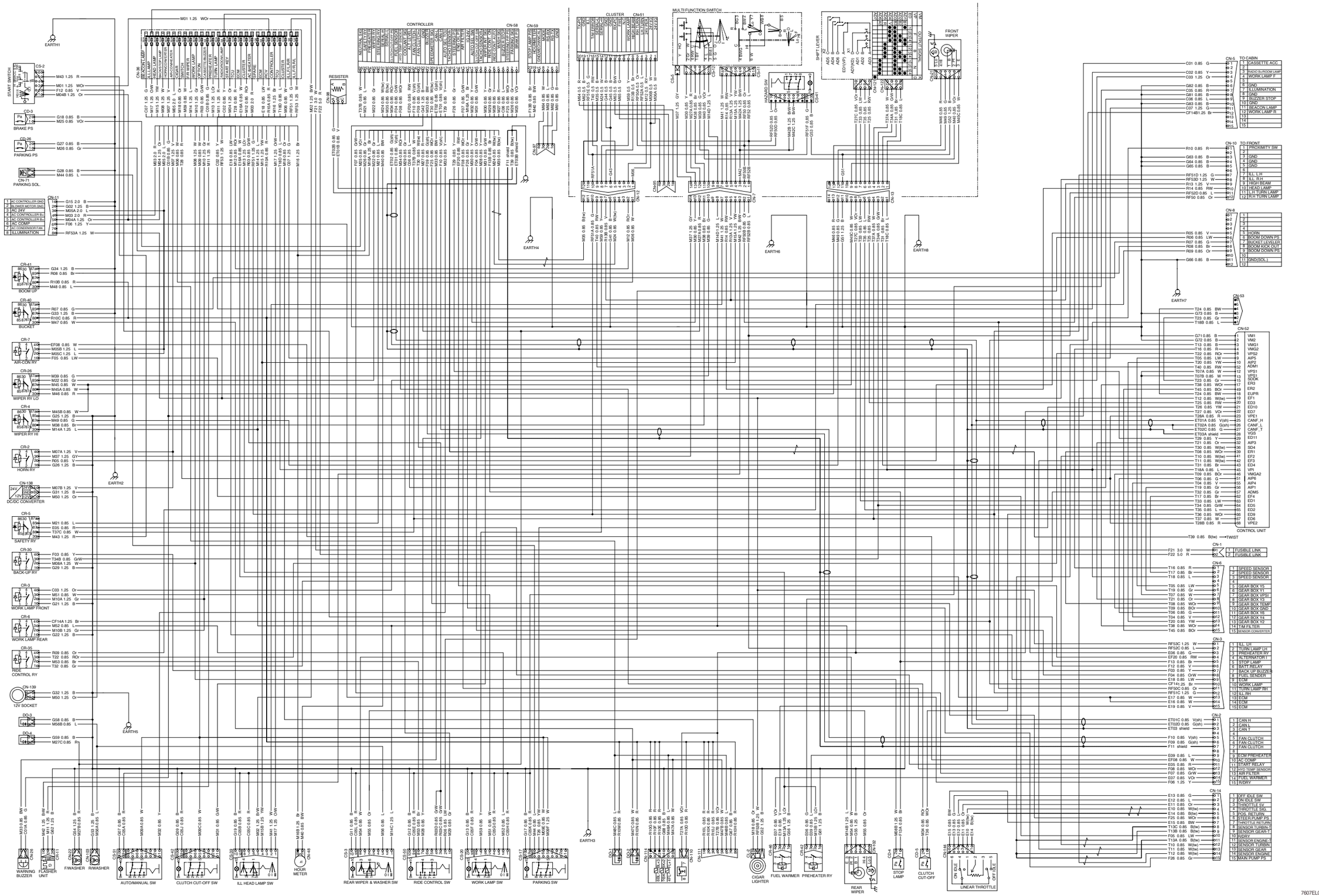
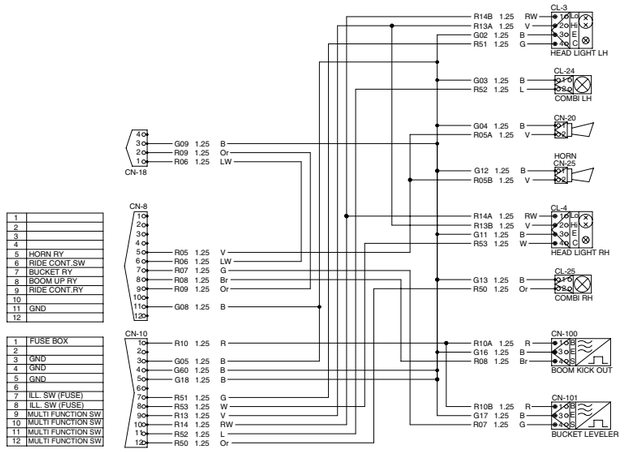
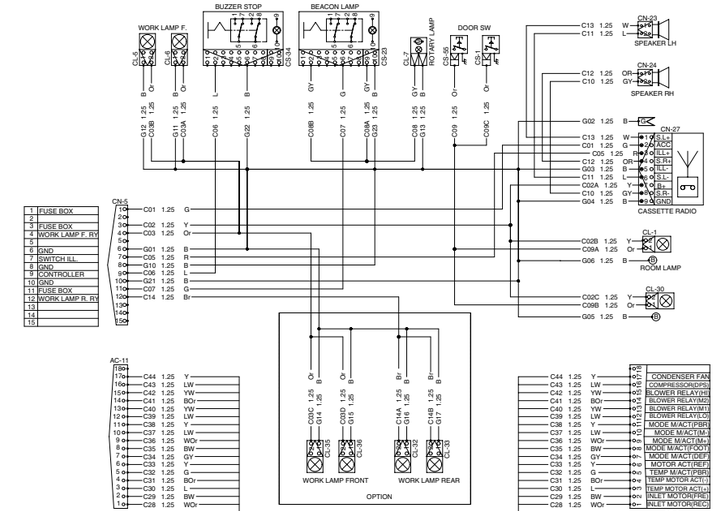
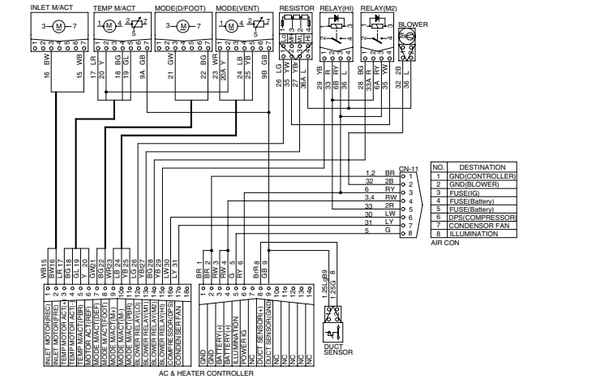

CONTROLLER
CN-58
CN-59
CLUSTER
CN-51
MULTI FUNCTION SWITCH
SHIFT LEVER
FRONT WIPER
CONTROL UNIT
CN-52
CN-1
CN-5 TO CABIN
CN-10 TO FRONT
CN-6
CN-8
CN-3
CN-2
CN-14
CN-53
CN-11
CN-12
CN-13
CN-7
CN-9
CN-138
DC/DC CONVERTER
CN-139
12V SOCKET
DO-3
DO-4
EARTH1
EARTH2
EARTH3
EARTH4
EARTH5
EARTH6
EARTH7
EARTH8
START SWITCH
BRAKE PS
PARKING PS
PARKING SOL.
RESISTER
CR-41 BOOM UP
CR-40 BUCKET
CR-7 AIR CON RY
CR-26 WIPER RY LO
CR-4 WIPER RY HI
CR-2 HORN RY
CR-5 SAFETY RY
CR-30 BACK-UP RY
CR-3 WORK LAMP FRONT
CR-6 WORK LAMP REAR
CR-35 RIDE CONTROL RY
WARNING BUZZER
FLASHER UNIT
F/WASHER
R/WASHER
AUTO/MANUAL SW
CLUTCH CUT-OFF SW
ILL HEAD LAMP SW
HOUR METER
REAR WIPER & WASHER SW
RIDE CONTROL SW
WORK LAMP SW
PARKING SW
CIGAR LIGHTER
FUEL WARMER
PREHEATER RY
REAR WIPER
STOP LAMP
CLUTCH CUT-OFF
LINEAR THROTTLE
7607EL00



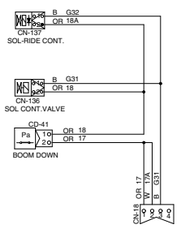
FRONT HARNESS



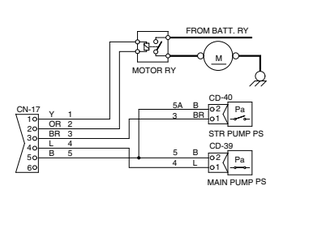
CABIN HARNESS



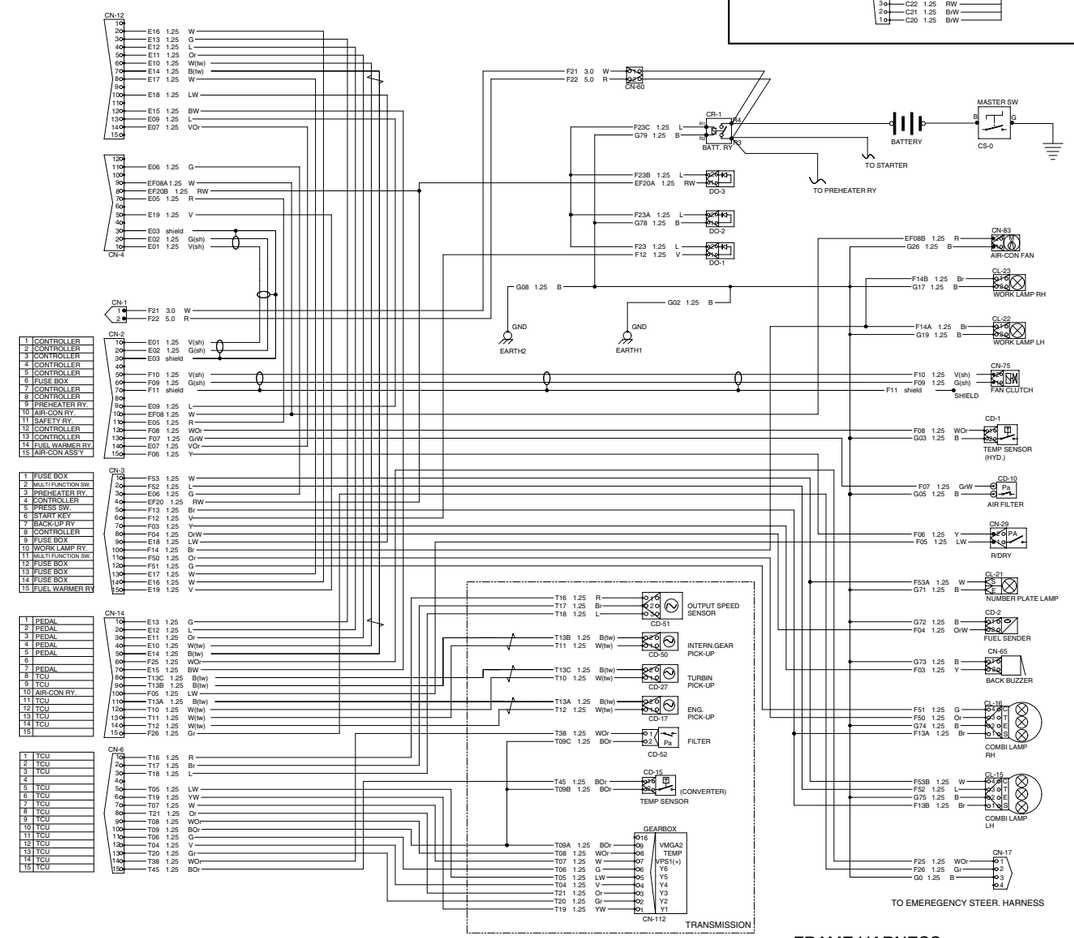
AIR-CON HARNESS



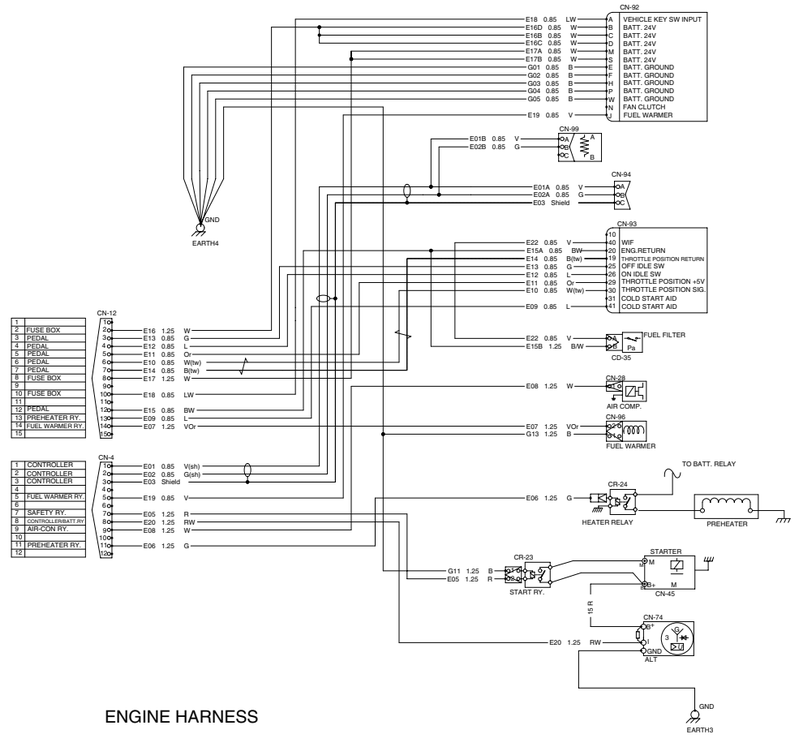
RIDE CONTROL HARNESS



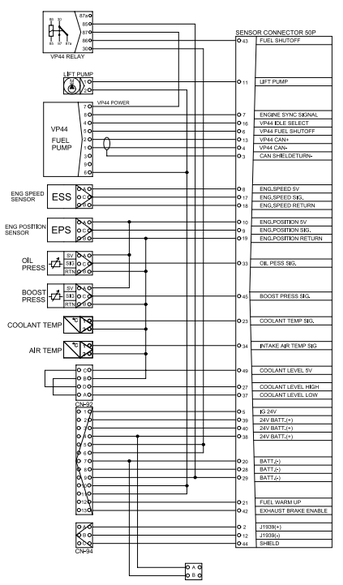
EMERGENCY HARNESS



FRAME HARNESS



ENGINE HARNESS



ENGINE(CUMMINS) HARNESS

7607EL01

1. ILLUMINATION CIRCUIT

1) OPERATING FLOW

Fuse box (No.2) → Illumination switch [CS-39(1)] → Switch ON, 1st step

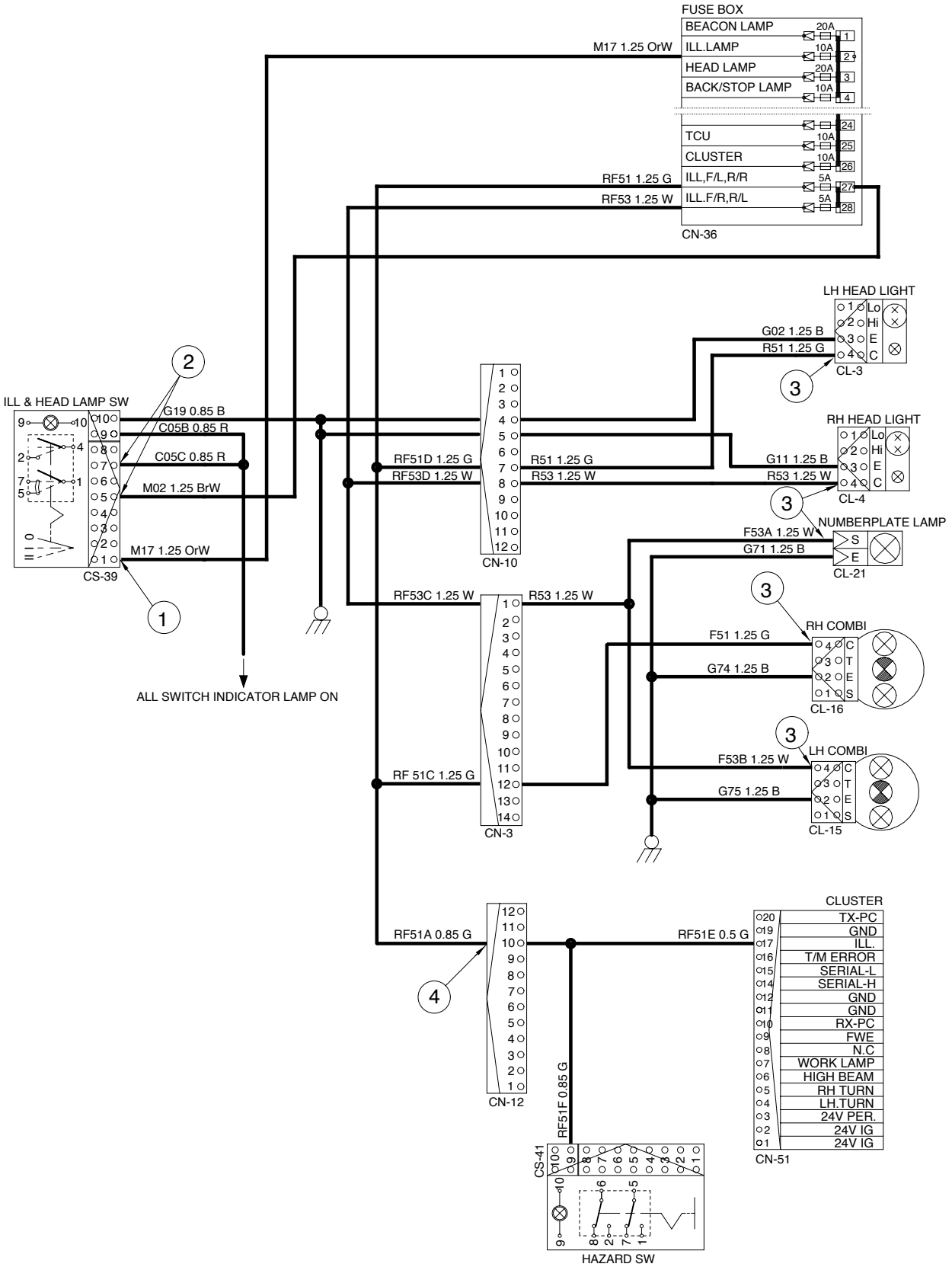
- I/conn [CS-39(7)] → All switch indicator lamp ON
- I/conn [CS-39(5)] → Fuse box(27)
  - I/conn [CN-3(12)] → RH Combi clearance lamp ON [CL-16(4)]
  - I/conn [CN-10(7)] → LH Head lamp ON [CL-3(4)]
  - I/conn [CN-12(10)] → Cluster [CN-51(17)] → All cluster gauge and LCD lamp ON
  - I/conn [CN-12(10)] → Hazard switch indicator lamp ON
- I/conn [CS-39(5)] → Fuse box(28)
  - I/conn [CN-3(1) → Number plate lamp ON [CL-21(S)]
  - I/conn [CN-3(1) → LH Combi clearance lamp ON [CL-15(4)]
  - I/conn [CN-10(8)] → RH Head lamp ON [CL-4(4)]

2) CHECK POINT

Engine	Key switch	Check point	Voltage
OFF	ON	① - GND (Switch input) ② - GND (Switch output) ③ - GND (To light) ④ - GND (To cluster)	20~25V

※ GND : Ground

ILLUMINATION CIRCUIT



2. HEAD LIGHT CIRCUIT

1) OPERATING FLOW

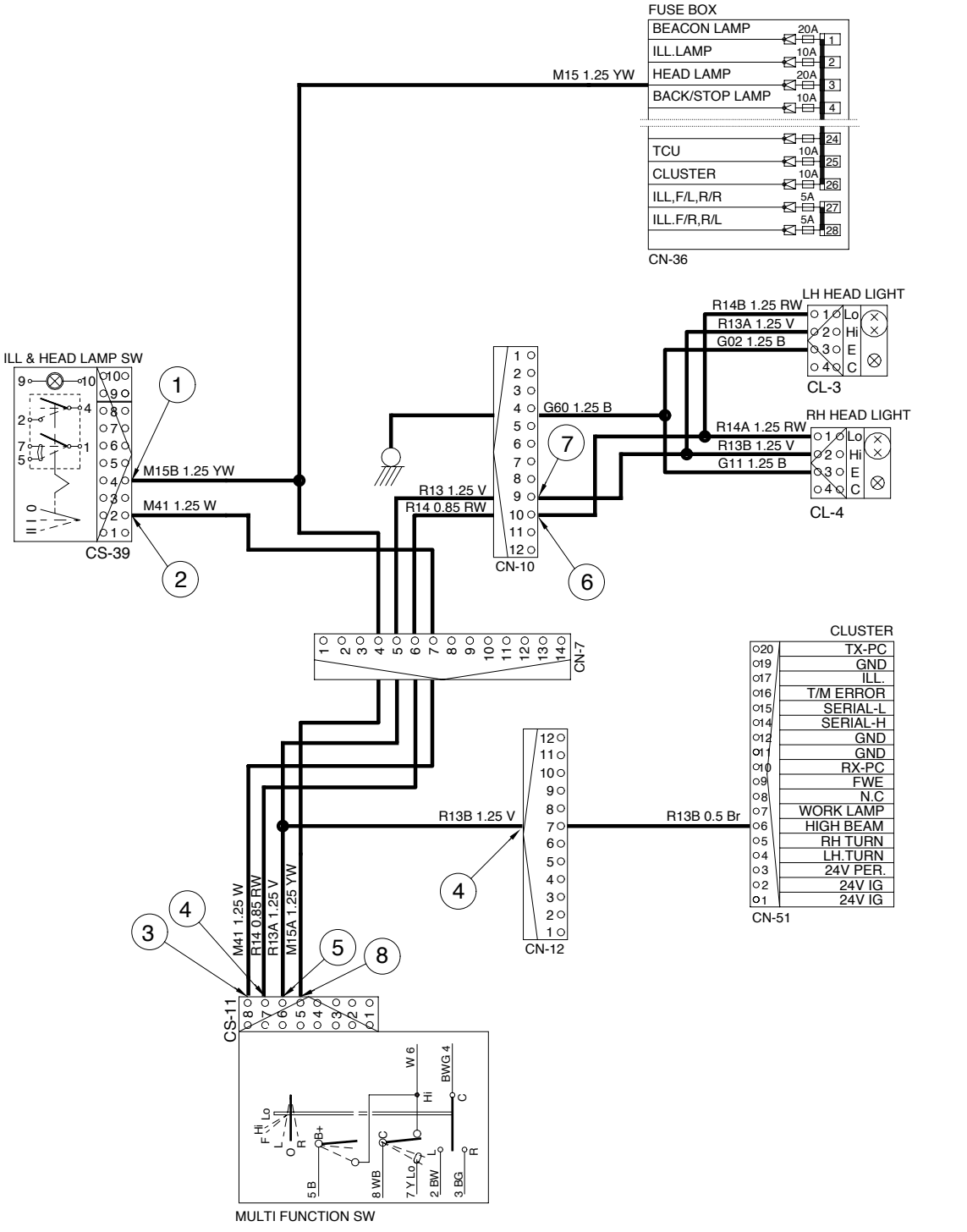
Fuse box(No.3) → Head light switch [CS-39(4)] → Light switch ON, 2nd step [CS-39(2)]
→ I/conn [CN-7(7)] → Multi function switch [CS-11(8)]
→ Multi function switch MIDDLE [CS-11(7)] → I/conn [CN-7(6)] → I/conn [CN-10(10)]
→ LH Head light low beam ON [CL-3(1)]
→ RH Head light low beam ON [CL-4(1)]
→ Multi function switch DOWN [CS-11(6)] → I/conn [CN-7(5)] → I/conn [CN-10(9)]
→ LH Head light high beam ON [CL-3(2)]
→ RH Head light high beam ON [CL-4(2)]
→ I/conn [CN-12(7)]
→ Cluster high beam pilot lamp ON [CN-51(6)]

2) CHECK POINT

Engine	Key switch	Check point	Voltage
OFF	ON	① - GND (Switch input) ② - GND (Switch output) ③ - GND (Multi function input) ④ - GND (Multi function output) ⑤ - GND (Multi function output) ⑥ - GND (Low beam) ⑦ - GND (High beam) ⑧ - GND (Passing B^+)	20~25V

※ GND : Ground

HEAD LIGHT CIRCUIT



7707EL04

3. WORK LIGHT SWITCH

1) OPERATING FLOW

※ Illumination switch : ON position

(1) Work lamp switch ON (1st step)

ILL & head lamp switch [CS-39(7)] →

→ Work lamp switch[CS-20(1)] → (5) → Front work lamp relay[CR-3(2)→(4)] → I/conn[CN-5(4)] →
- → LH Front work lamp ON[CN-6(2)]
- → RH Front work lamp ON[CN-5(2)]

(7) → I/conn[CN-12(8)] → Cluster[CN-51(7)] → Work light pilot lamp ON

→ Work lamp switch[CS-20(9)] → Work lamp switch indicator lamp ON

(2) Work lamp switch (2nd step)

Work lamp switch [CS-20(4)→(2)] → Rear work lamp relay [CR-6(2)→(4)] →

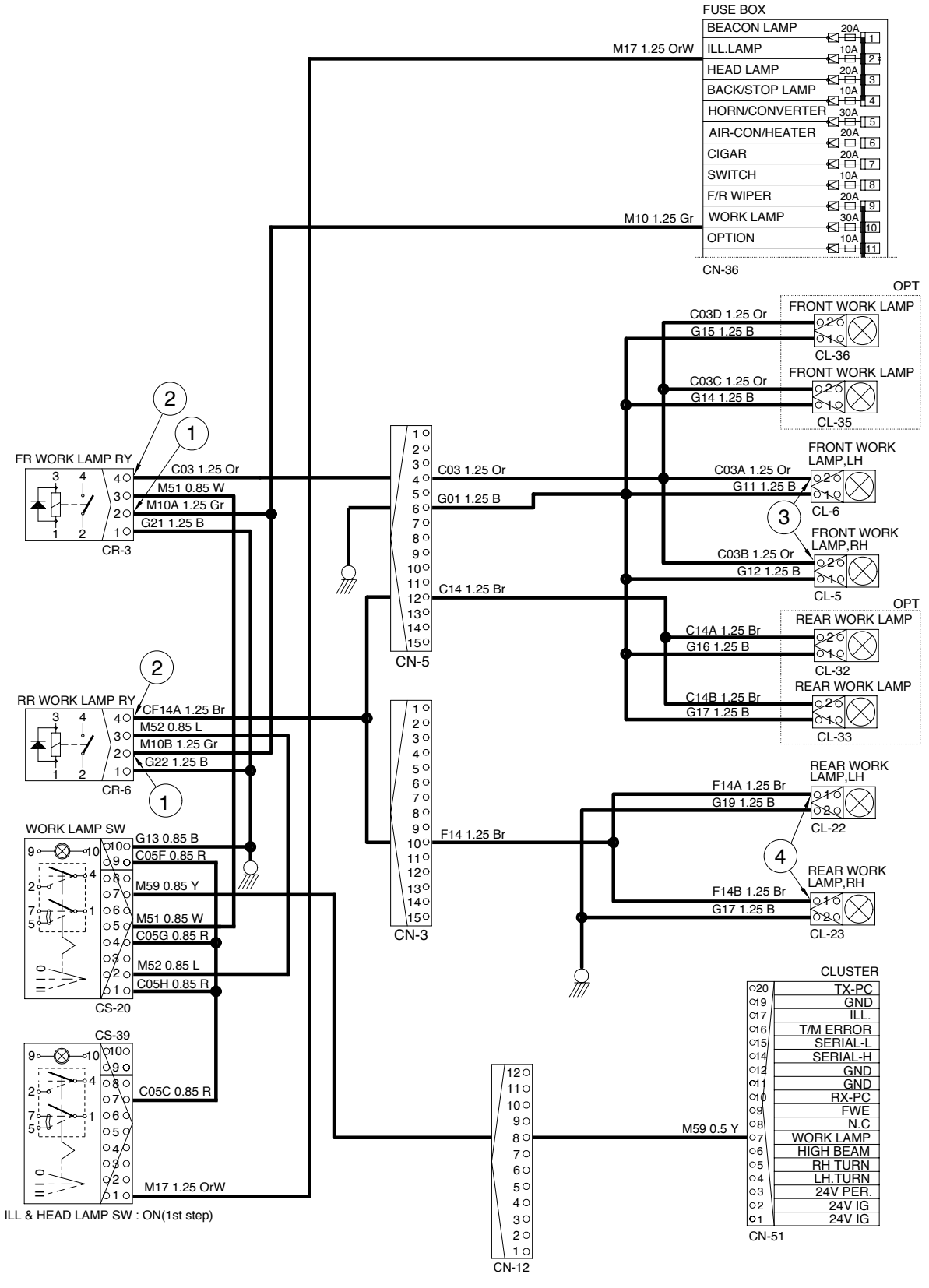
I/conn [CN-3(10)]
- → LH Rear work lamp ON [CL-22(1)]
- → RH Rear work lamp ON [CL-23(1)]

2) CHECK POINT

Engine	Key switch	Check point	Voltage
OFF	ON	① - GND (Work lamp power input) ② - GND (Work lamp power output) ③ - GND (Front work lamp) ④ - GND (Rear work lamp)	20~25V

※ GND : Ground

WORK LIGHT SWITCH



4. STARTING CIRCUIT

1) OPERATING FLOW

Battery(+) terminal → Battery relay(R4 terminal) → Fusible link [CN-60(1)]
→ I/conn [CN-1(1)] → Fuse box (No.15) → Start switch [CS-2(1)]

※ The gear selector lever is neutral position. It is necessary condition before the starting.
The gear selector has an output signal which is activated whenever the shift lever is in the neutral position. This signal can be used to control a relay and prevent engine from starting whenever the shift lever is not in the neutral position.

(1) When start key switch is in ON position

Start switch ON → Start switch [CS-2(2)] → I/conn [CN-3(6)] → Battery relay [CR-1]
→ Battery relay operating(All power is supplied with the electric component)
→ Start switch [CS-2(3)] → Fuse box [No.23] → Fuse box (No.22) →
I/conn [CN-3(9)] → I/conn [CN-12(10)] → ECM[CN-92(A)]

(2) When start key switch is in START position

Start switch START [CS-2(5)] → Start safety relay [CR-5(30)] → Start safety relay [CR-5(87)]
→ I/conn [CN-2(11)] → [CN-4(7)] → Start relay [CR-23(2)] →
Starter(Terminal B^+ and M connector of start motor)

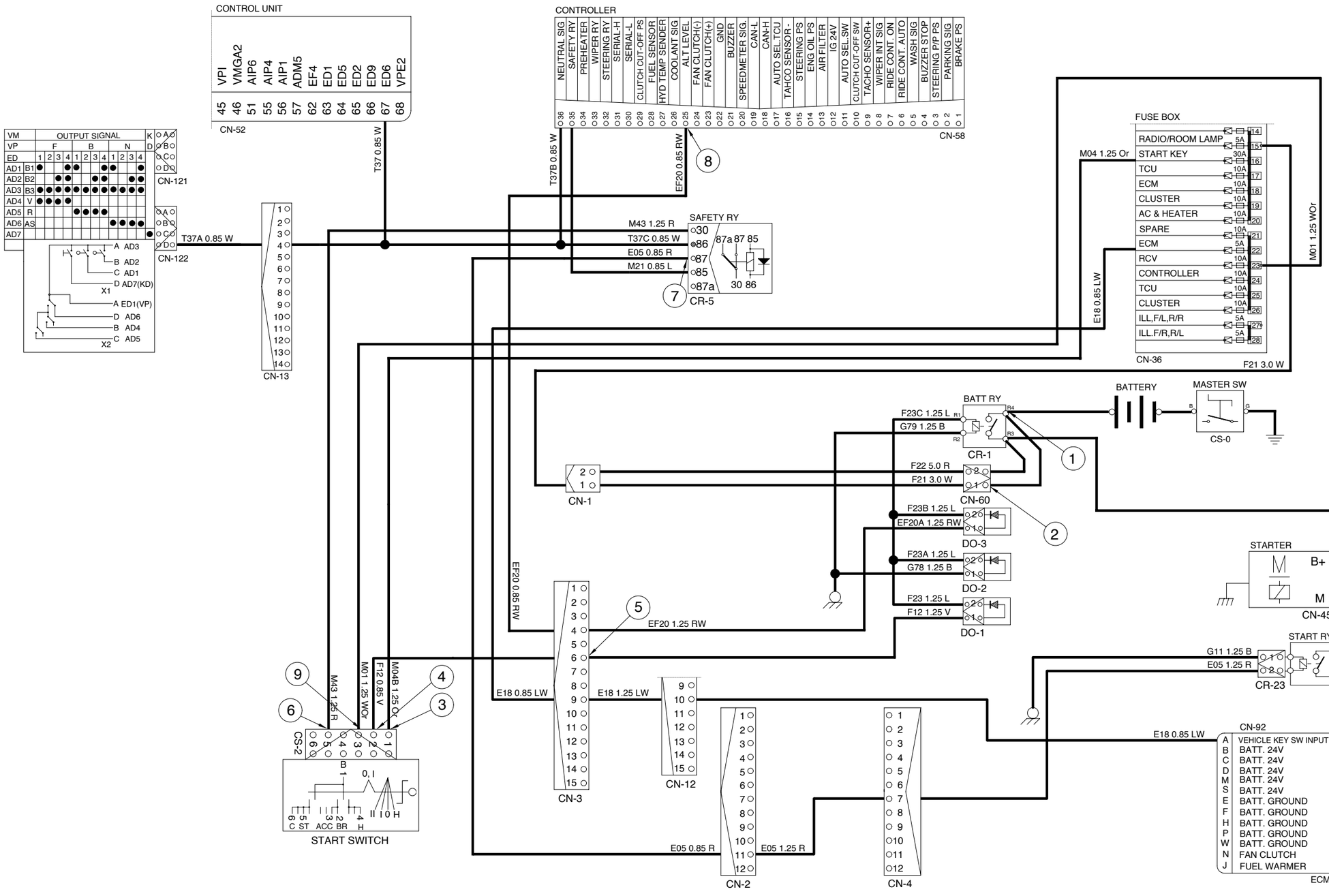
2) CHECK POINT

Engine	Key switch	Check point	Voltage
Running	ON	① - GND (Battery B^+) ② - GND (Fusible link) ③ - GND (Start key B terminal) ④ - GND (Start key BR terminal) ⑤ - GND (I/conn CN-3(6)) ⑥ - GND (Start key ST terminal) ⑦ - GND (Start safety relay output) ⑧ - GND (Controller) ⑨ - GND (Start key ACC terminal)	20~25V

※ GND : Ground

※ ECM : Electronic control module

STARTING CIRCUIT



7607EL06

5. 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

Altermator [CN-74(I)] → I/conn [CN-4(8)] → I/conn [CN-3(4)] → Controller [CN-58(25)]
→ Cluster charge warning lamp ON

(2) Charging flow

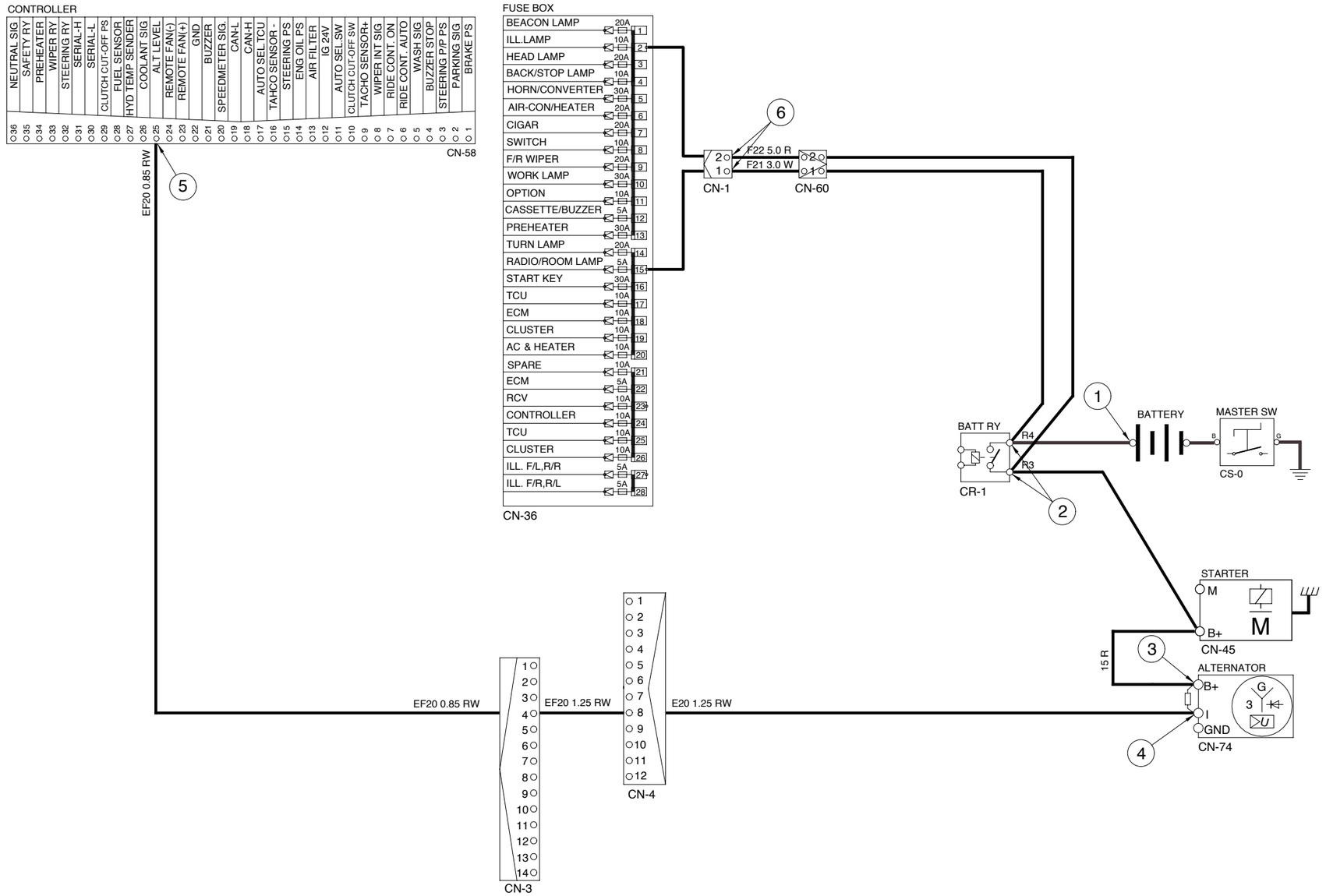
Alternator → Starter [CN-45(B^+)] → Battery relay [CR-1]
→ Battery(+) terminal → Charging
→ I/conn [CN-60(1),(2)] → I/conn [CN-1(1),(2)] → Fuse box

2) CHECK POINT

Engine	Key switch	Check point	Voltage
Running	ON	① - GND (Battery) ② - GND (Battery relay) ③ - GND (ALT B^+) ④ - GND (ALT I) ⑤ - GND (Controller) ⑥ - GND (Fuse box)	20~28V

※ GND : Ground

CHARGING CIRCUIT



7707EL07

6. ELECTRIC PARKING, DECLUTCH CIRCUIT

1) OPERATING FLOW

(1) Parking OFF

Fuse box (No.8) → Parking switch OFF [CS-17(6)隊(8)] → Parking solenoid ON (Activated) → Parking brake released (By hydraulic pressure)

(2) Parking ON

Fuse box (No.8) → Parking switch ON → Parking solenoid [CN-71] OFF → Parking brake applied [By spring force]

Parking switch ON → [CS-17(5)隊(7)] → T/M control unit [CN-52(21)] → T/M declutch

(3) Declutch ON

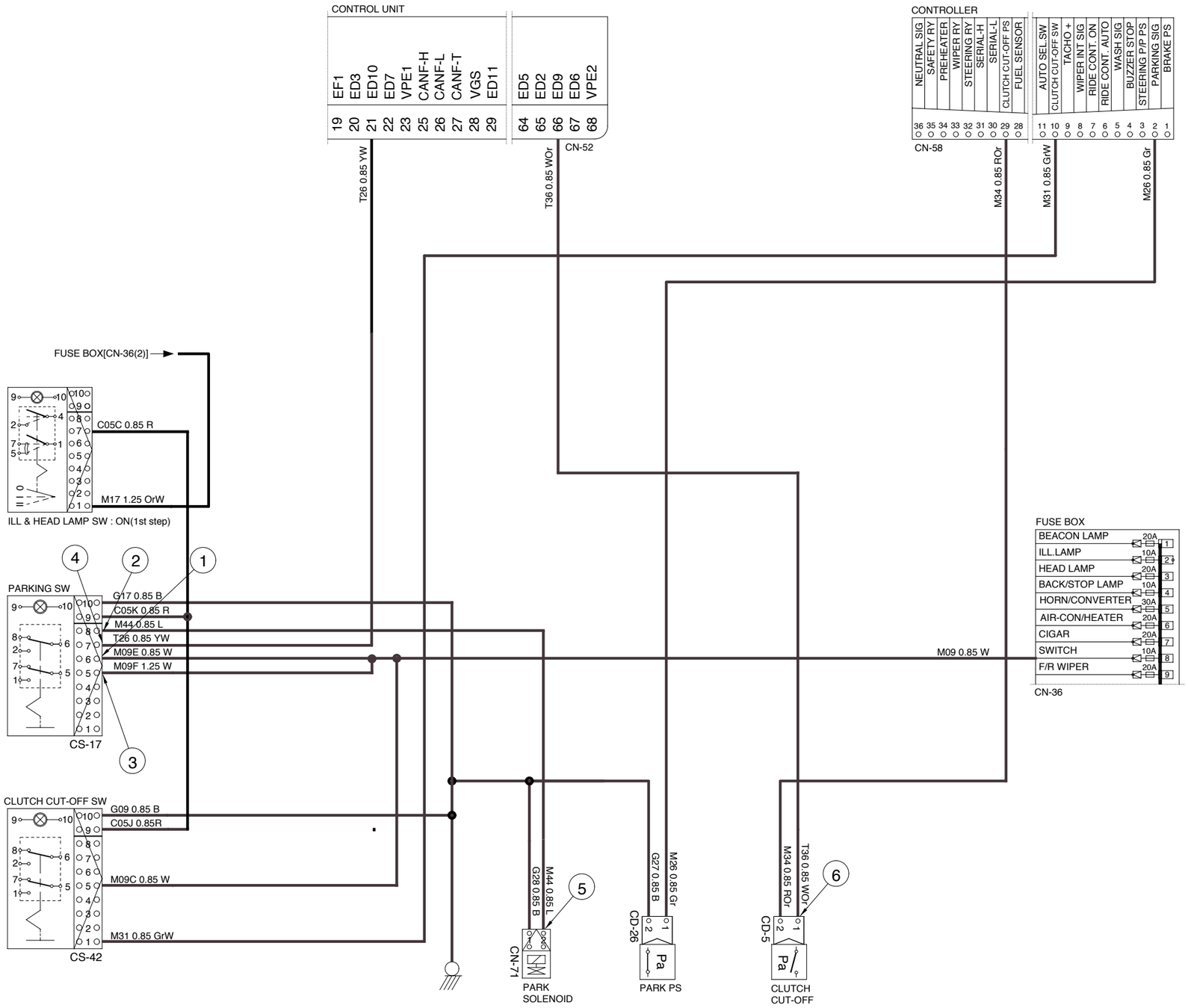
Fuse box (No.8) → Clutch cut-off switch ON → Clutch cut-off switch [CS-42(5) 隊(1)] → → Controller [CN-58(10)隊(29)] → Service brake applied → Service brake pressure switch ON [CD-5] → T/M control unit [CN-52(66)] → Declutch

2) CHECK POINT

Engine	Key switch	Check point	Voltage
Running	ON	① - GND (Parking switch input) ② - GND (Parking switch output) ③ - GND (Parking switch input) ④ - GND (Parking switch output) ⑤ - GND (Parking solenoid) ⑥ - GND (Pressure switch clutch cut-off)	20~25V

※ GND : Ground

ELECTRIC PARKING, DECLUTCH CIRCUIT



7607EL08

7. WIPER AND WASHER CIRCUIT

1) OPERATING FLOW

Fuse box (No.9) → Wiper relay [CR-4(30)隊(87a)] → I/conn [CN-13(9)] → Front wiper motor [CN-21(1)]
Wiper relay [CR-4(30)隊(87a)] → Wiper relay Lo [CR-26(86), (87)]
Fuse box (No.9) → I/conn [CN-7(8)] → Multi function switch [CS-12(6)]
Fuse box (No.9) → Rear wiper & washer switch [CS-3(1)]
Fuse box (No.9) → Rear wiper motor [CN-102(1)]

(1) Front washer switch ON

① Washer switch ON [CS-12(6)隊(2)] → Washer tank [CN-22(2)] → Washer operating
Washer switch ON [CS-12(6)隊(2)] → Controller [CN-58(5)隊(33)] → Front wiper relay Lo [CR-26(87)隊(30)] → I/conn [CN-13(13)] → Front wiper motor [CN-21(5)] → Wiper motor operating(Low)

(2) Front wiper switch ON

① **INT position**

Wiper switch ON [CS-12(6)隊(1)] → I/conn [CN-7(13)] → Controller [CN-58(8)隊(33)] → Wiper relay Lo [CR-26(87)隊(30)] → I/conn [CN-13(13)] → Front wiper motor [CN-21(5)] → Front wiper motor intermittently operating

② **Lo position**

Wiper switch ON [CS-12(6)隊(4)] → Wiper relay Lo [CR-26(87a)隊(30)] → I/conn [CN-13(13)] → Front wiper motor [CN-21(5)] → Front wiper motor operating (Low)

③ **Hi position**

Wiper switch ON [CS-12(6)隊(3)] → Wiper relay Hi [CR-4(30)隊(87)] → I/conn [CN-13(12)] → Front wiper motor [CN-21(4)] → Front wiper motor operating(High)

(3) Auto-parking(When switch OFF)

Switch OFF → Fuse box (No.9) → Wiper relay Hi [CR-4(30)隊(87a)] → I/conn [CN-13(9)] → Front wiper motor [CN-21(1)隊(2)] → Multi function switch [CS-12(5)隊(4)] → Wiper relay Lo [CR-26(87a)隊(30)] → I/conn [CN-13(13)] → Front wiper motor [CN-21(5)] → Wiper motor stop

(4) Rear wiper and washer switch

① **Wiper switch ON**(1st step)

Wiper switch ON [CS-3(1)隊(6)] → Rear wiper motor [CN-102(5)] → Rear wiper motor operating

② **Washer switch ON**(2nd step)

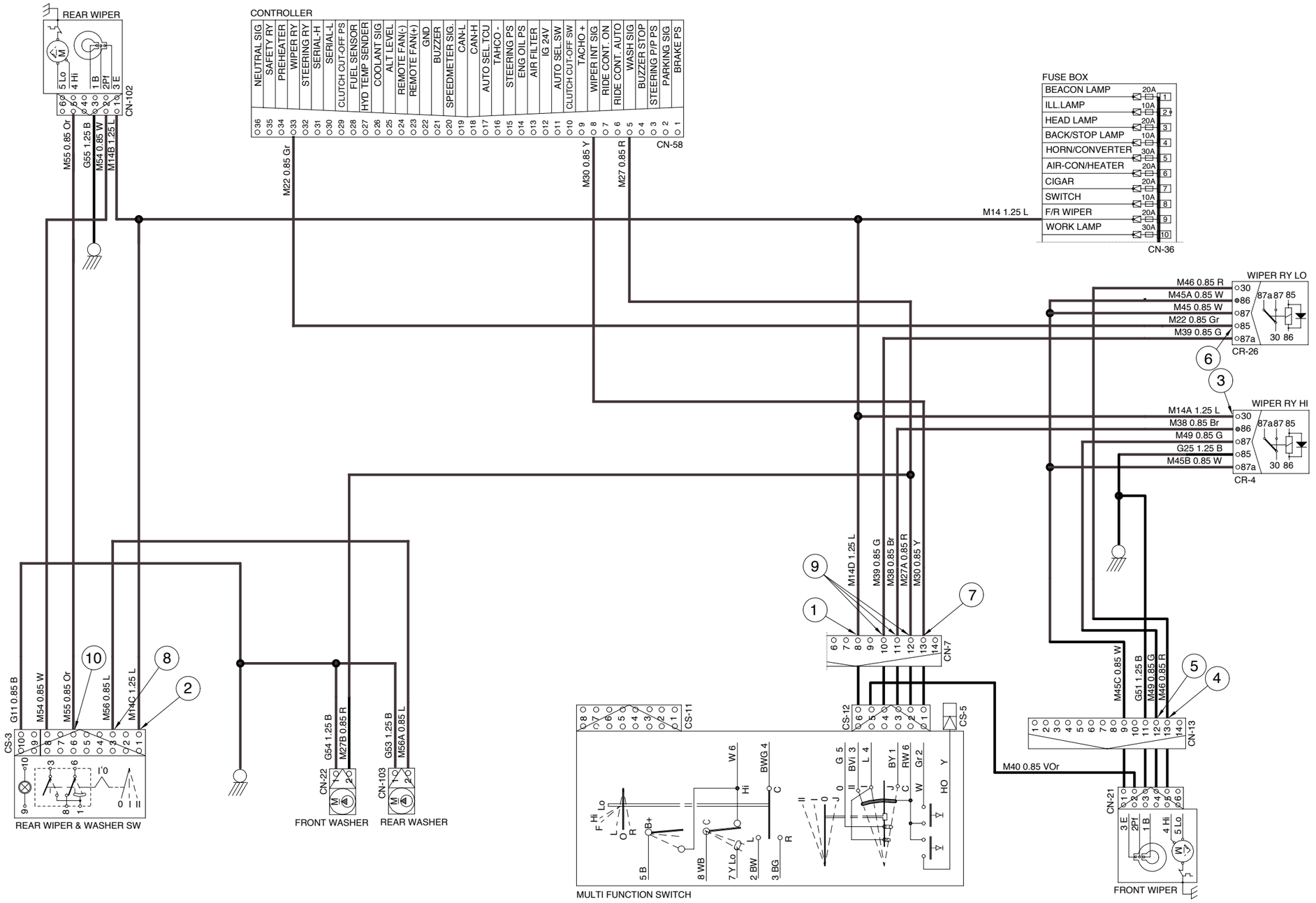
Washer switch ON [CS-3(1)隊(3)] → Rear washer tank [CN-103(2)] → Washer operating

2) CHECK POINT

Engine	Key switch	Check point	Voltage
Stop	ON	① - GND (Front wiper switch power input) ② - GND (Rear wiper switch power input) ③ - GND (Wiper relay power input) ④ - GND (Front wiper motor Lo power input) ⑤ - GND (Front wiper motor High power input) ⑥ - GND (Wiper relay power input) ⑦ - GND (Front washer power output) ⑧ - GND (Rear washer power output) ⑨ - GND (Front wiper motor power output) ⑩ - GND (Rear wiper motor power output)	20~25V

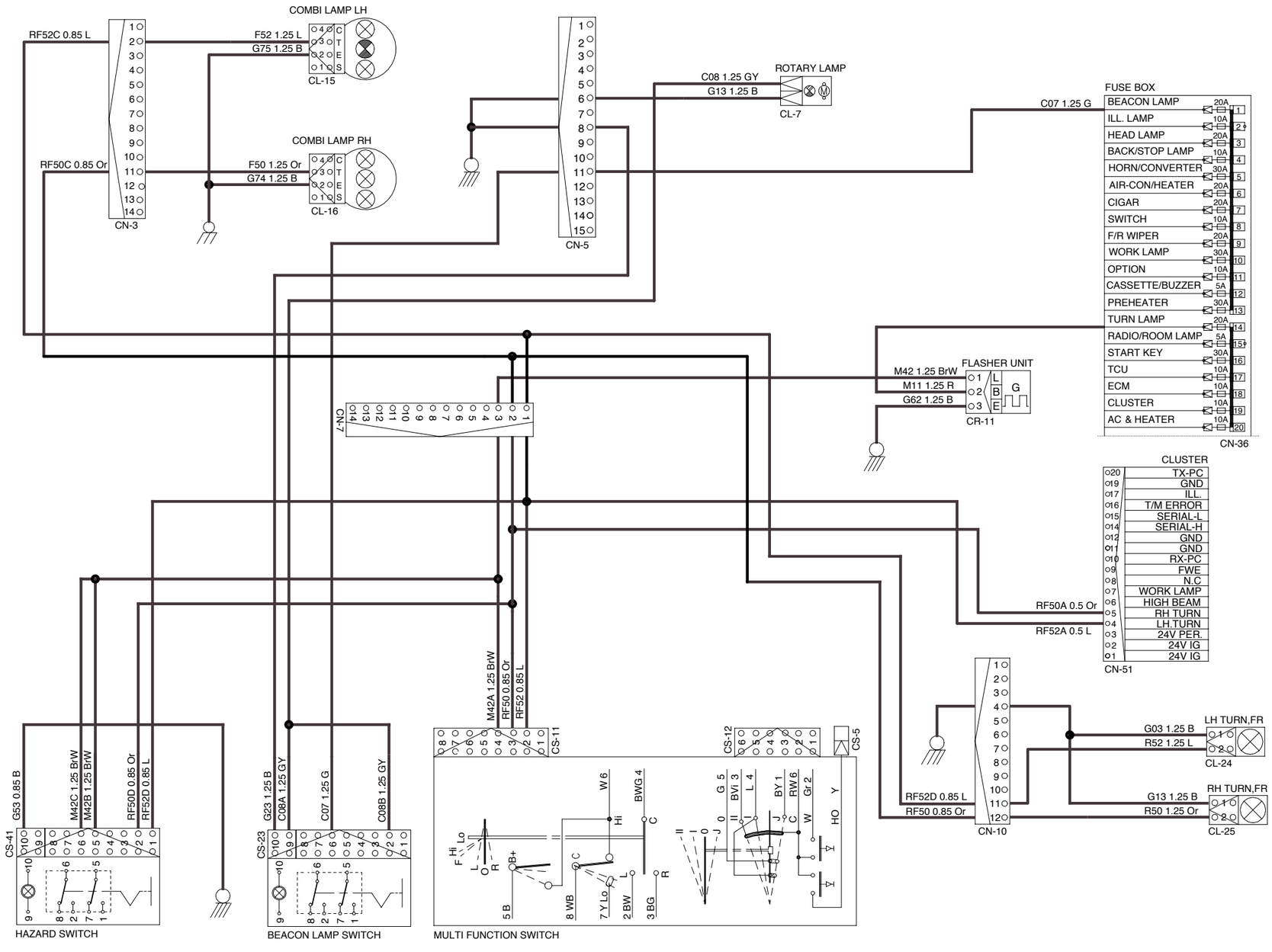
※ GND : Ground

WIPER AND WASHER CIRCUIT



7607EL09

HAZARD, TURN AND ROTARY CIRCUIT



7607EL11