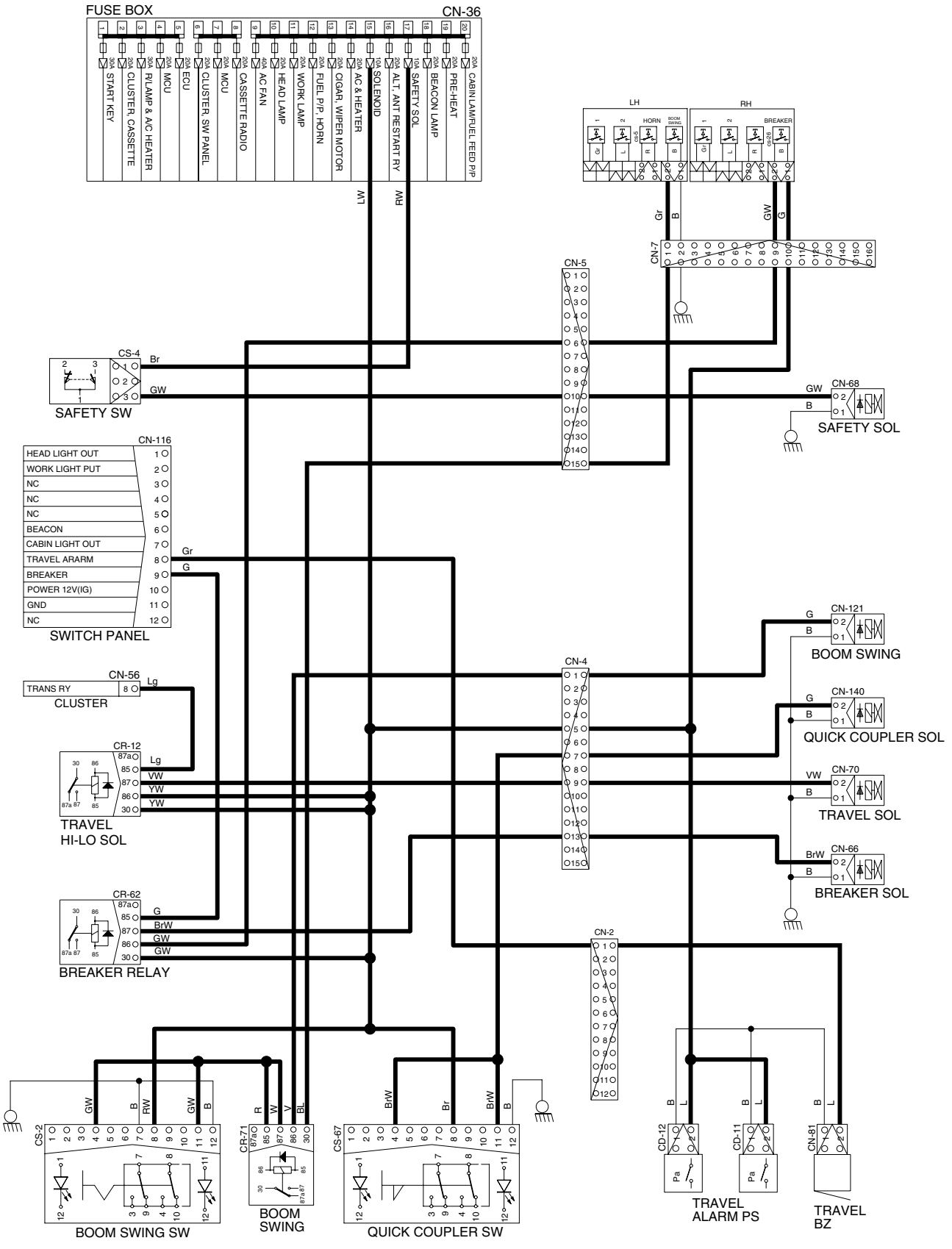
5594EL09

MONITORING CIRCUIT



5594EL10

ELECTRIC CIRCUIT FOR HYDRAULIC



5594EL11