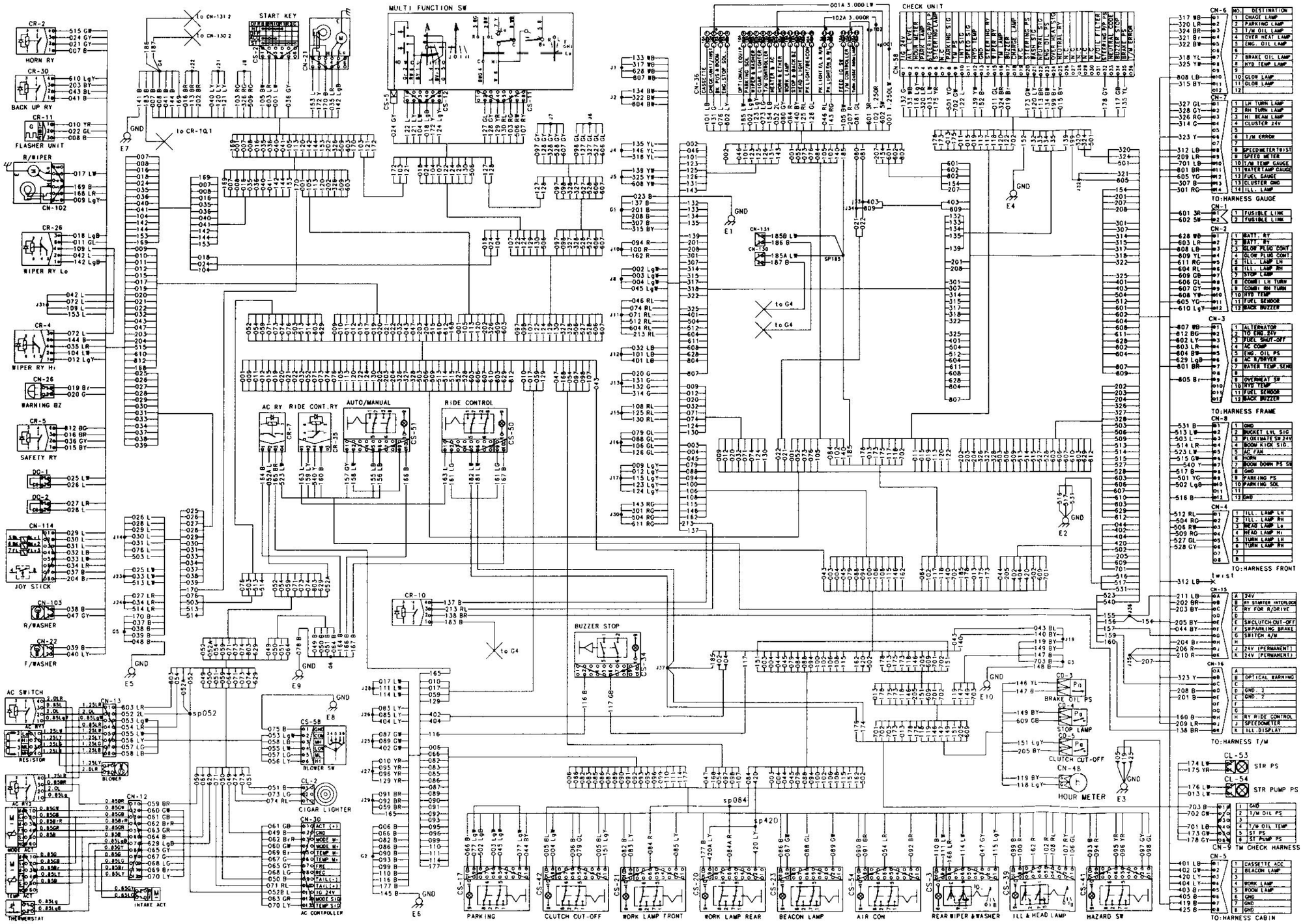
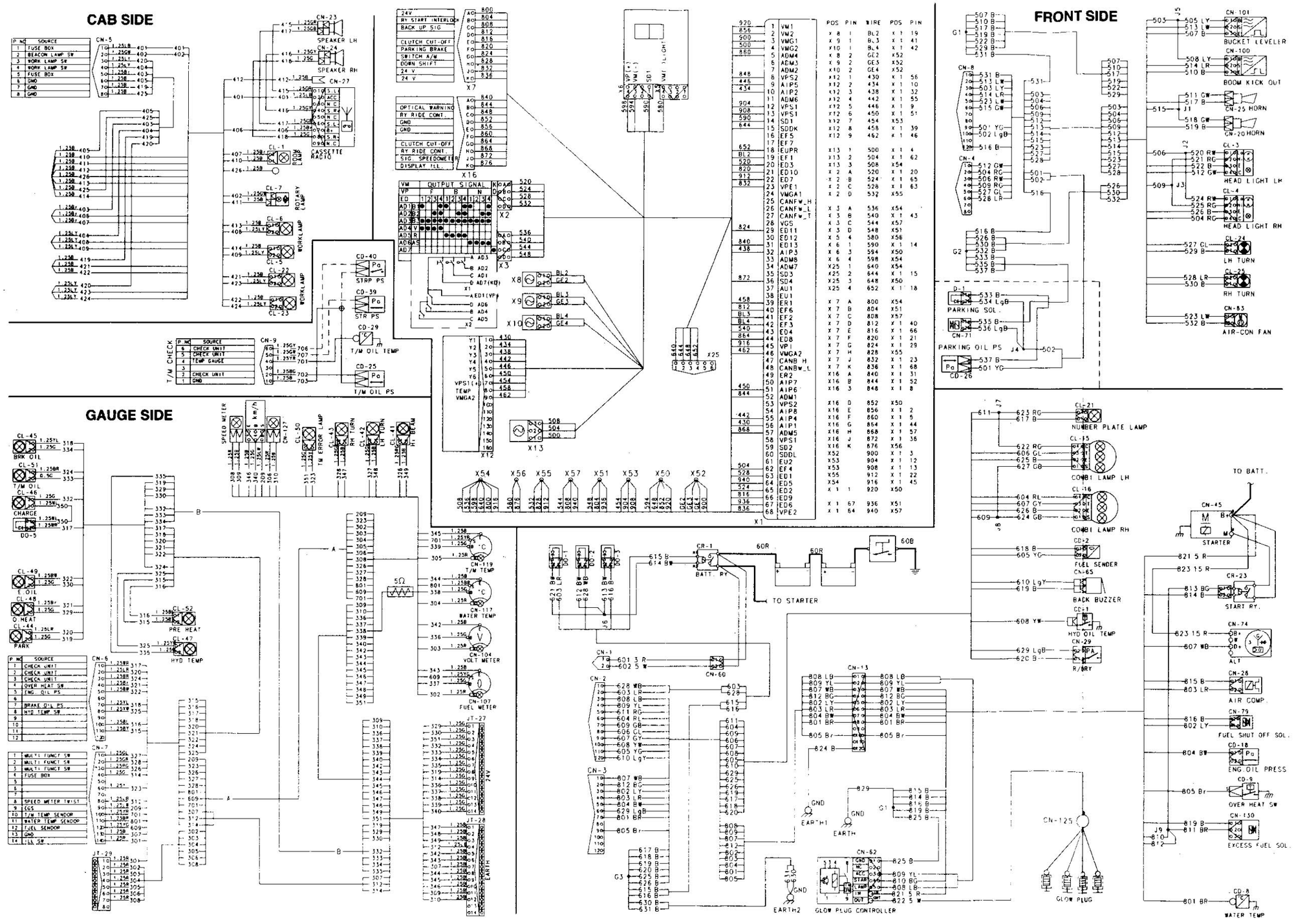

MULTI FUNCTION SW
START KEY
CHECK UNIT
CR-2
HORN RY
CR-30
BACK UP RY
CR-11
FLASHER UNIT
R/WIPER
CN-102
CR-26
WIPER RY Lo
CR-4
WIPER RY Hi
CN-26
WARNING BZ
CR-5
SAFETY RY
DO-1
DO-2
CN-114
JOY STICK
CN-103
R/WASHER
CN-22
F/WASHER
AC RY
RIDE CONT.RY
AUTO/MANUAL
RIDE CONTROL
CR-10
BUZZER STOP
AC SWITCH
CN-13
RESISTOR
BLOWER
CN-12
THERMOSTAT
INTAKE ACT
CS-58
BLOWER SW
CL-2
CIGAR LIGHTER
CN-30
AC CONTROLLER
CN-131
CN-138
SP185
to G4
to CN-1312
to CN-1302
to CR-TQ1
sp052
sp084
sp420
BRAKE OIL PS
STOP LAMP
CLUTCH CUT-OFF
HOUR METER
CN-6
TO:HARNESS GAUGE
CN-7
CN-2
CN-3
TO:HARNESS FRAME
CN-8
CN-4
TO:HARNESS FRONT
CN-15
CN-16
TO:HARNESS T/M
CL-53
STR PS
CL-54
STR PUMP PS
CN-9
TM CHECK HARNESS
CN-5
TO:HARNESS CABIN
PARKING
CLUTCH CUT-OFF
WORK LAMP FRONT
WORK LAMP REAR
BEACON LAMP
AIR CON
REAR WIPER &WASHER
ILL & HEAD LAMP
HAZARD SW


CAB SIDE
GAUGE SIDE
FRONT SIDE
SPEAKER LH
SPEAKER RH
CASSETTE RADIO
ROOM LAMP
ROTARY LAMP
WORK LAMP
STRP PS
STR PS
T/M OIL TEMP
T/M OIL PS
T/M CHECK
SPEED METER
T/M ERROR LAMP
RH TURN
CH HTR
HT BEAM
BRK OIL
T/M OIL
CHARGE
E. OIL
O. HEAT
PARK
PRE HEAT
HYD TEMP
T/M TEMP
WATER TEMP
VOLT METER
FUEL METER
BATT. RY
TO STARTER
EARTH1
EARTH
EARTH2
GLOW PLUG CONTROLLER
GLOW PLUG
BUCKET LEVELER
BOOM KICK OUT
HORN
HEAD LIGHT LH
HEAD LIGHT RH
LH TURN
RH TURN
AIR-CON FAN
PARKING SOL.
PARKING OIL PS
NUMBER PLATE LAMP
COMBI LAMP LH
COMBI LAMP RH
FUEL SENDER
BACK BUZZER
HYD OIL TEMP
R/&RY
TO BATT.
STARTER
START RY.
ALT
AIR COMP.
FUEL SHUT OFF SOL.
ENG. OIL PRESS
OVER HEAT SW
EXCESS FUEL SOL.
WATER TEMP

1. ILLUMINATION CIRCUIT

1) OPERATING FLOW

Fuse box (No.20) → Illumination switch [CS-39(1)] → Switch ON, 1st step

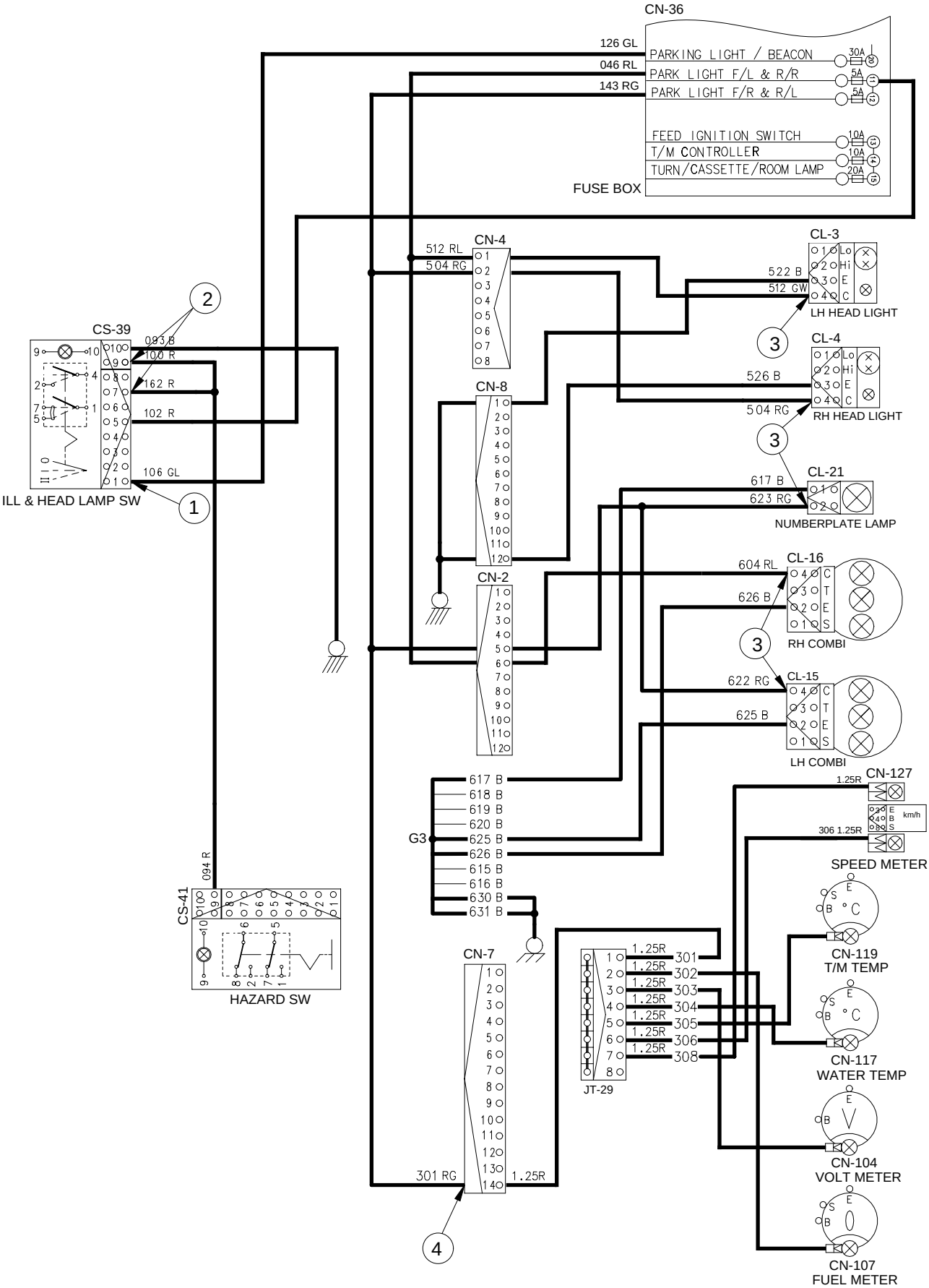
- [CS-39(7)] → Hazard and illumination switch indicator lamp ON
- [CS-39(5)] → Fuse box(11)
  - I/conn [CN-2(6)] → RH Combi clearance lamp ON [CL-16(4)]
  - I/conn [CN-4(1)] → LH Head lamp ON [CL-3(4)]
- [CS-39(5)] → Fuse box(12)
  - I/conn [CN-2(5)]
    - No. plate lamp ON [CL-21(2)]
    - LH Combi clearance lamp ON [CL-15(4)]
  - I/conn [CN-4(2)] → RH Head lamp ON [CL-4(4)]
  - I/conn [CN-7(14)] → All cluster guage lamp ON

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 gauge lamp)	20~25V

※ GND : Ground

ILLUMINATION CIRCUIT



2. HEAD LIGHT CIRCUIT

1) OPERATING FLOW

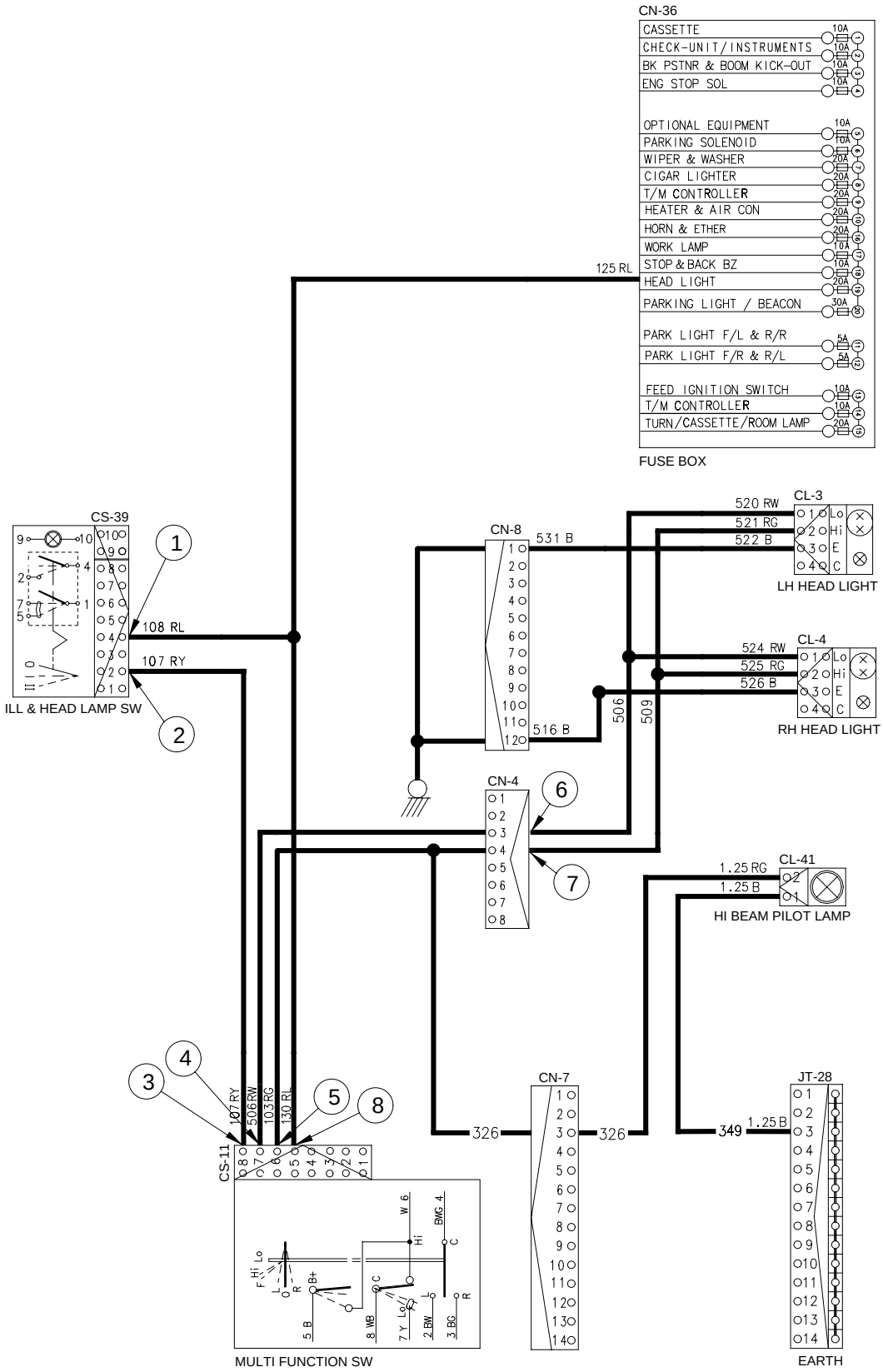
Fuse box(No.19) → Head light switch [CS-39(4)] → Light switch ON, 2nd step [CS-39(2)]
→ Multi function switch [CS-11(8)]
→ Multi function switch MIDDLE [CS-11(7)] → I/conn [CN-4(3)] → LH Head light low beam ON [CL-3(1)]
→ RH Head light low beam ON [CL-4(1)]
→ Multi function switch DOWN [CS-11(6)] → I/conn [CN-4(4)] → LH Head light high beam ON [CL-3(2)]
→ RH Head light high beam ON [CL-4(2)]
→ I/conn [CN-7(3)] → Cluster high beam pilot lamp ON [CL-41(2)]

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



3. WORK LIGHT SWITCH

1) OPERATING FLOW

Fuse box(No.17) → Front work light switch [CS-21(6)] → Work light switch ON [CS-21(2)]
- I/conn [CN-5(4)] → LH Front work lamp ON [CL-6(2)]
- I/conn [CN-5(4)] → RH Front work lamp ON [CL-5(2)]
- Front work lamp switch indicator lamp ON

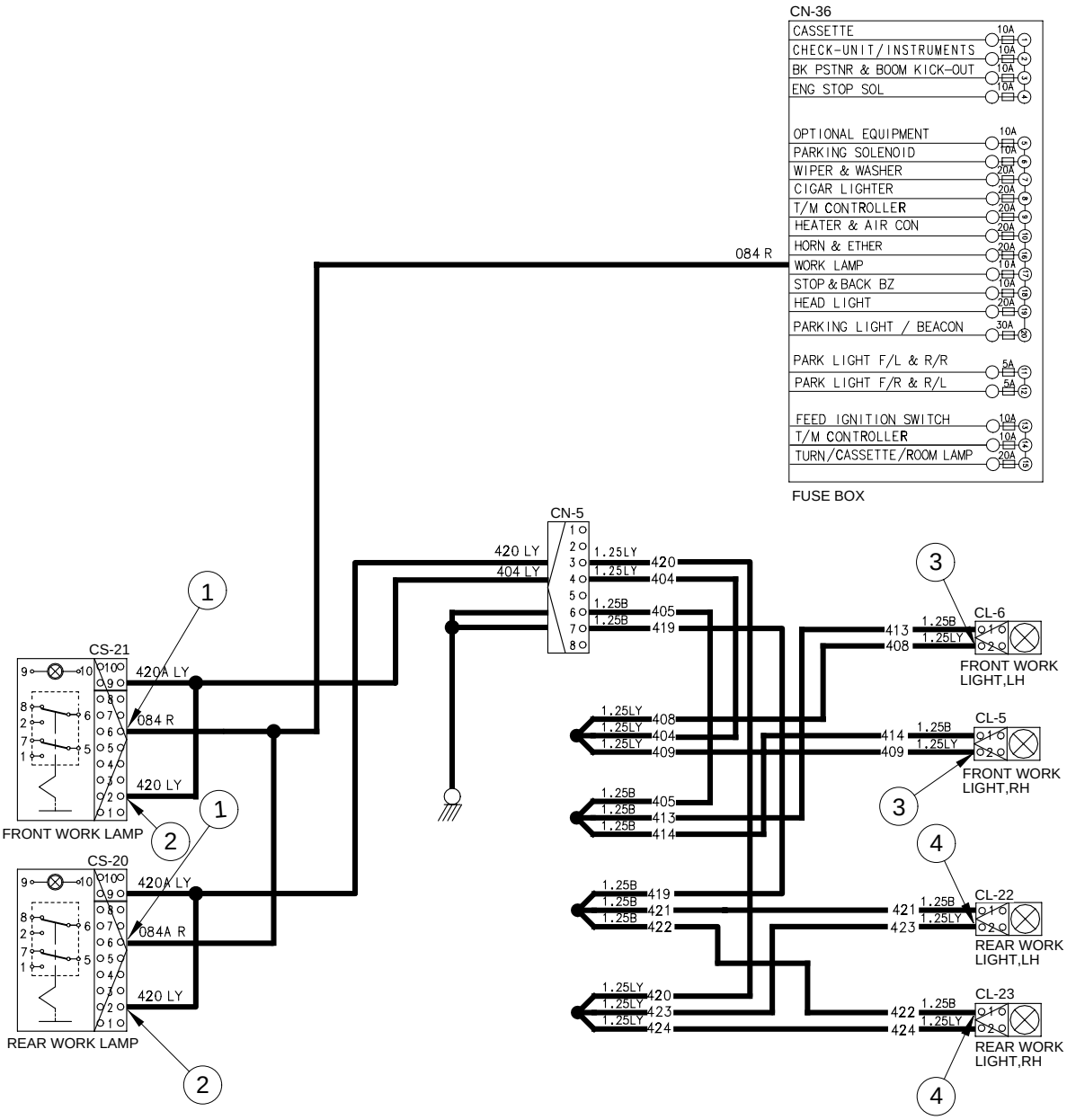
Fuse box(No.17) → Rear work light switch [CS-20(6)] → Work light switch ON [CS-20(2)]
- I/conn [CN-5(3)] → LH Rear work lamp ON [CL-22(2)]
- I/conn [CN-5(3)] → RH Rear work lamp ON [CL-23(2)]
- Rear work lamp switch indicator lamp ON

2)

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

※ GND : Ground

WORK LIGHT SWITCH



4. STARTING CIRCUIT

1) OPERATING FLOW

Battery(+) terminal → Battery relay(M8, B+ terminal) → Fusible link [CN-60(1)]
→ I/conn [CN-1(1)] → Fuse box (No.13) → Start switch [CS-2(1)]

※ The gear selector lever is neutral position. It is necessary condition before the starting.
The gear selector lever 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-2(2)] → Battery relay [CR-1]
→ Battery relay operating(All power is supplied with the electric component)
→ Start switch [CS-2(3)] → Fuse box [No.4] → I/conn [CN-3(3)]
→ I/conn [CN-13(5)] → Fuel shut off solenoid [CN-79]

(2) When start key switch is in START position

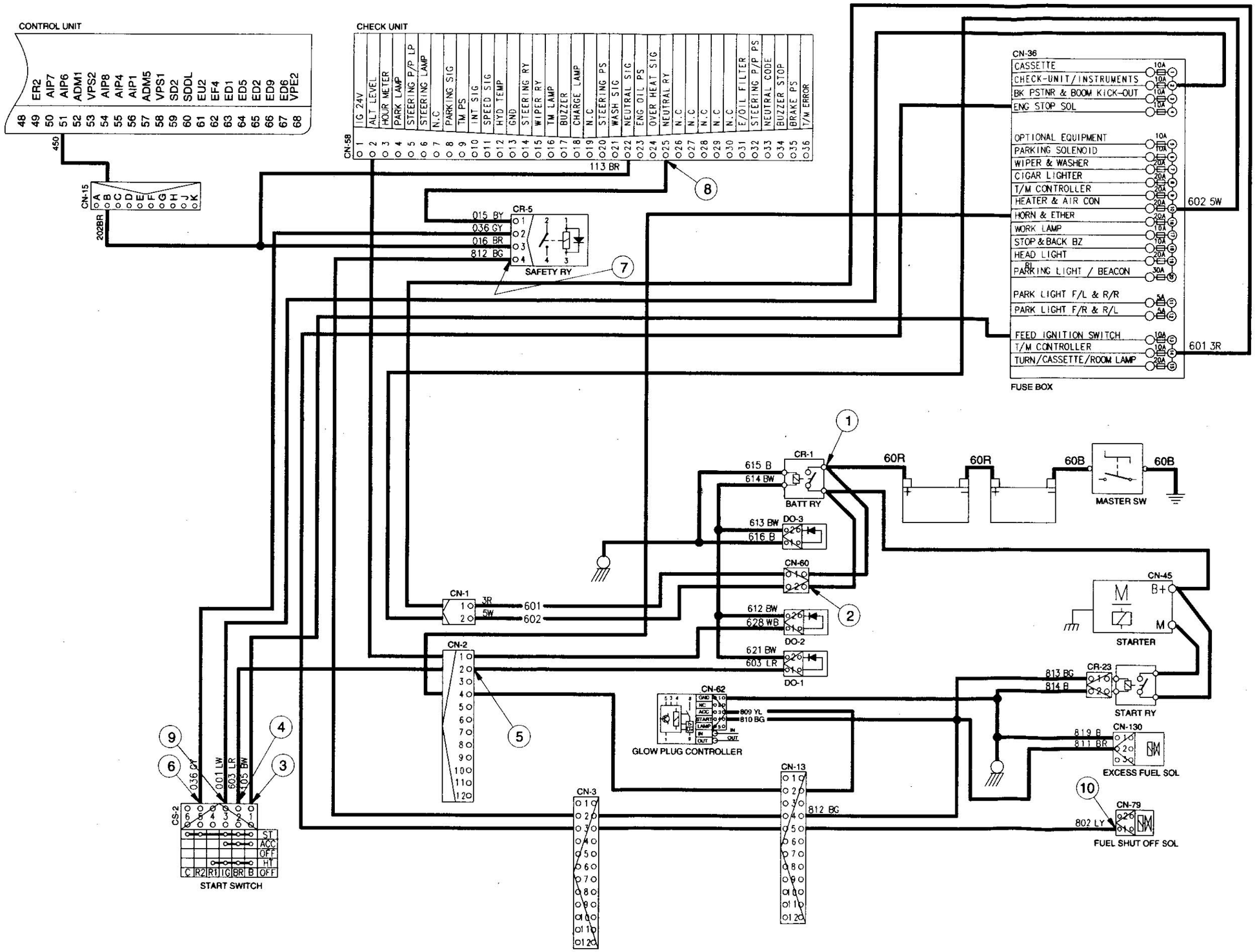
Start switch START [CS-2(5)] → Start safety relay [CR-5(2)] → Start safety relay [CR-5(4)]
→ I/conn [CN-3(2)] → I/conn [CN-13(4)] → Start relay [CR-23(1)]
→ Starter(Terminal B+ and M connector of start motor)

2) CHECK POINT

Engine	Key switch	Check point	Voltage
Running	ON	① - GND (Battery B+) ② - GND (Fusible link) ③ - GND (Start key B+) ④ - GND (Start key BR terminal) ⑤ - GND (I/conn CN-2(2)) ⑥ - GND (Start key R2 terminal) ⑦ - GND (Start safety relay output) ⑧ - GND (Check unit) ⑨ - GND (Start key IG terminal) ⑩ - GND (Fuel shut off solenoid)	20~28V

※ GND : Ground

STARTING CIRCUIT



5. FUEL SHUT OFF CIRCUIT

1) OPERATING FLOW

Start key OFF [CS-2(3)] → Fuse box (No.4) → I/conn [CN-2(3)] → I/conn [CN-13(5)] → Fuel shut off solenoid [CN-79(1)]

2) CHECK POINT

Engine	Key switch	Check point	Voltage
OFF	OFF	⑨ - GND (Start key IG terminal) ⑩ - GND (Fuel shut off solenoid)	0V

※ GND : Ground

3) WIRING DIAGRAM - See page 7-12.

6. 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(D^+)] → I/conn [CN-13(3)] → I/conn [CN-3(1)]

→ Check unit [CN-58(2)]

→ I/conn [CN-6(1)] → Cluster charge warning lamp ON [CL-46(1), Below 24V]

→ JT-27(4)→(10) → Volt meter [CN-104(B)]

(2) Charging flow

Alternator [CN-74(B^+)] → 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

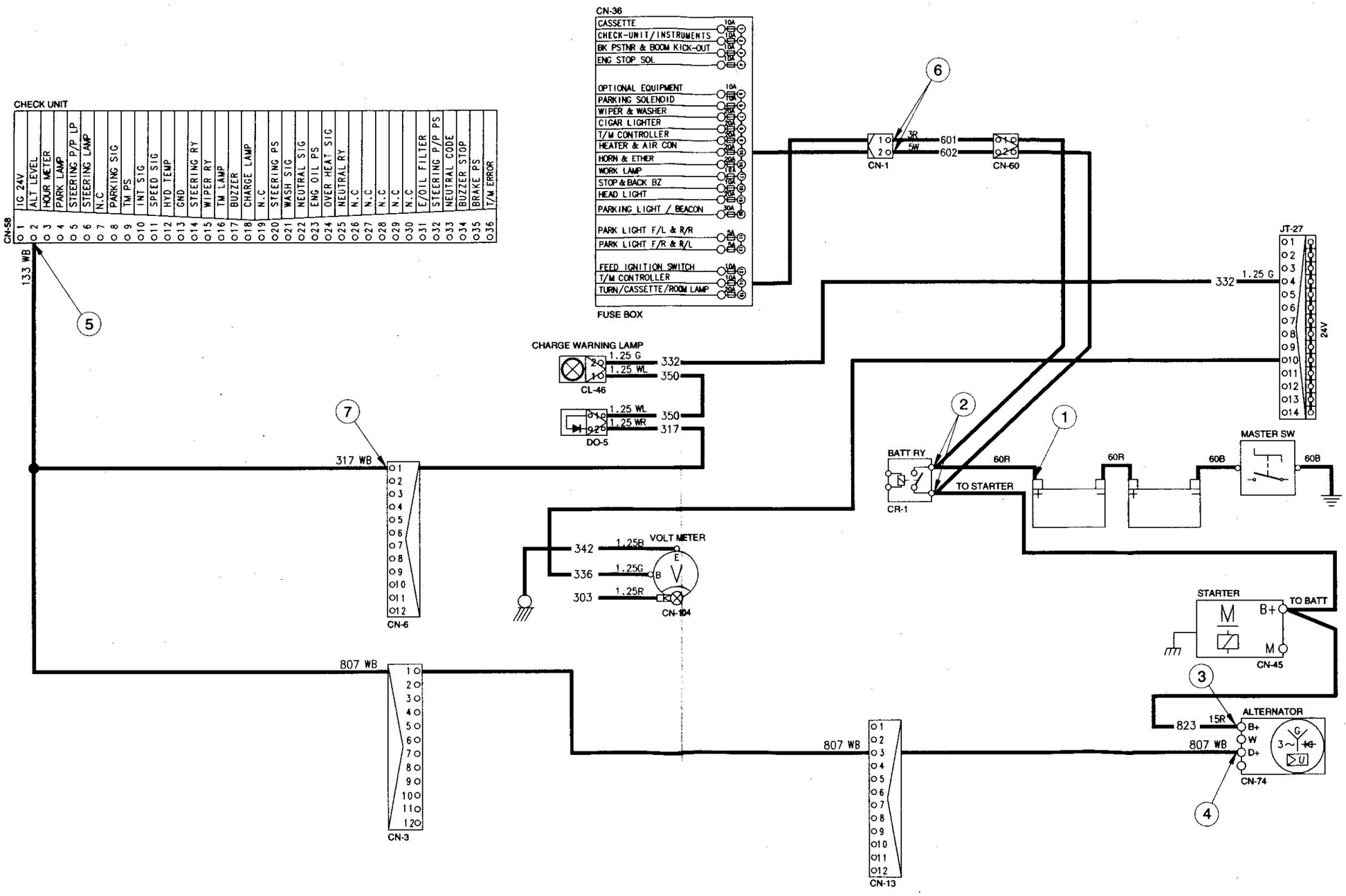
2) CHECK POINT

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

Engine	Key switch	Check point	Resistance
Running	ON	⑦ - GND (Cluster)	∞Ω

※ GND : Ground

CHARGING CIRCUIT



7. ELECTRIC PARKING, DECLUTCH CIRCUIT

1) OPERATING FLOW

(1) Parking OFF

Fuse box (No.6) → Parking switch OFF [CS-17(6)隊(8)] → I/conn [CN-8(10)]
→ Parking solenoid ON(Activated) → Parking brake released(By hydraulic pressure)

(2) Parking ON

Fuse box (No.6) → Parking switch ON
- → Parking solenoid [CN-71] OFF → Parking brake applied [By spring force]
- → [CS-17(6)隊(2)] → Parking switch indicator lamp ON
- → [CS-17(5)隊(1)] → I/conn [CN-15(F)] → Control unit [X1(21)] → T/M declutch

(3) Declutch ON

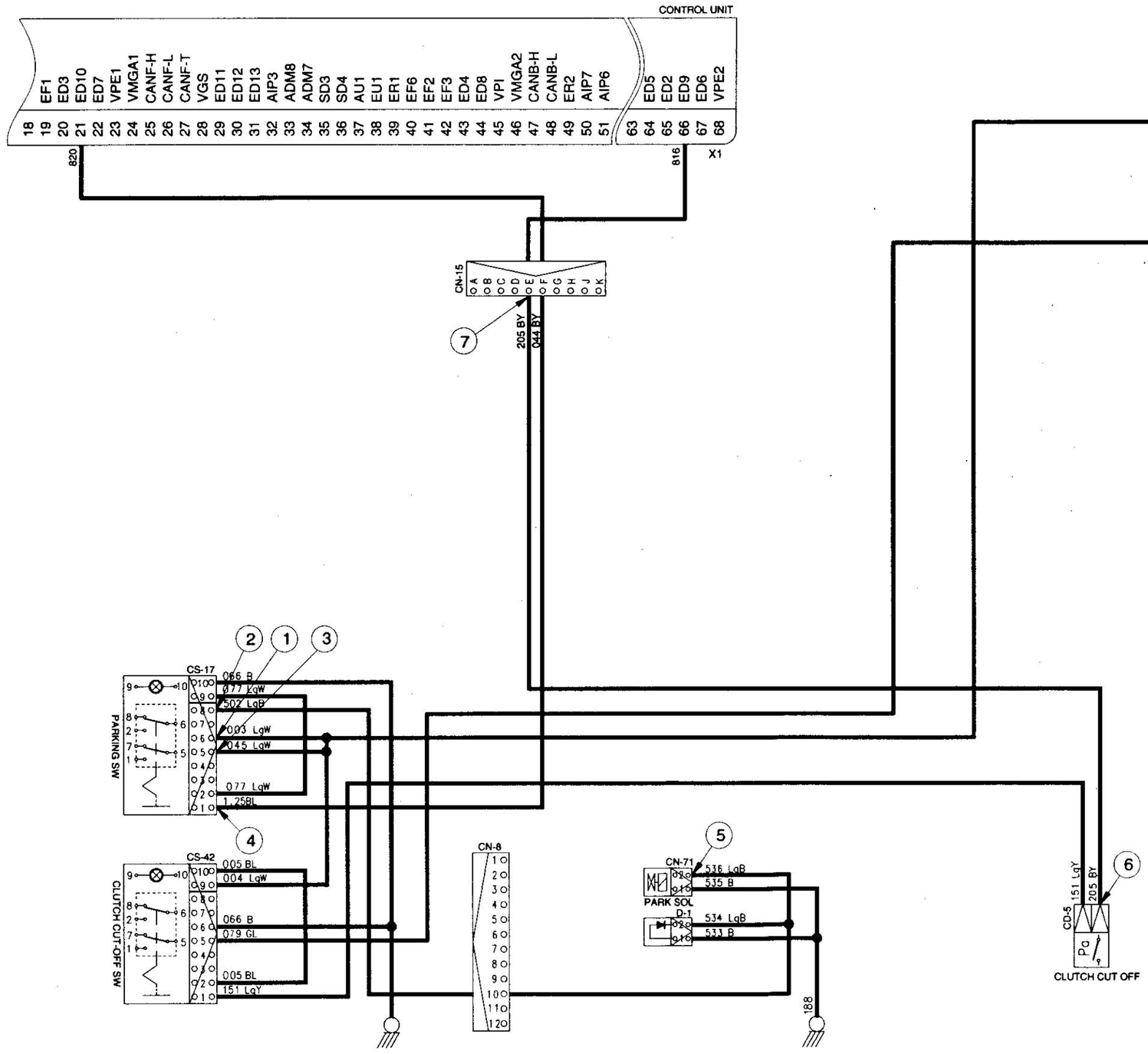
Fuse box (No.20) → Clutch cut-off switch ON
- → Clutch cut-off switch [CS-42(6)隊(2)] → Clutch cut-off switch indicator lamp ON
- → Clutch cut-off switch [CS-42(5)隊(1)] → Service brake applied → Service brake pressure switch ON [CD-5]
  - → I/conn [CN-15(E)] → Control unit [X1(66)] → Declutch
  - → Clutch oil pressure switch

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 (Clutch cut-off press switch) ⑦ - GND (Declutch input signal)	20~28V

※ GND : Ground

ELECTRIC PARKING, DECLUTCH CIRCUIT



8. WIPER AND WASHER CIRCUIT

1) OPERATING FLOW

Fuse box (No.7) → Wiper relay Hi [CR-4(1)隊(3)] → Front wiper motor [CN-21(1)]
Wiper relay Hi [CR-4(1)隊(3)] → Wiper relay Lo [CR-26(2), (4)]
Fuse box (No.7) → Multi function switch [CS-12(6)]
Fuse box (No.7) → Rear wiper & washer switch [CS-3(1)]
Fuse box (No.7) → 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)] → Check unit [CN-58(21)隊(15)] → Wiper relay Lo [CR-26(4)隊(1)] → 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)] → Check unit [CN-58(10)隊(15)] intermittent signal → Wiper relay Lo [CR-26(4)隊(1)] → Wiper motor [CN-21(5)] → Wiper motor intermittently operating

② **Lo position**

Wiper switch ON [CS-12(6)隊(4)] → Wiper relay Lo [CR-26(3)隊(1)] → Wiper motor [CN-21(5)] → Wiper motor operating (Low)

③ **Hi position**

Wiper switch ON [CS-12(6)隊(3)] → Wiper relay Hi [CR-4(1)隊(4)] → Wiper motor [CN-21(4)] → Wiper motor operating(High)

(3) Auto-parking(When switch OFF)

Switch OFF → Fuse box (No.7) → Wiper relay Hi [CR-4(1)隊(3)] → Wiper motor [CN-21(1)隊(2)] → Multi function switch [CS-12(5)隊(4)] → Wiper relay Lo [CR-26(3)隊(1)] → 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)] → Wiper motor [CN-102(5)] → Wiper motor operating
Wiper switch ON [CS-3(1)隊(6)] → Rear wiper and washer switch indicator lamp ON

② **Washer switch ON**(2nd step)

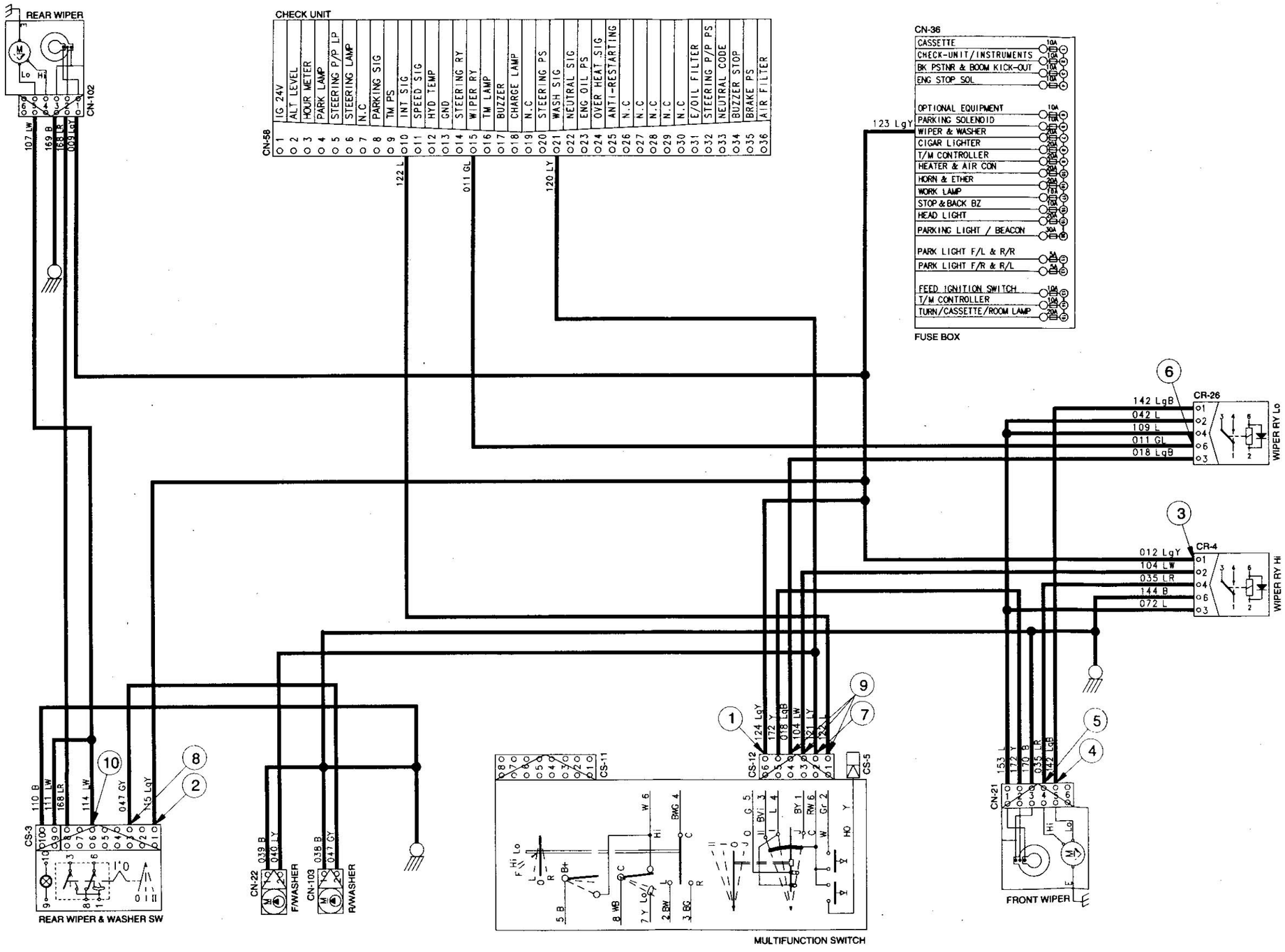
Washer switch ON [CS-3(1)隊(3)] → Rear washer tank [CN-103(2)] → Washer operating

2) CHECK POINT

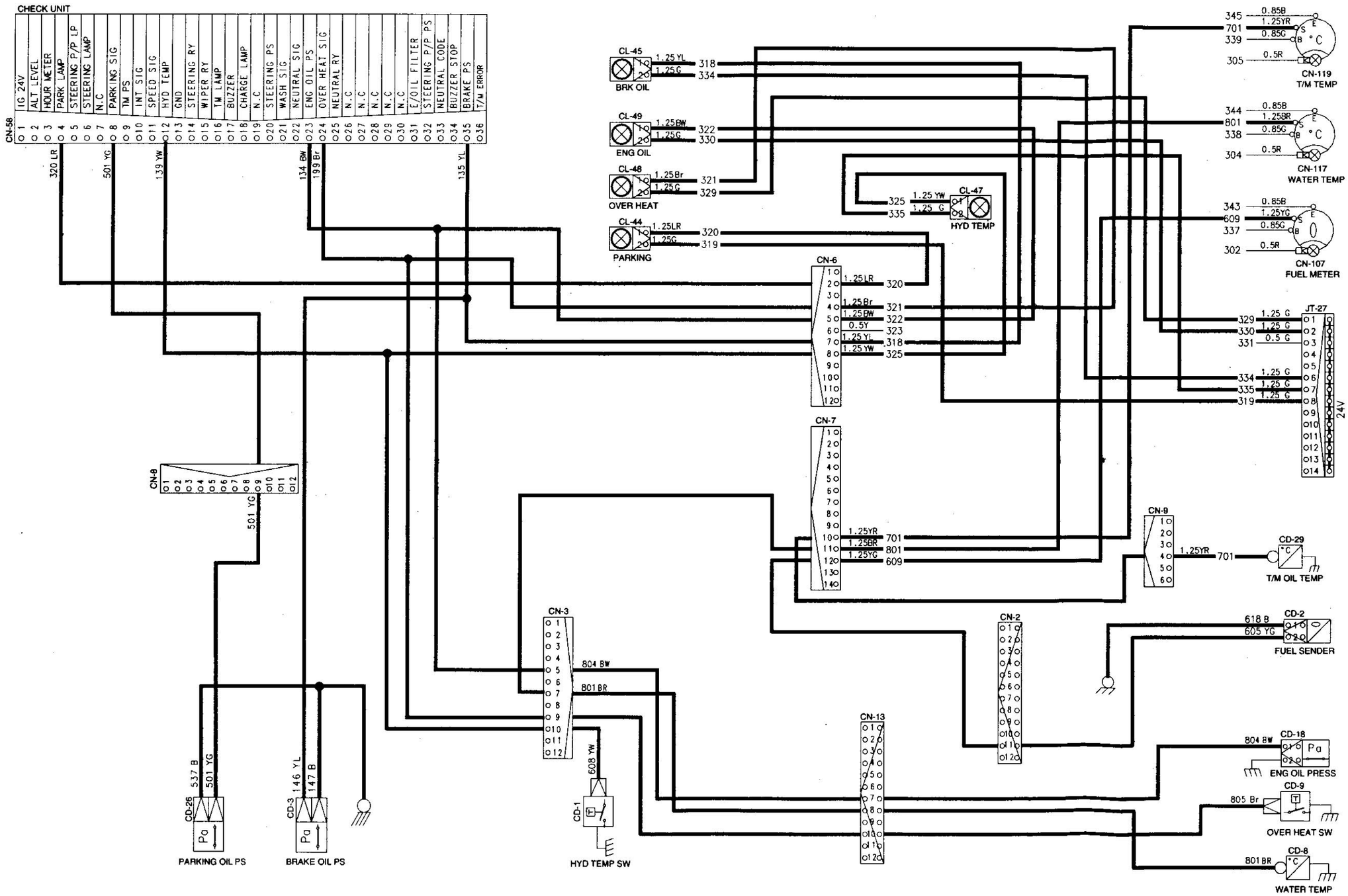
Engine	Key switch	Check point	Voltage
Stop	ON	① - GND (Front wiper switch power input) ② - GND (Rear wiper switch power input) ③ - GND (Wiper relay power input) ④ - GND (Front wiper motor Lo power input) ⑤ - GND (Front wiper motor High power input) ⑥ - GND (Wiper relay power input) ⑦ - GND (Front washer 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



MONITORING CIRCUIT



HAZARD, TURN AND ROTARY CIRCUIT