

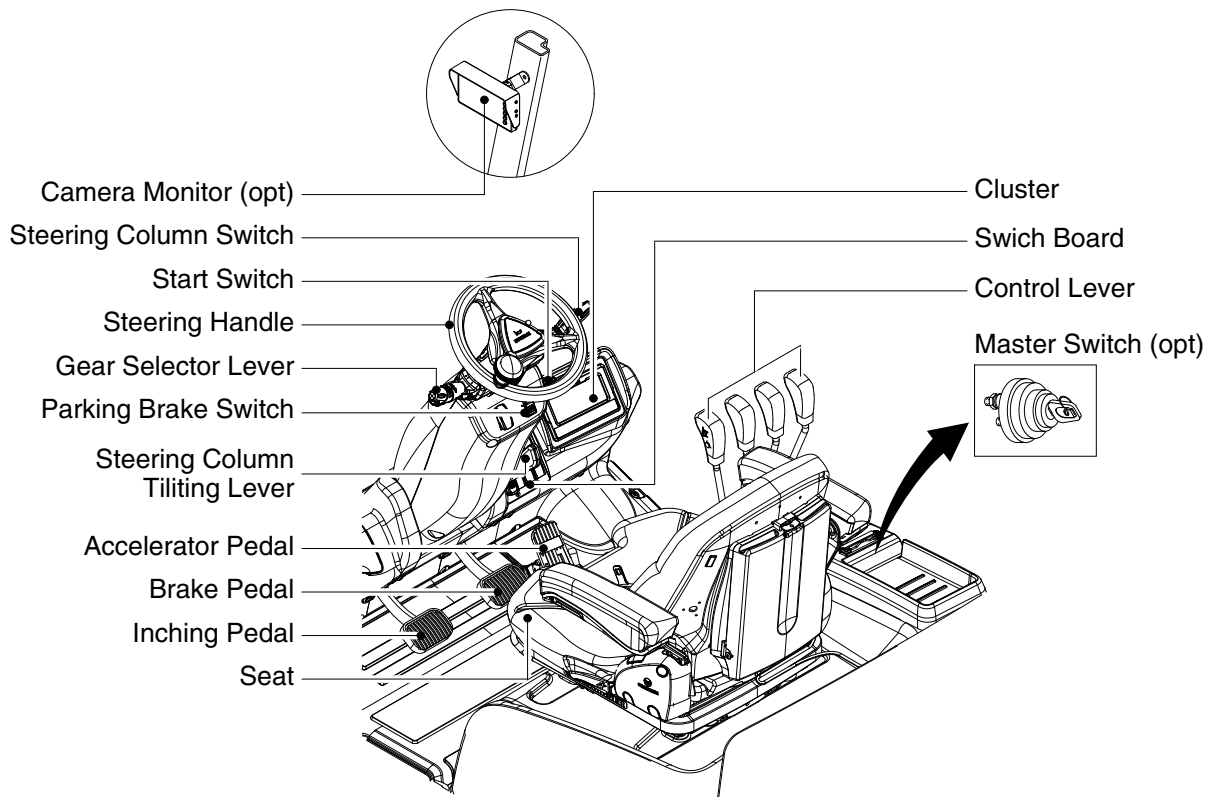
SECTION 7 ELECTRICAL SYSTEM

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SECTION 7 ELECTRICAL SYSTEM

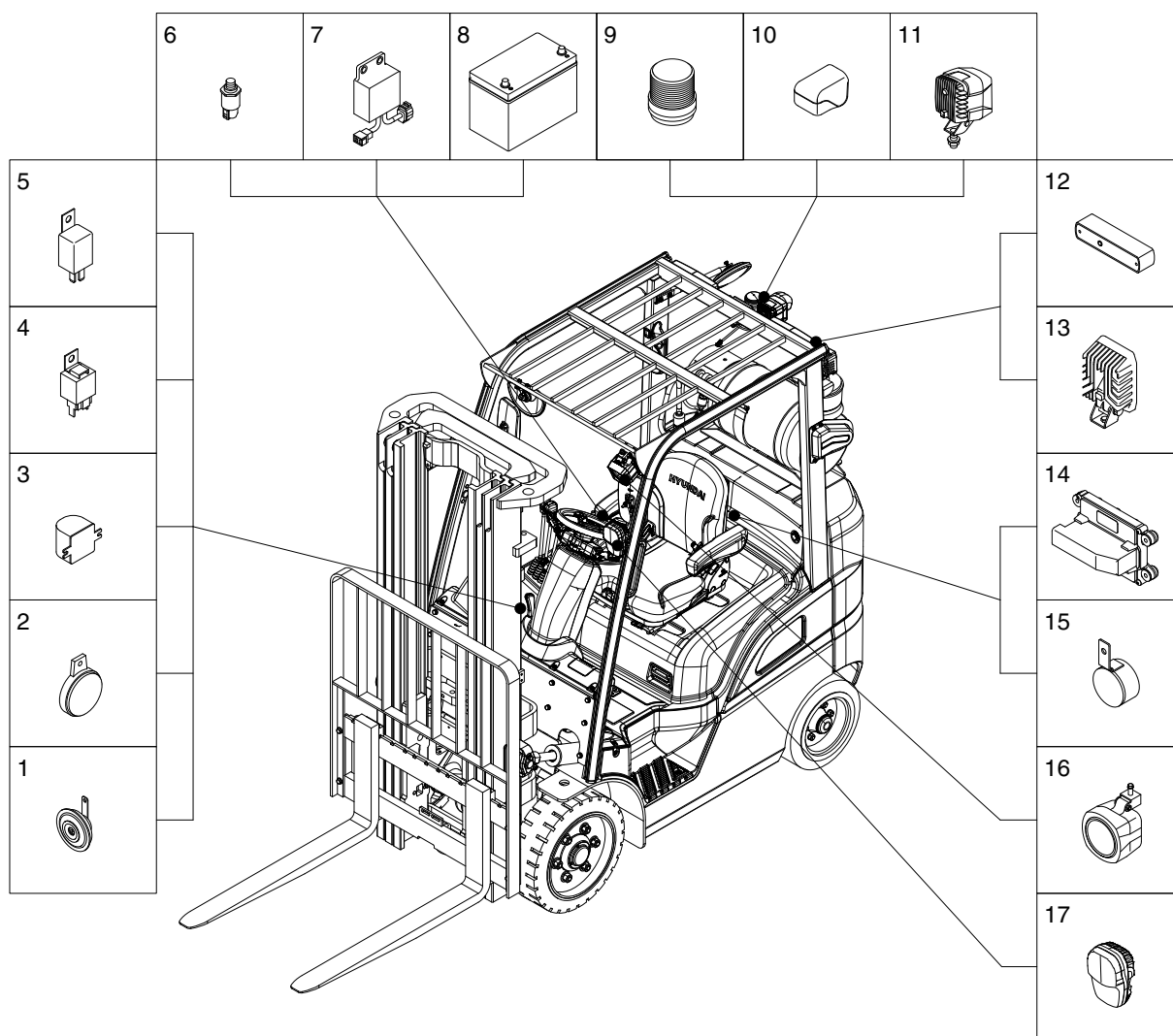
GROUP 1 COMPONENT LOCATION

1. LOCATION 1



25LC93KY02

2. LOCATION 2

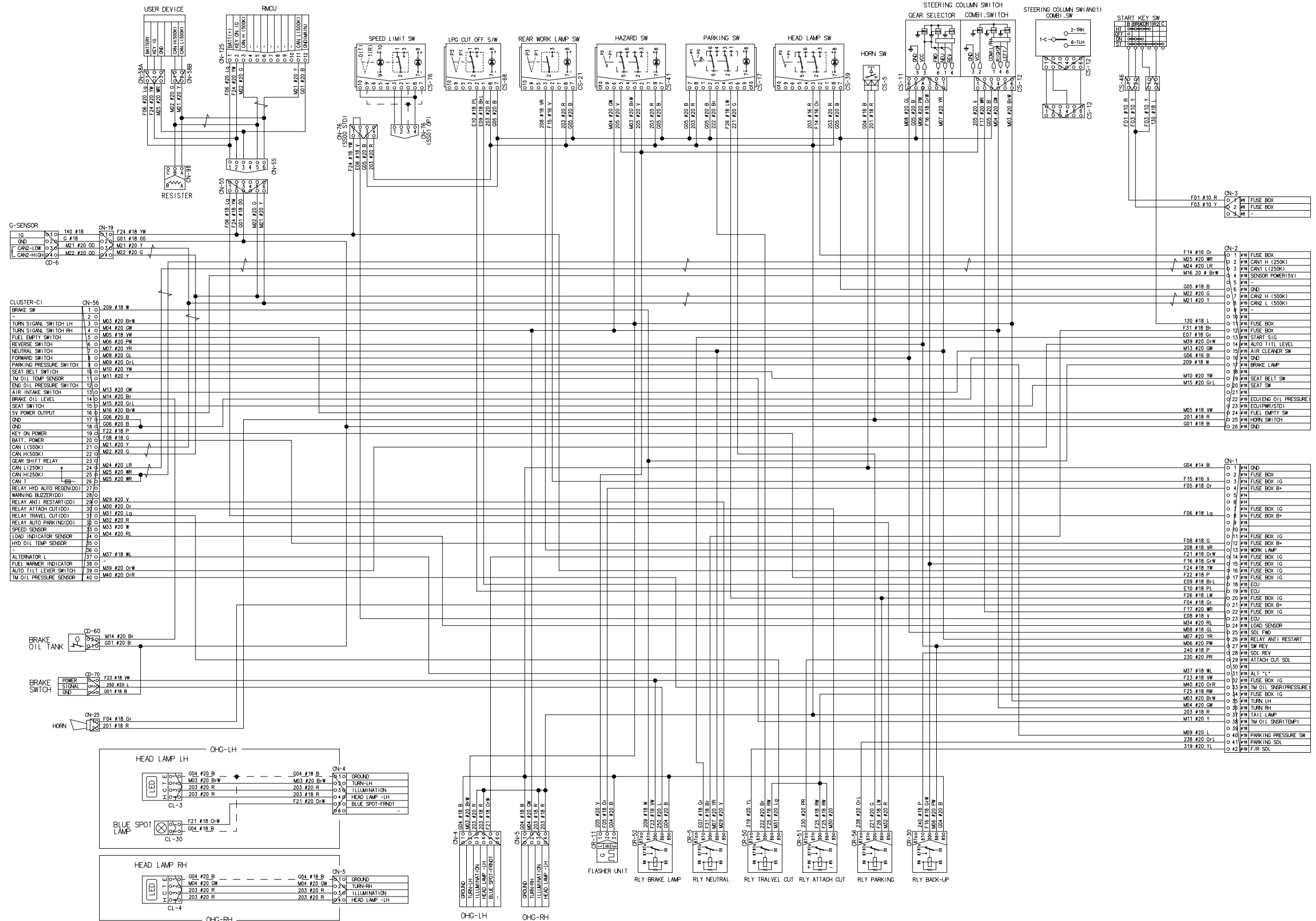


25LC97ES02

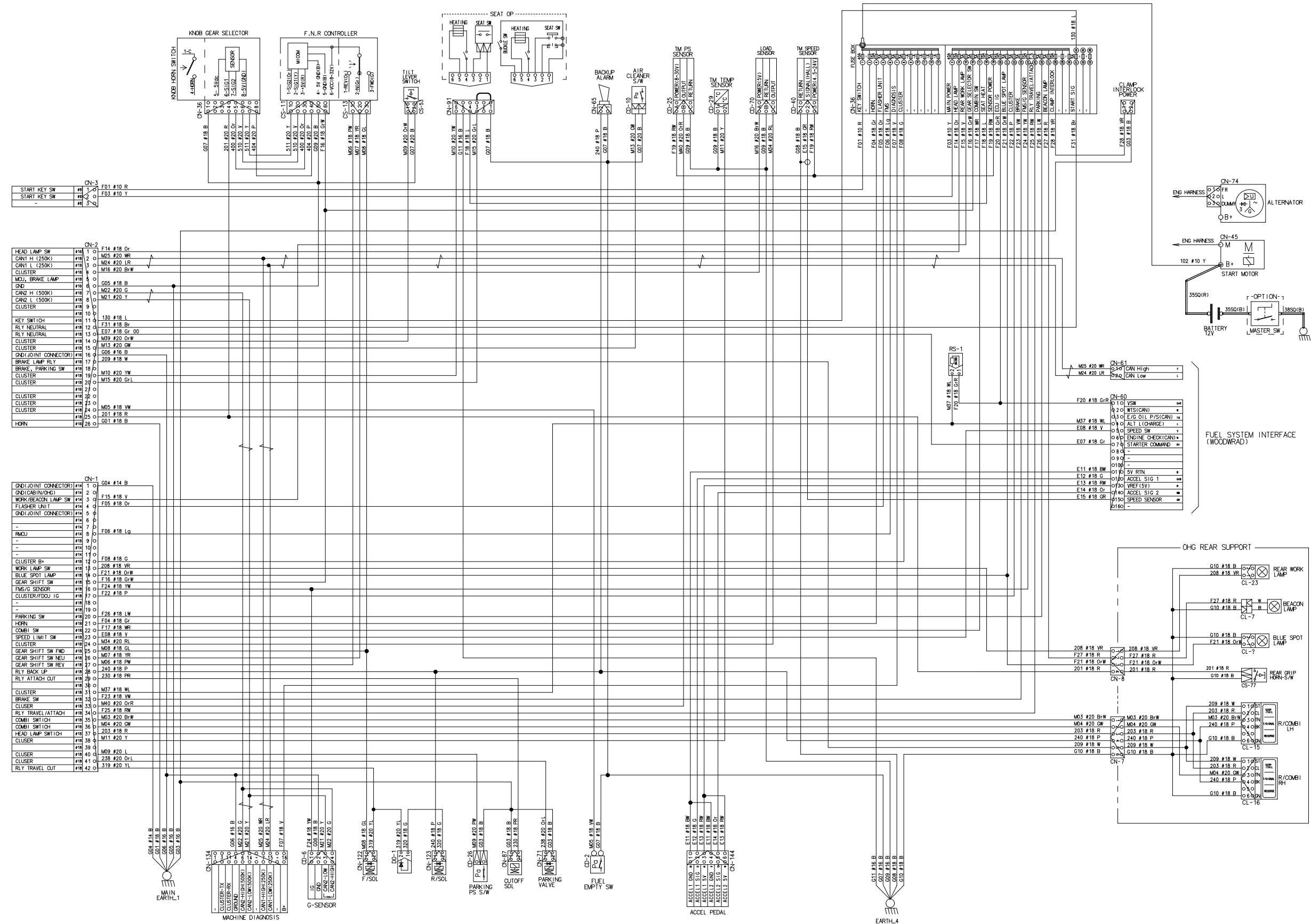
- | | | | | | |
|---|-------------------|----|-----------------------|----|---------------------------|
| 1 | Horn | 7 | FNR controller (opt) | 13 | Rear work lamp (opt) |
| 2 | Warning buzzer | 8 | Battery | 14 | Engine control unit |
| 3 | G-sensor (opt) | 9 | Beacon lamp (opt) | 15 | Back buzzer |
| 4 | Flusher unit | 10 | Camera (opt) | 16 | Front blue spot (opt) |
| 5 | Relay | 11 | Rear blue spot (opt) | 17 | Head and turn signal lamp |
| 6 | Load sensor (opt) | 12 | Rear combination lamp | | |

GROUP 2 ELECTRICAL CIRCUIT

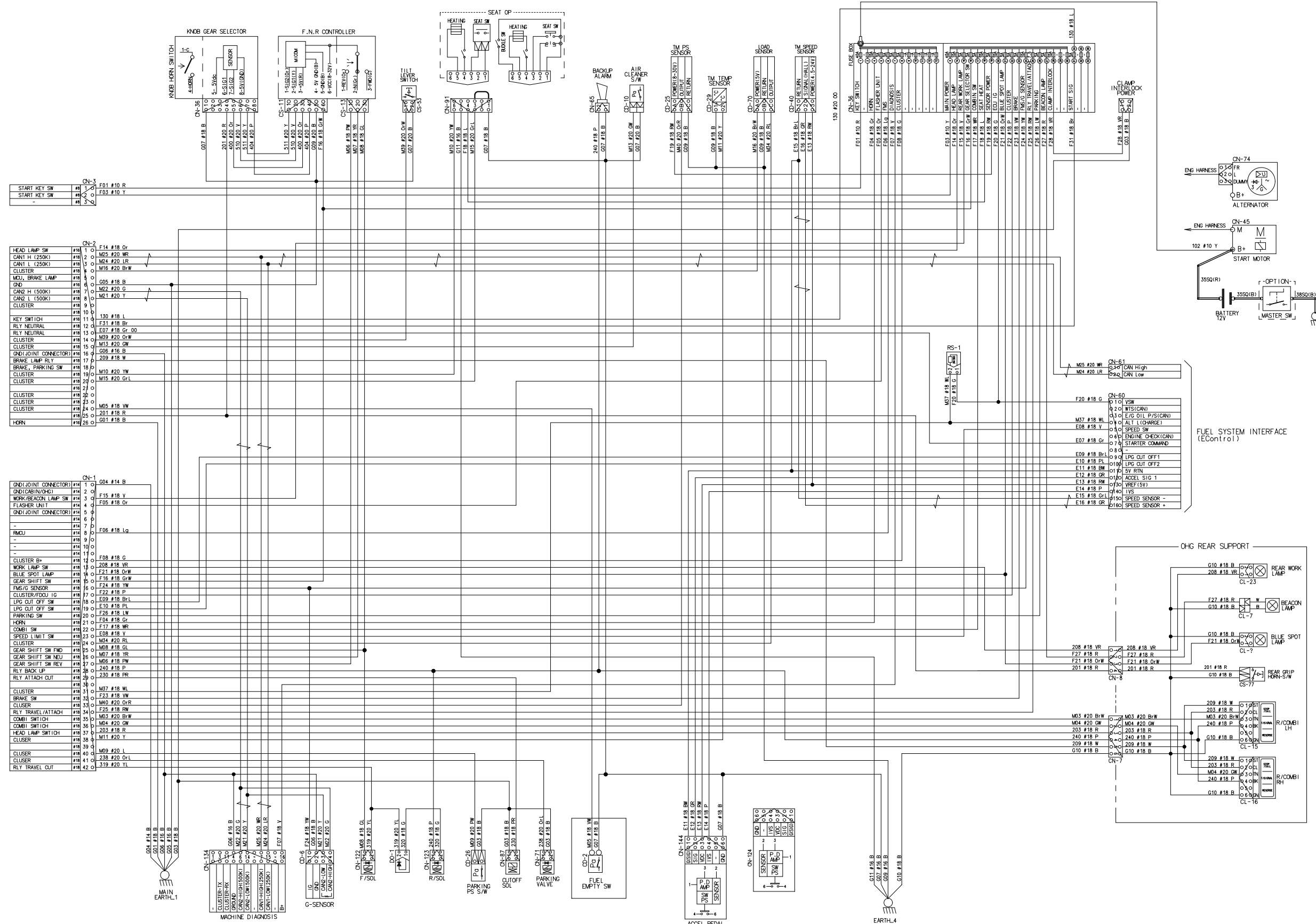
ELECTRICAL CIRCUIT (1/3, DASHBOARD)



· ELECTRICAL CIRCUIT (2/3, FRAME, OPTION / FFA28-WOODWARD)



• ELECTRICAL CIRCUIT (3/3, FRAME)



1. POWER CIRCUIT

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

When the start switch is in the off position, the current flows from the positive battery terminal.

1) OPERATING FLOW

Battery (+) → Start motor [CN-45 (B+)] → → Fuse box [CN-36]
→ Fuse box [No.1] → I/conn [CN-3 (1)] → Key switch [CS-46 (1)]
→ Fuse box [No.4] → I/conn [CN-1 (21)] → Horn [CN-25 (1)]
→ Fuse box [No.5] → I/conn [CN-1 (4)] → Flaher unit [CR-11 (2)]
→ Fuse box [No.6] → I/conn [CN-1 (8)] → I/conn [CN-55 (1)] → RMCU [CN-125] → User
Authentication [CN-58A (1)]
→ Fuse box [No.7] → Diagnosis [CN-134 (16)]
→ Fuse box [No.8] → I/conn [CN-1 (12)] → Cluster [CN-56 (20)]

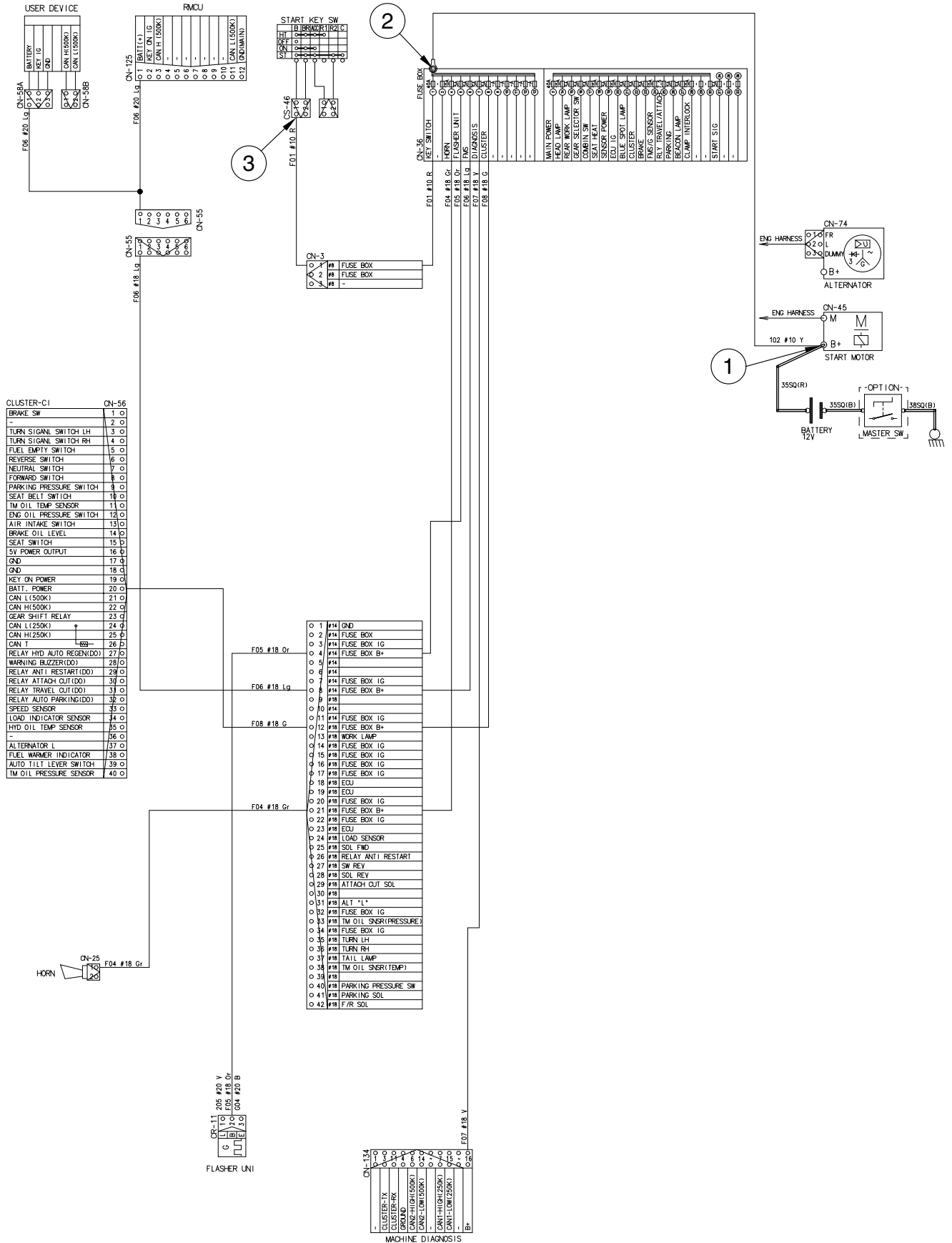
2) CHECK POINT

Engine	Start switch	Check point	Voltage
STOP	OFF	① - GND (Battery (+)) ② - GND (Fuse No.1) ② - GND (Start key)	10 ~ 13 V

※ GND : Ground

※ The circuit diagram may differ from the equipment, so please check before a repair.

POWER CIRCUIT



25LC97ES03

※ The circuit diagram may differ from the equipment, so please check before a repair.

2. STARTING CIRCUIT

1) OPERATING FLOW

Battery (+) terminal → Start motor [CN-45 (B+)] → Fuse box (B+ → No.1) → I/conn [CN-3 (1)] → Start key switch [CS-46 (1)]

※ The engine can be started only when the gear selector lever is in neutral position.

(1) When start switch is in ON position

Start switch ON [CS-46 (2)] → I/conn [CN-3 (2)] → Fuse box [No.3]
→ Power is supply with the electric components.

(2) When start switch is START position

Start switch START [CS-46 (2)] → I/conn [CN-2 (11)] → Fuse box [No.34 → 31] → Neutral relay [CR-5 (30)] → I/conn [CN-2 (13)] → Engine harness I/conn [CN-60 (7)]
→ Start motor operating

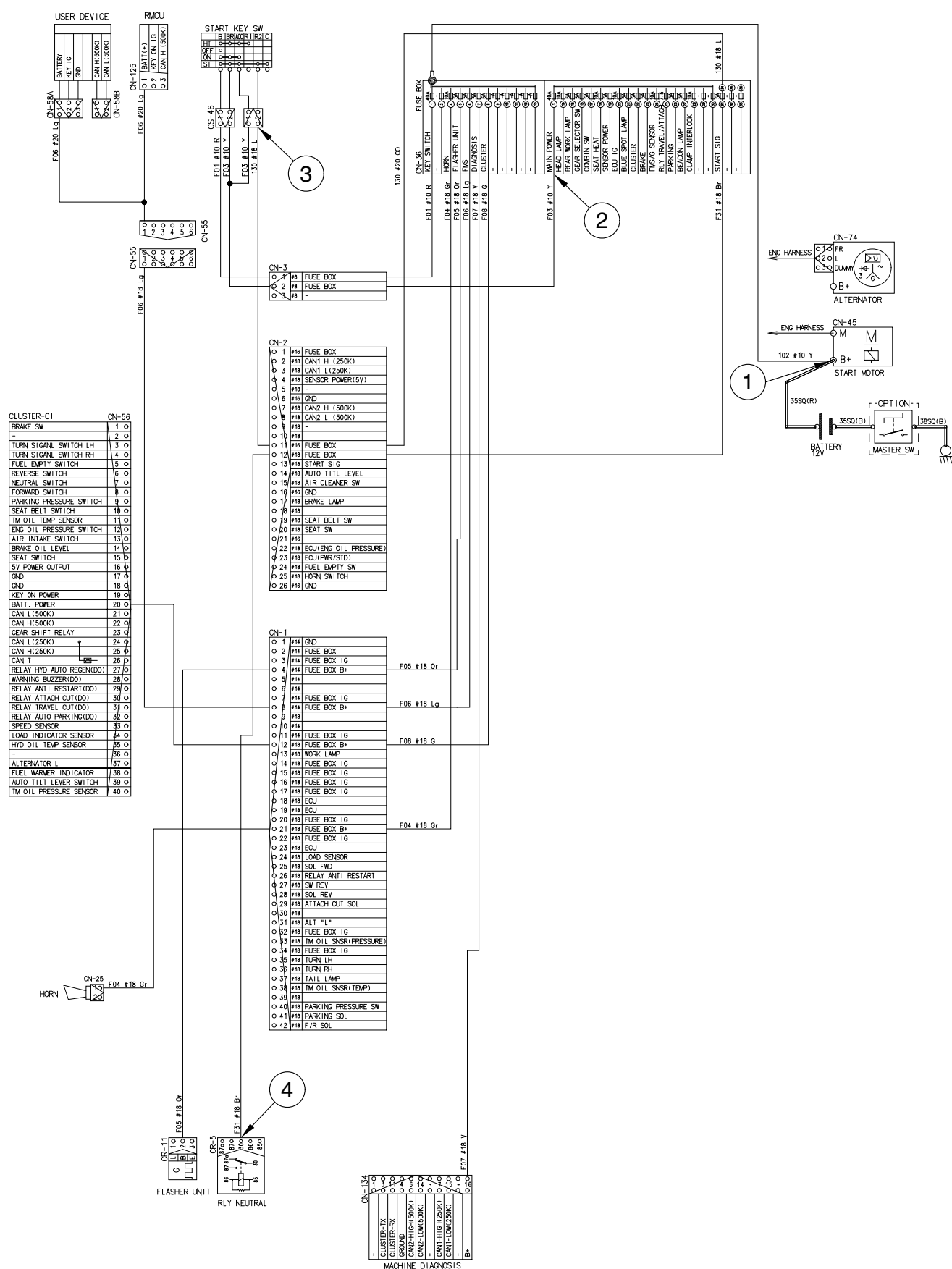
2) CHECK POINT

Engine	Start switch	Check point	Voltage
Running	ON	① - GND (Battery B+) ② - GND (Fuse box No. 3) ② - GND (Start key) ④ - GND (Neutral relay)	10 ~ 14.5 V

※ GND : Ground

※ The circuit diagram may differ from the equipment, so please check before a repair.

STARTING CIRCUIT



25LC97ES04

※ The circuit diagram may differ from the equipment, so please check before a repair.

GROUP 3 COMPONENT SPECIFICATION

No	Part name	Qty	Specification
1	Battery	1	12V×60 AH CMF60 (230×168×220) CCA : 550 A
2	Flasher Unit	1	12V, 85±10 CM, (23W + 23W)×2 + 3W×2
3	Back buzzer	1	12V, 90±5 dB, 60±10 C/M
4	Horn	1	12V, Max. 3.5A, 100 ~ 115 dB
5	Steering column switch	1	12V, 5A
6	Start switch	1	12V/24V, 15~28A
7	Head lamp switch	1	12V, 20A
8	LED Head/turn combination lamp	2	LED
9	LED Rear combination lamp	2	LED
10	Parking switch	1	12V, 20A
11	Master switch (opt)	1	12V, 180A
12	Hazard switch (opt)	1	12V, 20A
13	Rear worklamp switch (opt)	1	12V, 20A
14	LED work lamp (opt)	1	LED
15	LPG cut-off switch (opt)	1	12V, 20A
16	Speed control switch (opt)	1	12V, 20A
17	Clamp interlock indicator (opt)	1	12V, 20A
18	LED Bluespot (opt)	1	12V, Max. 0.960A

GROUP 4 CONNECTOR DESTINATION

Connector number	Type	No. of pin	Destination	Connector part No.	
				Female	Male
CN-00	DEUTSCH	2	Clamp interlock harness	DT06-2S	DT04-2P
CN-1	AMP	42	I/con (frame-dashboard harness)	936421	0-936429-2
CN-2	AMP	26	I/con (frame-dashboard harness)	1897013-2	1897009-2
CN-3	AMP	42	I/con (frame-dashboard harness)	MG642292-5	MG652290-5
CN-4	AMP	4	I/conn (dashboard-front LH OHG harness)	174257-2	174264-2
CN-5	AMP	4	I/conn (dashboard-front RH OHG harness)	174257-2	174259-2
CN-7	AMP	6	I/con (frame-rear OHG harness)	174262-2	174264-2
CN-8	AMP	4	I/con (frame-rear OHG harness)	174257-2	S816-102002
CN-19	AMP	4	G-Sensor (mast)	174257-2	174259-2
CN-25	AMP	2	Horn	35825-0211	-
CN-36	-	-	Fuse box	26HN-55011	-
CN-36	AMP	42	Knob gear selector	-	0-936429-2
CN-45	HCE	-	Start motor	S820-308000	-
CN-55	AMP	6	I/conn (dashboard-RMCU harness)	174262-2	174264-2
CN-56	KET	40	Cluster	MG655708	-
CN-60	AMP	16	Fuel system interface	-	368050-1
CN-61	AMP	2	Fuel system interface	174352-2	-
CN-65	KET	2	Back buzzer	-	MG640322
CN-71	DEUTSCH	2	Parking solenoid	DT06-2S	-
CN-87	AMP	2	Cutoff solenoid 1	347887-3	-
CN-91	DEUTSCH	6	Seat switch	DT06-6S	21HN-52080
CN-122	DEUTSCH	2	Forward solenoid	DT06-2S	-
CN-123	DEUTSCH	2	Reverse solenoid	DT06-2S	-
CN-134	MOLEX	16	Diagnosis port	51115-1601	-
CN-144	AMP	6	Accelerator pedal	174262-2	-
· Switch					
CS-11	AMP	6	FNR controller B	174262-2	174264-2
CS-11	KET	2	Gear selector	-	MG640337
CS-12	KET	6	Combination switch	MG610335	-
CS-13	AMP	3	FNR controller A	174357-2	174359-2
CS-17	CARLING	10	Parking switch	21HN-56300	-
CS-21	CARLING	10	Rear switch	21HN-56300	-
CS-39	CARLING	10	Head switch	21HN-56300	-
CS-41	CARLING	10	Hazard switch	21HN-56300	-
CS-46	KET	2	Start key	MG610281	MG620282

Connector number	Type	No. of pin	Destination	Connector part No.	
				Female	Male
CS-53	KET	2	Tilt lever switch	MG6 10320	MG642552
CS-53	HCE	1	Horn switch	S820-105000	-
CS-68	AMP	4	Speed control switch	174257-2	174259-2
CS-76	CARLING	10	LPG cut off switch	21HN-56300	-
CS-77	KET	1	Rear grip horn switch	ST730018-3	ST750036-3
· Lamp					
CL-4	DEUTSCH	4	Work lamp	DT06-4S	-
CL-7	DEUTSCH	2	Beacon lamp	DT06-2S	DT04-2P
CL-3	DEUTSCH	4	Work lamp	DT06-4S	-
CL-15	DAEDONG	6	LH comination lamp	110-6PR	-
CL-16	DAEDONG	6	RH comination lamp	110-6PR	-
CL-20	DEUTSCH	2	Blue spot lamp (rear)	DT06-2S	DT04-2P
CL-23	DEUTSCH	2	Rear work lamp	DT06-2S	-
CL-30	DEUTSCH	4	Blue spot lamp (front)	DT06-2S	-
· Relay					
CR-5	KET	5	Neutral relay	MG640927	-
CR-11	AMP	3	Flasher unit	312 GIHUNG 3P	-
CR-30	KET	5	Back-up relay	MG640927	-
CR-50	KET	5	Travel cut relay	MG640927	-
CR-51	KET	5	Attachment cut relay	MG640927	-
CR-52	KET	5	Brake lamp relay	MG640927	-
CR-56	KET	5	Parking relay	MG640927	-
· Sensor and pressure switch					
CD-2	-	1	Fuel empty swtich	S820-104000	-
CD-6	-	4	G-Sensor (frame)	174257-2	-
CD-10	-	1	Air cleaner switch	S820-104000	-
CD-25	DEUTSCH	3	Transmission pressure sensor	DT06-3S	-
CD-26	AMP	1	Parking prssure sensor switch	171809-2	-
CD-29	AMP	2	Transmission temperature sender	963040-3	-
CD-40	KET	3	Speed sensor	MG6 10327-5	-
CD-60	KET	2	Brake oil level	MG610320	-
CD-70	DEUTSCH	3	Load sensor	DT06-3S	DT04-3P
CD-70	AMP	3	Brake switch	174357-2	-
DO-01	KET	2	Diode	174352-2	21EA-50550

GROUP 5 TROUBLESHOOTING

Trouble symptom	Probable cause	Remedy
Lamps dimming even at maximum engine speed.	· Faulty wiring.	· Check for loose terminal and disconnected wire.
Lamps flicker during engine operation.	· Improper belt tension.	· Adjust belt tension.
Charge lamp does not light during normal engine operation.	· Charge lamp defective. · Faulty wiring.	· Replace. · Check and repair.
Alternator makes abnormal sounds.	· Alternator defective.	· Replace.
Starting motor fails to run.	· Faulty wiring. · Insufficient battery voltage.	· Check and repair. · Recharge battery.
Starting motor pinion repeats going in and out.	· Insufficient battery voltage.	· Recharge battery.
Excessively low starting motor speed.	· Insufficient battery voltage. · Starting motor defective.	· Recharge battery. · Replace
Starting motor comes to a stop before engine starts up.	· Faulty wiring. · Insufficient battery voltage.	· Check and repair. · Recharge battery.
Heater signal does not become red.	· Faulty wiring. · Glow plug damaged.	· Check and repair. · Replace