

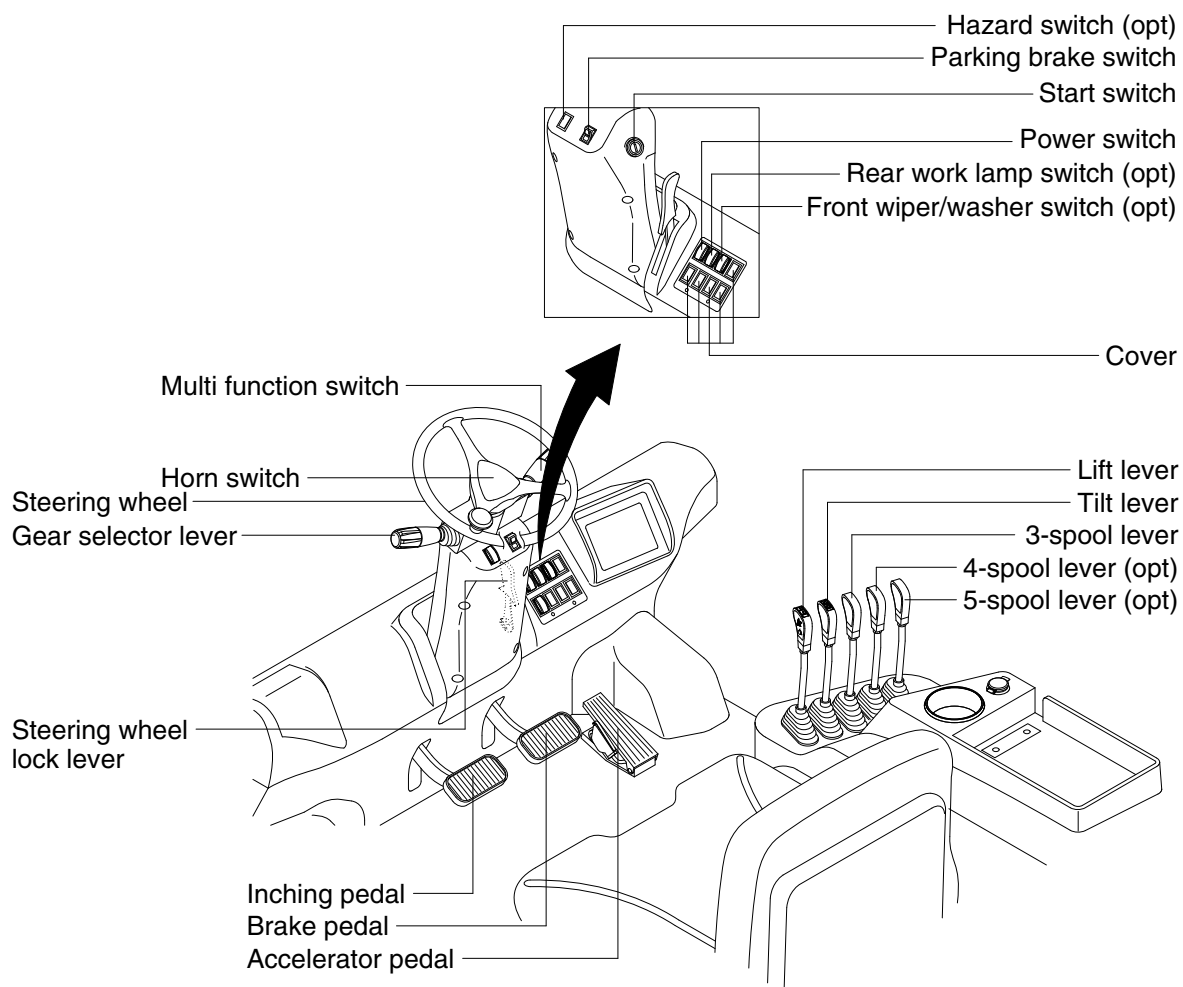
SECTION 7 ELECTRICAL SYSTEM

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SECTION 7 ELECTRICAL SYSTEM

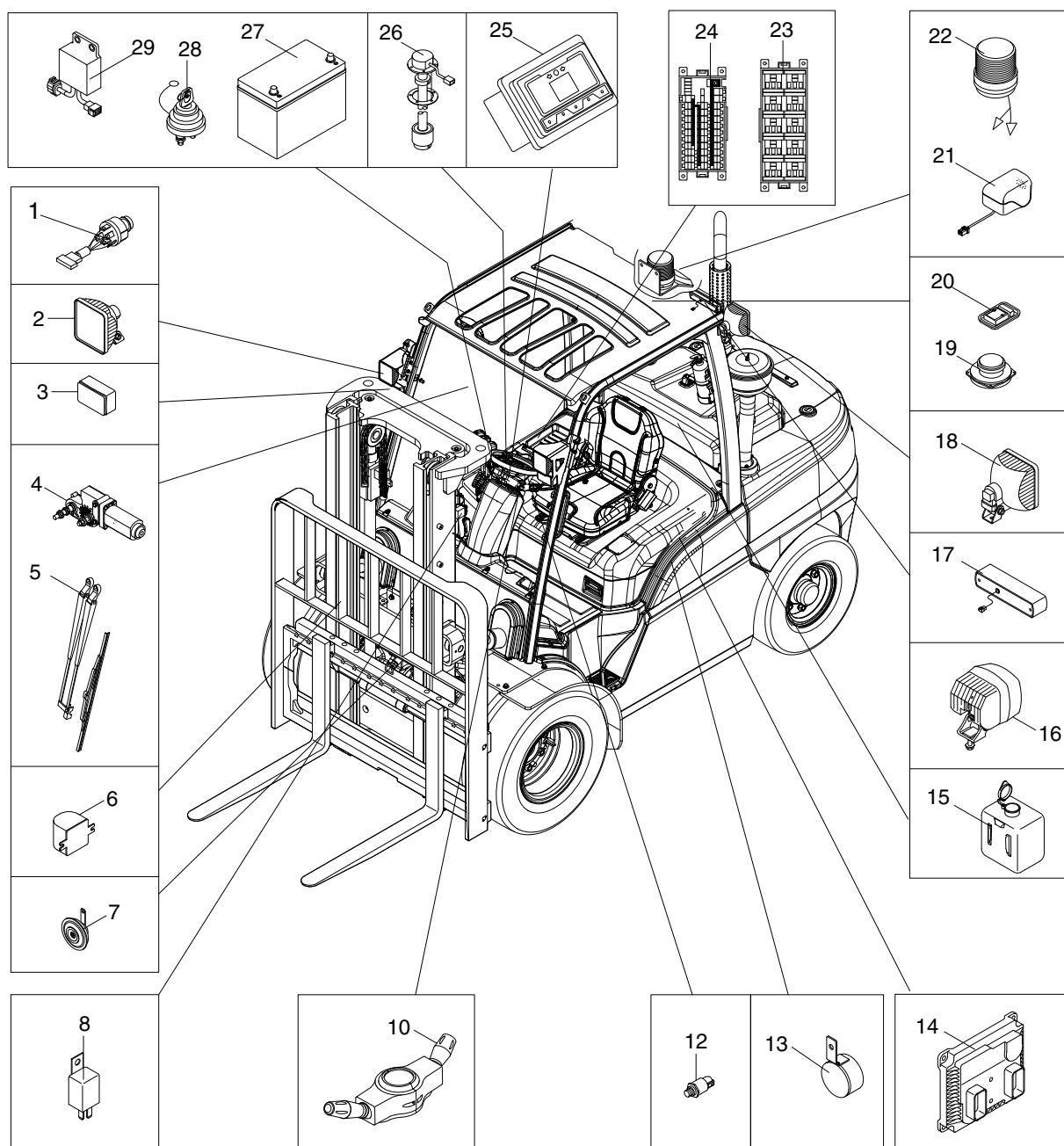
GROUP 1 COMPONENT LOCATION

1. LOCATION 1



35D9HDI7ES01

2. LOCATION 2



35D9HD17ES02

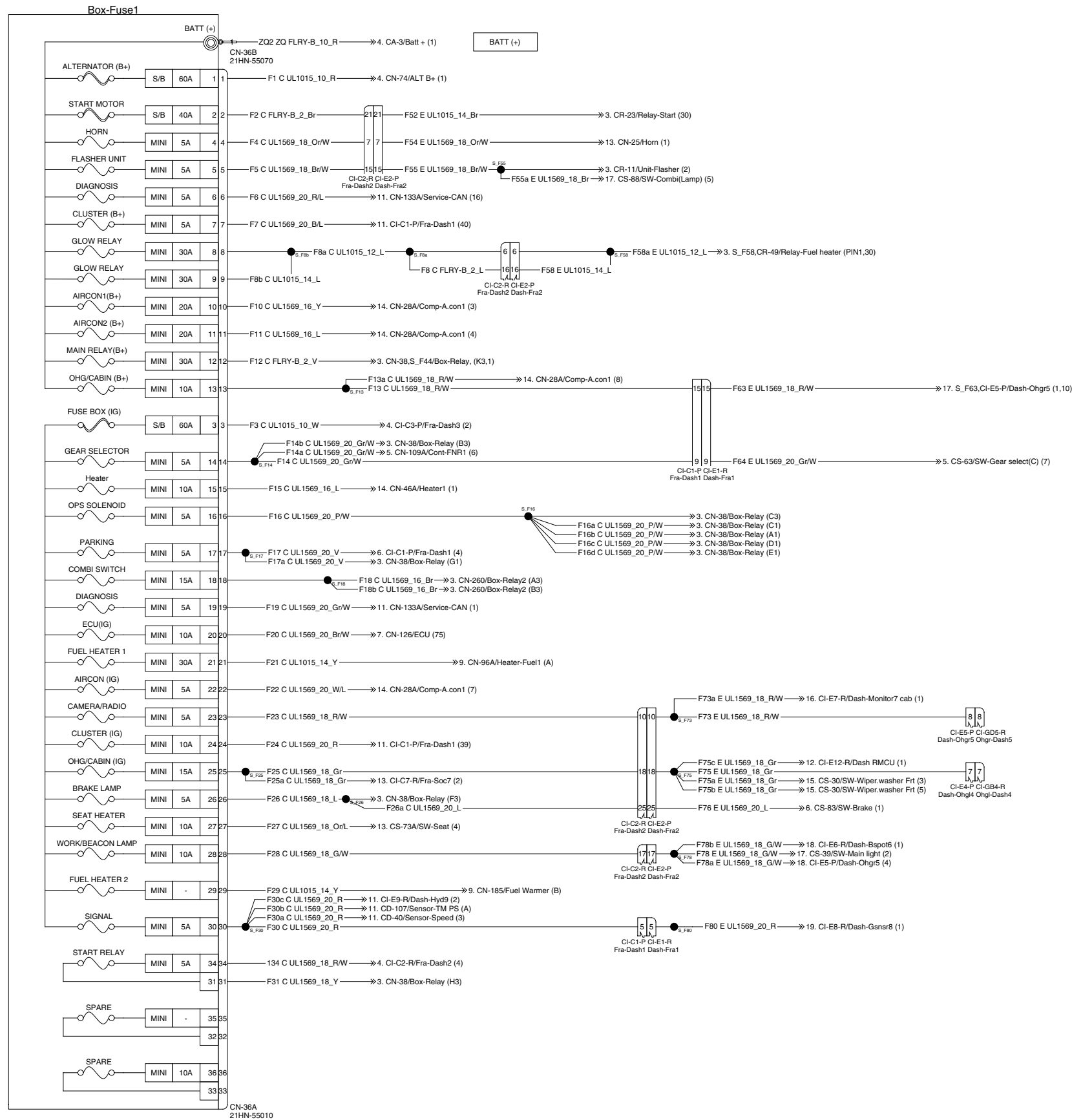
- | | | |
|-----------------------------|--------------------------|-------------------------|
| 1 Start switch | 12 Load sensor (opt) | 21 Camera (opt) |
| 2 Front work lamp | 13 Back buzzer | 22 Beacon lamp (opt) |
| 3 Front turn lamp | 14 Engine control module | 23 Relay box |
| 4 Wiper motor (opt) | 15 Washer tank (opt) | 24 Fuse box |
| 5 Wiper arm and blade (opt) | 16 Blue spot (opt) | 25 Cluster (2" Display) |
| 6 G-sensor (opt) | 17 Rear combination lamp | 26 Fuel sender |
| 7 Horn | 18 Rear work lamp (opt) | 27 Battery |
| 8 Flusher unit | 19 Speaker (opt) | 28 Master switch (opt) |
| 10 Multifunction switch | 20 Room lamp (opt) | 29 FNR controller (opt) |

GROUP 2 ELECTRIC CIRCUIT DIAGRAMS

1. CODES IN ELECTRIC CIRCUIT DIAGRAMS

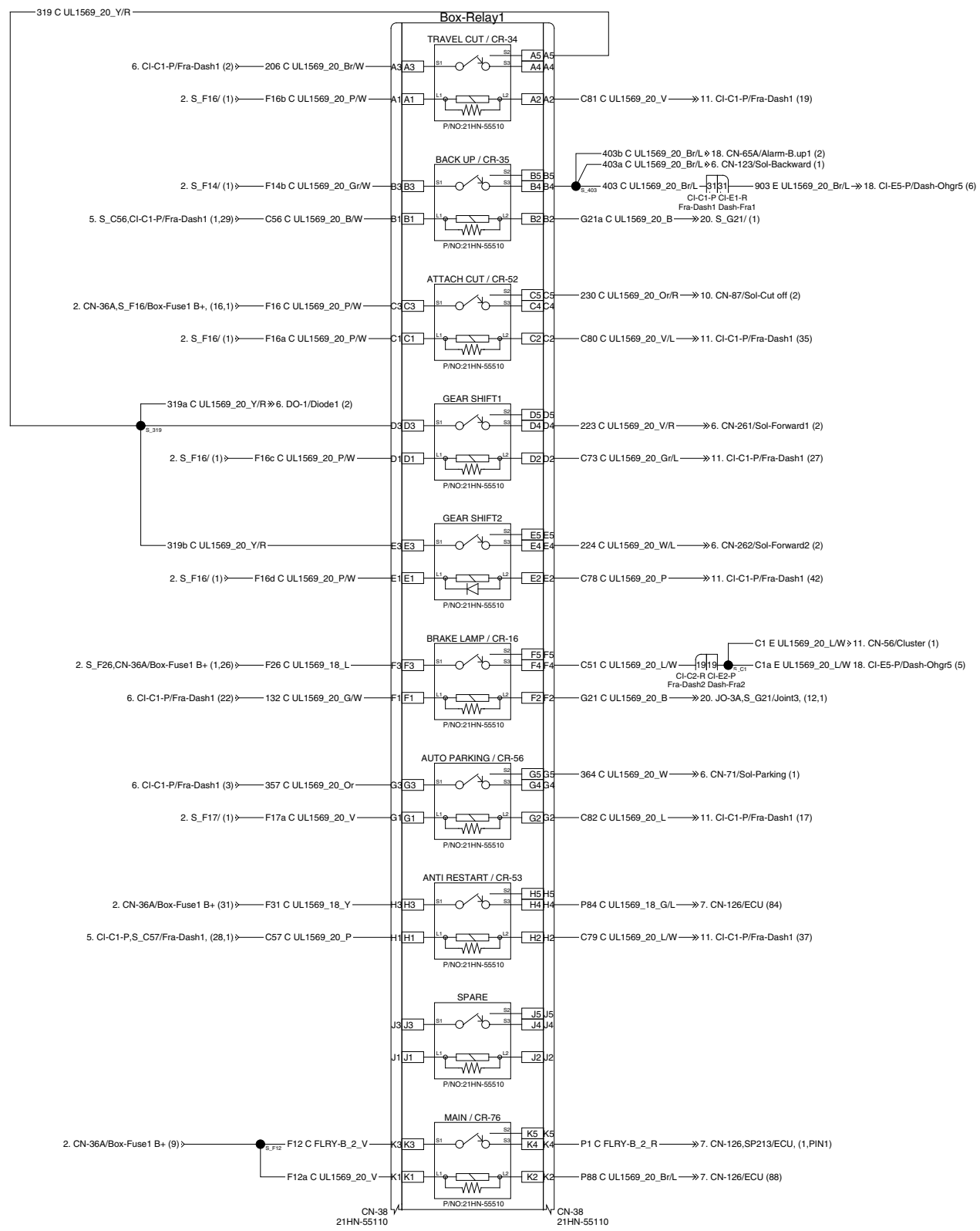
Code	Name
C	Frame harness (manual)
E	Dashboard harness
FA	Cabin LH harness (Cab)
FB	Cabin RH harness (Cab)
FC	Cabin RH harness (Cab, partial)
GB	OHG LH harness (LED)
GD	OHG RH harness (LED)
JE	Blue spot harness
ME	RMCU harness
MH	Monitor harness
O	G sensor harness
PB	Hydro sensor harness
QE	Tilt lever SW harness
R	Heater harness
S	Air-con harness
V	Socket harness
ZP	Batt (-) cable
ZQ	S.Motor cable
ZS	M.SW cable (batt)
ZT	M.SW cable (GND)

1) FUSE BOX

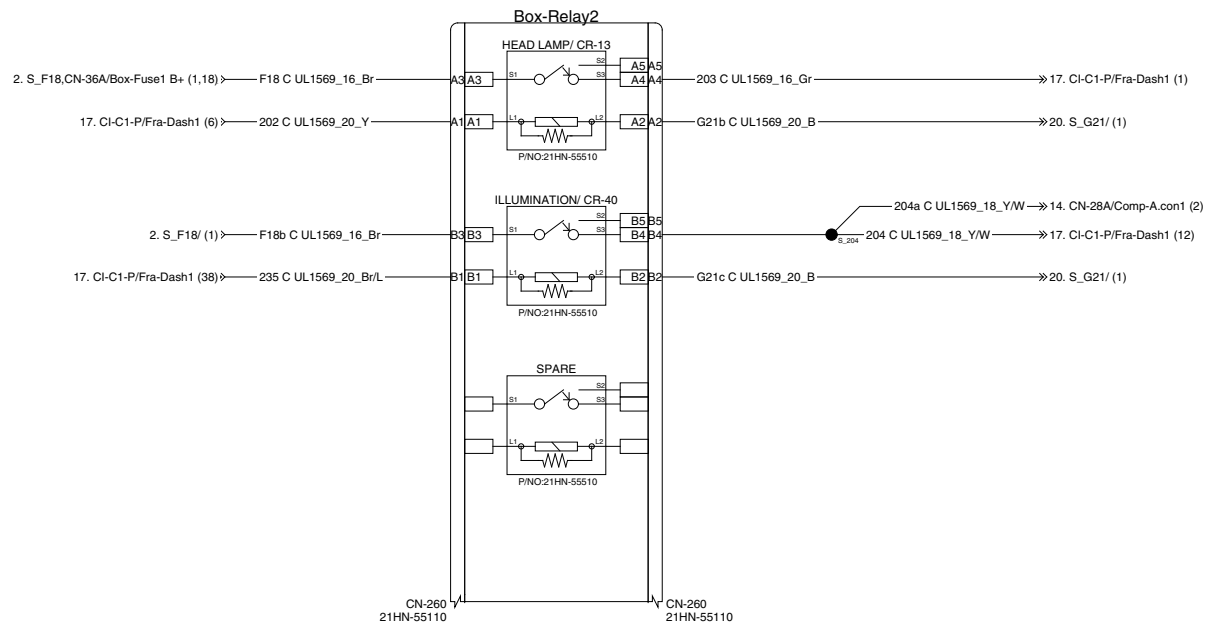
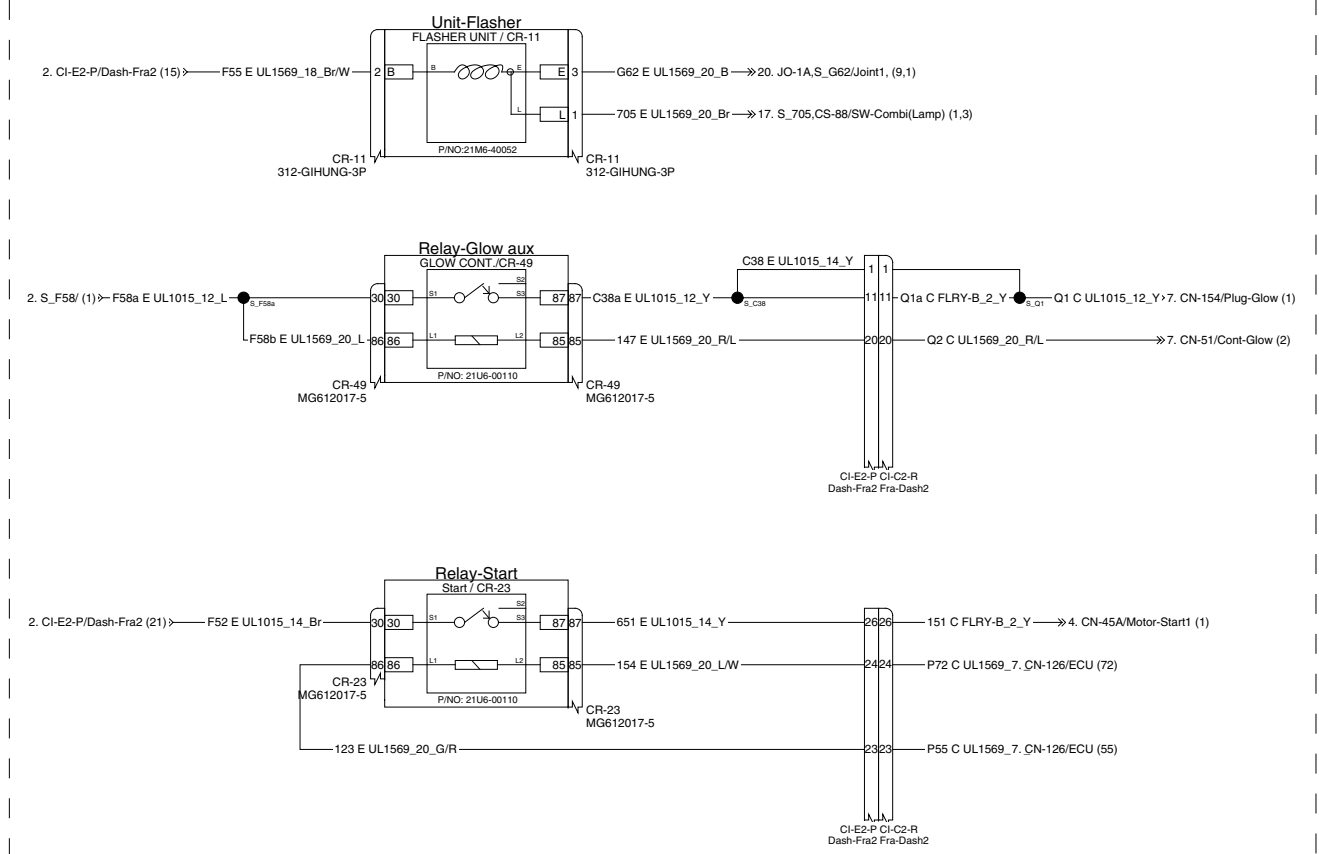


※ The circuit diagram may differ from the equipment, so please check before a repair.

2) RELAY BOX

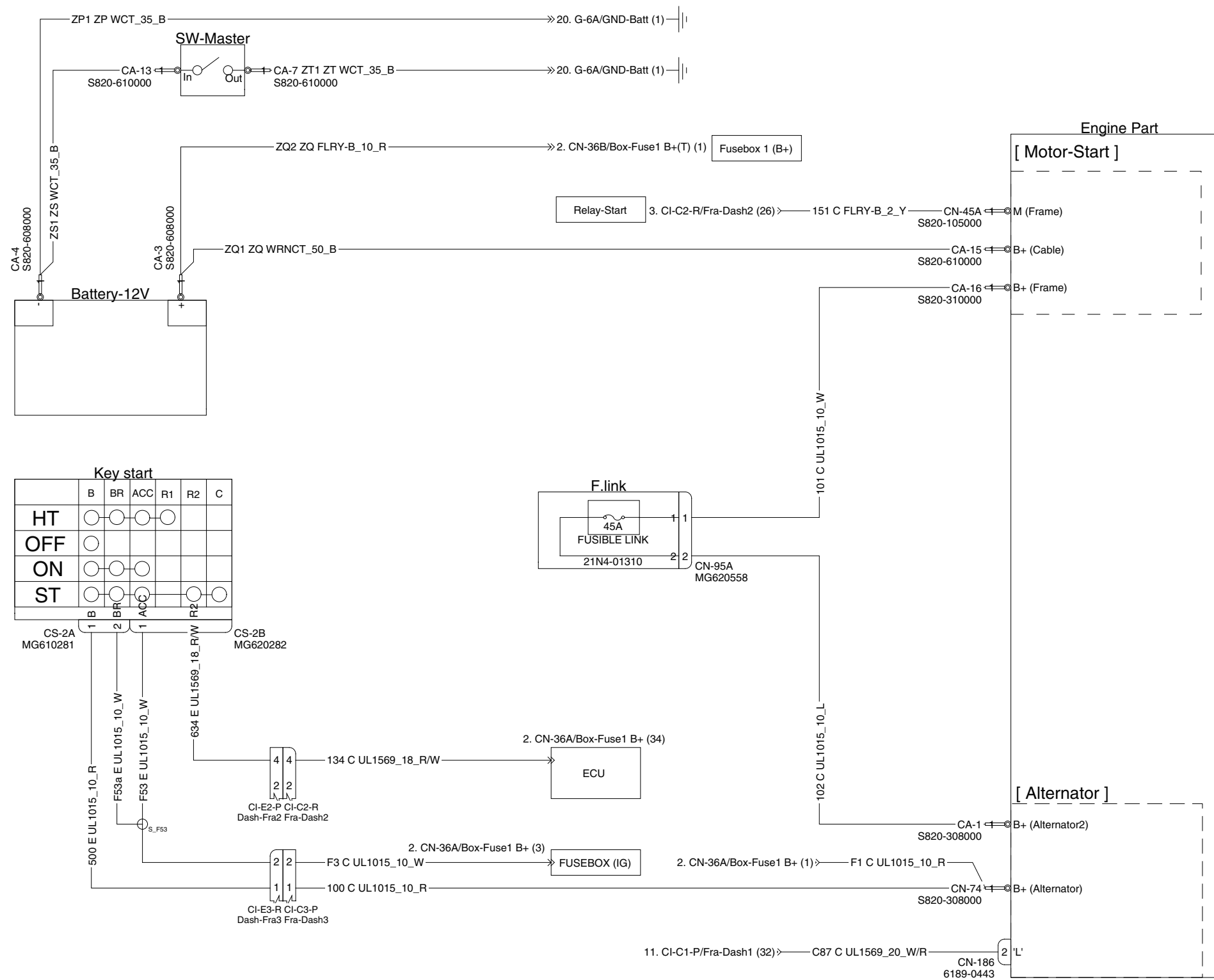


Dashboard Part

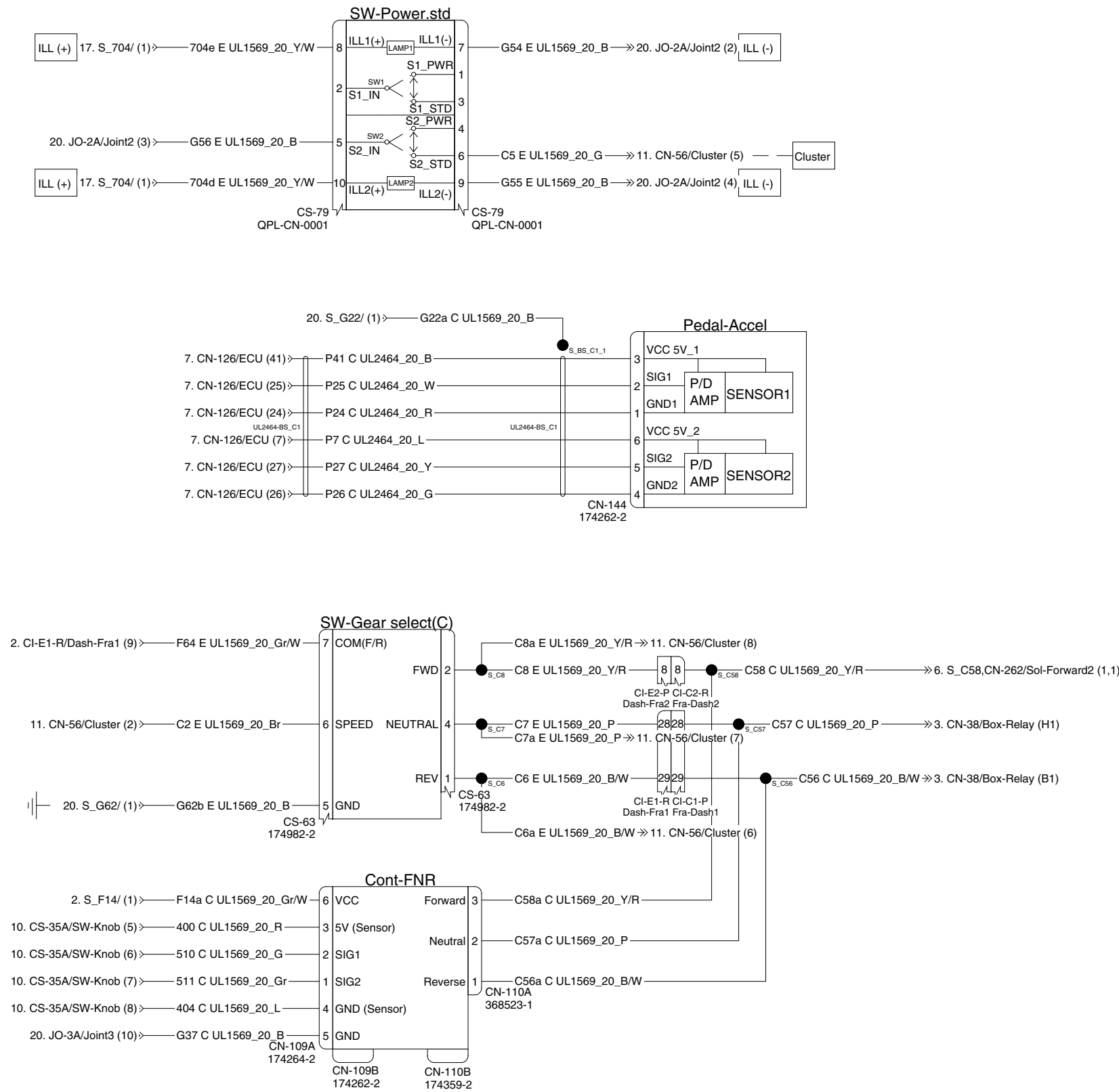


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3) START

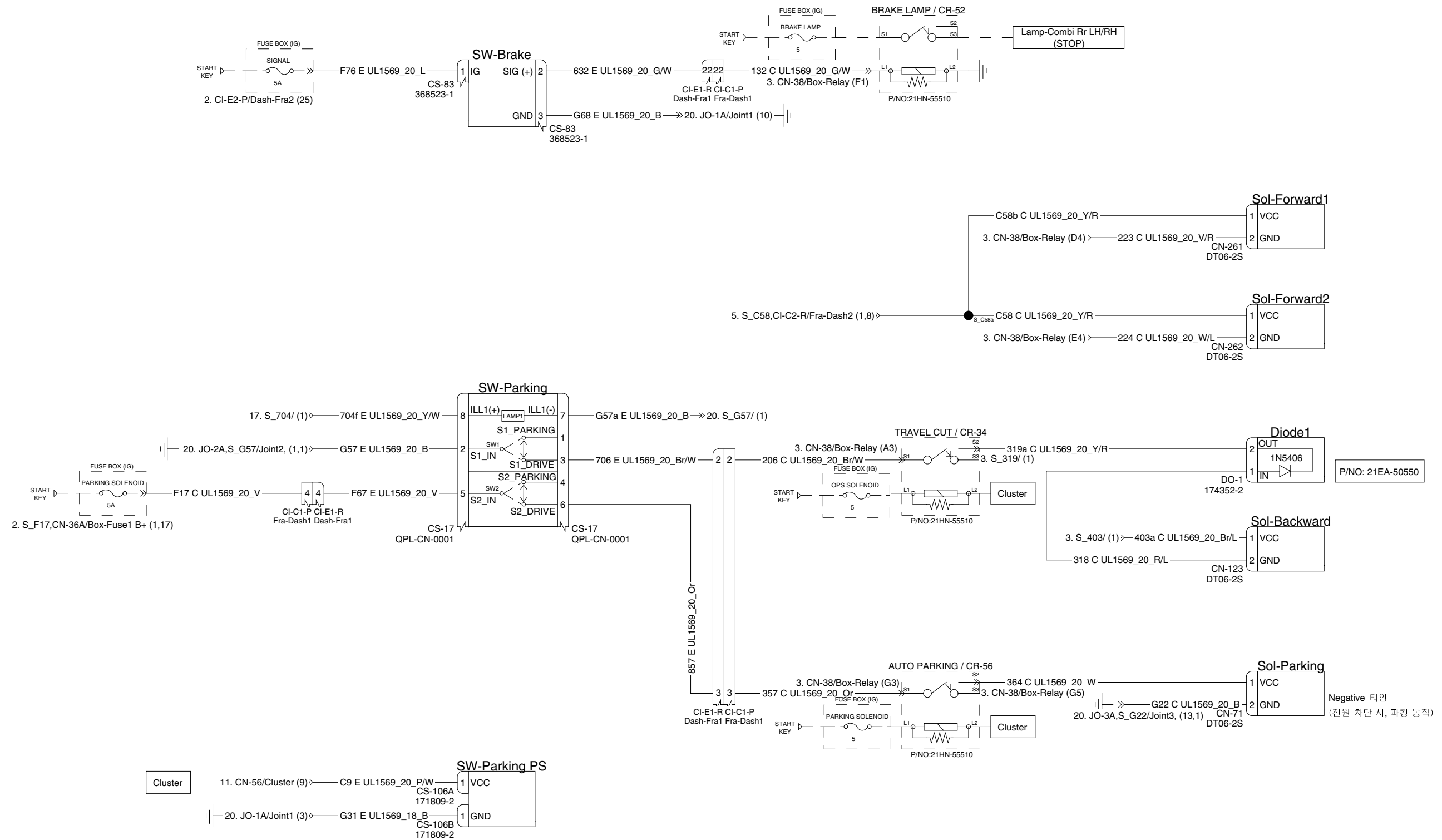


4) DRIVE



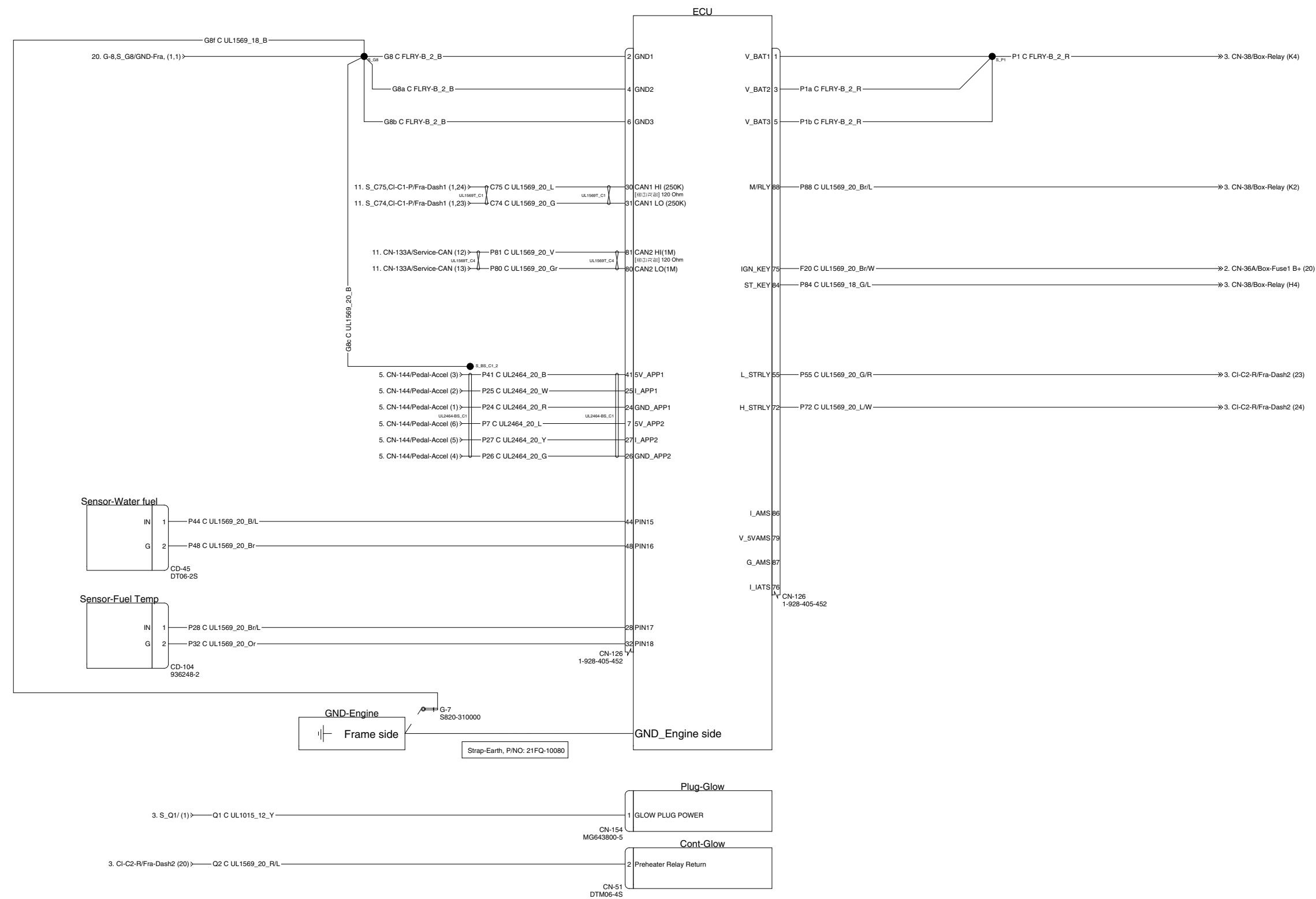
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5) PARKING, BRAKE



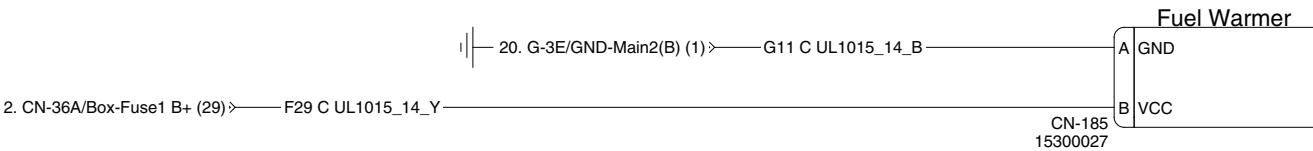
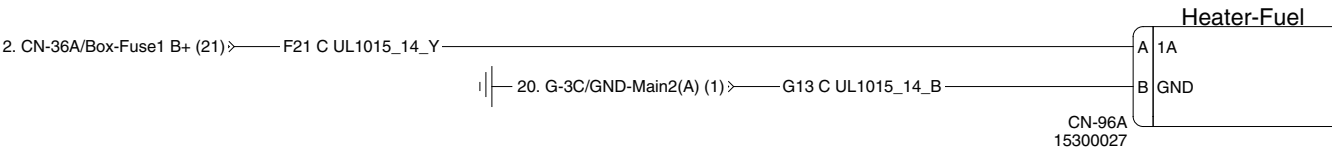
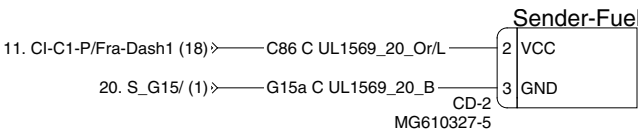
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6) ENGINE



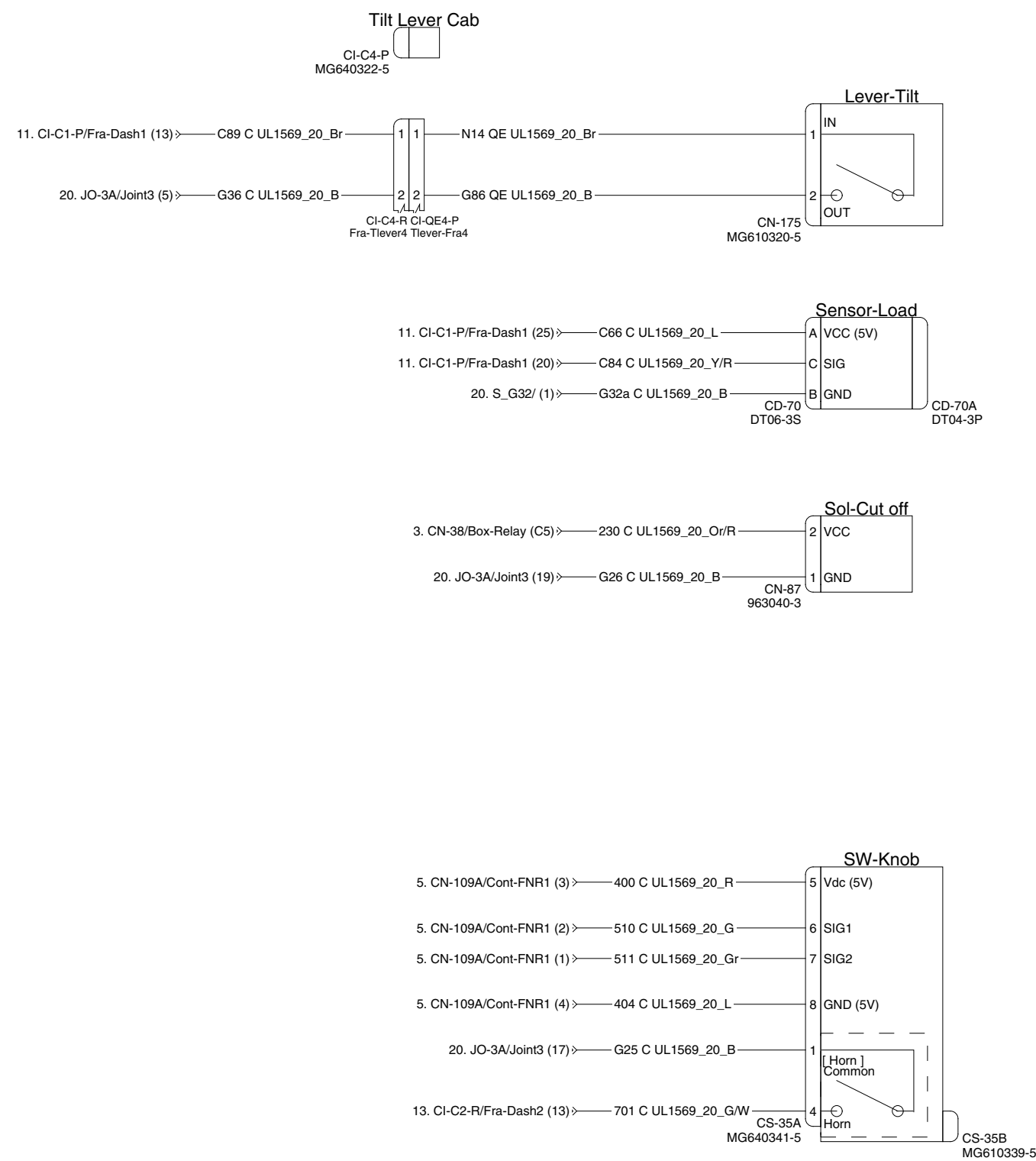
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7) FUEL



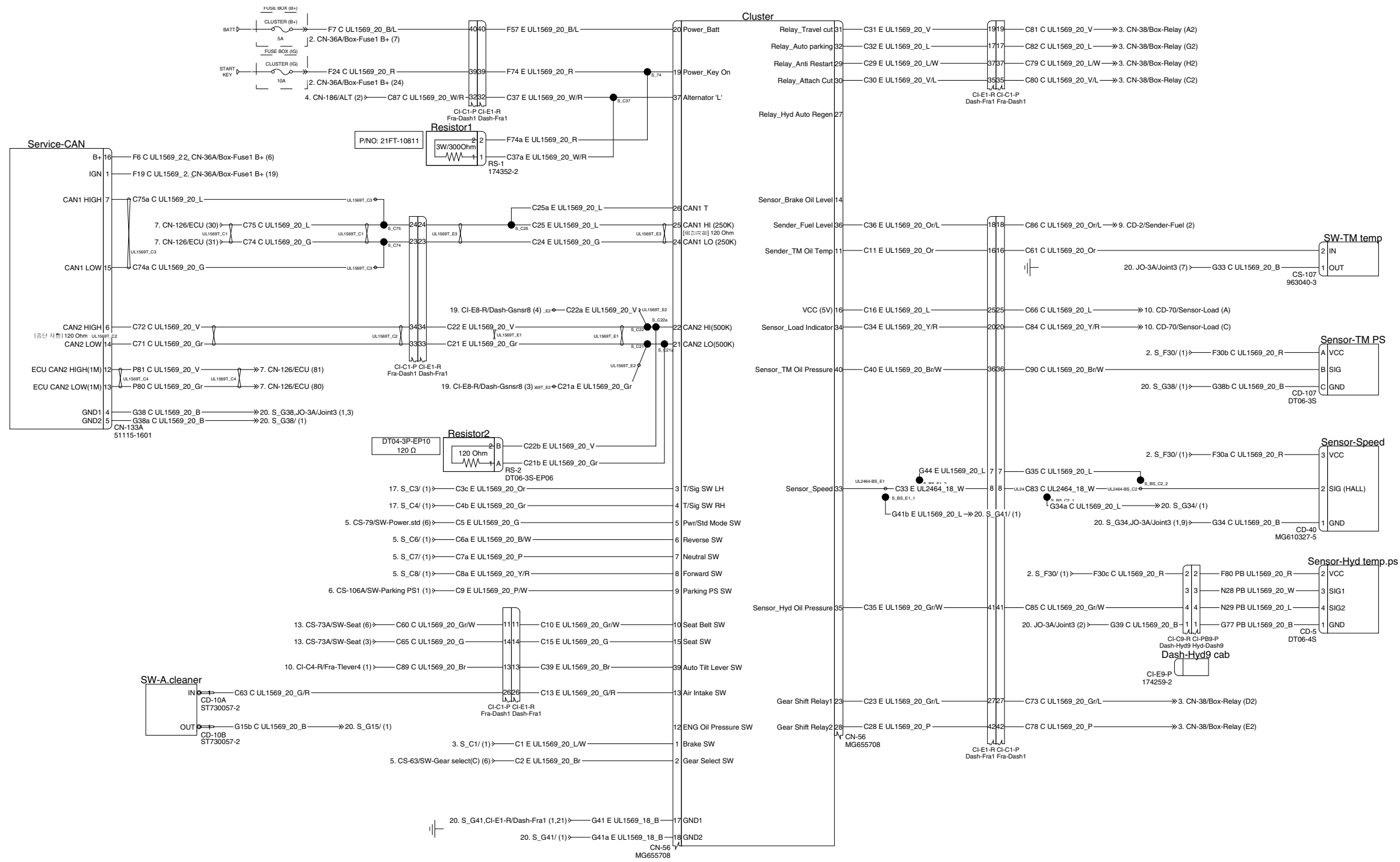
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8) MCV

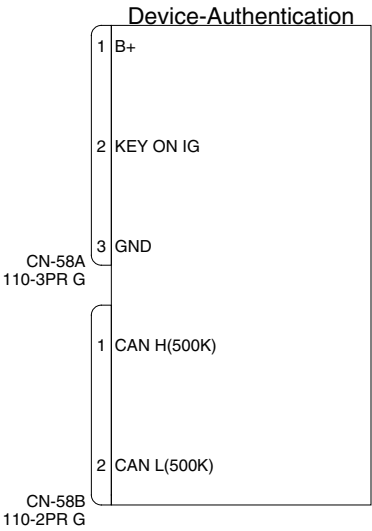
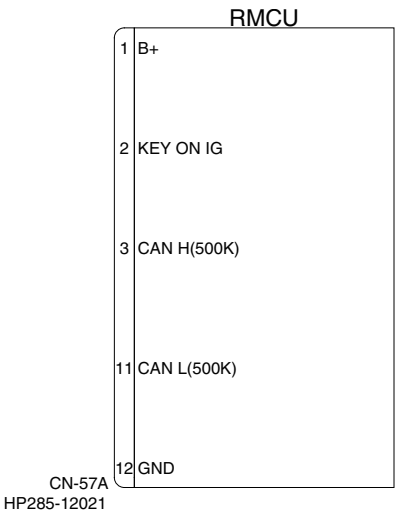
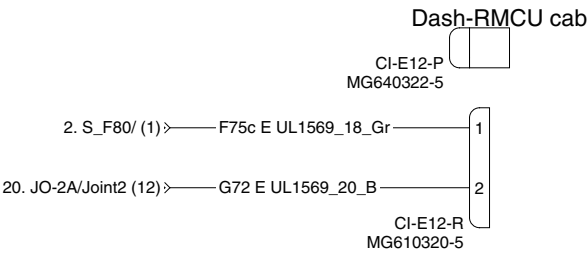


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9) DISPLAY DEVICE



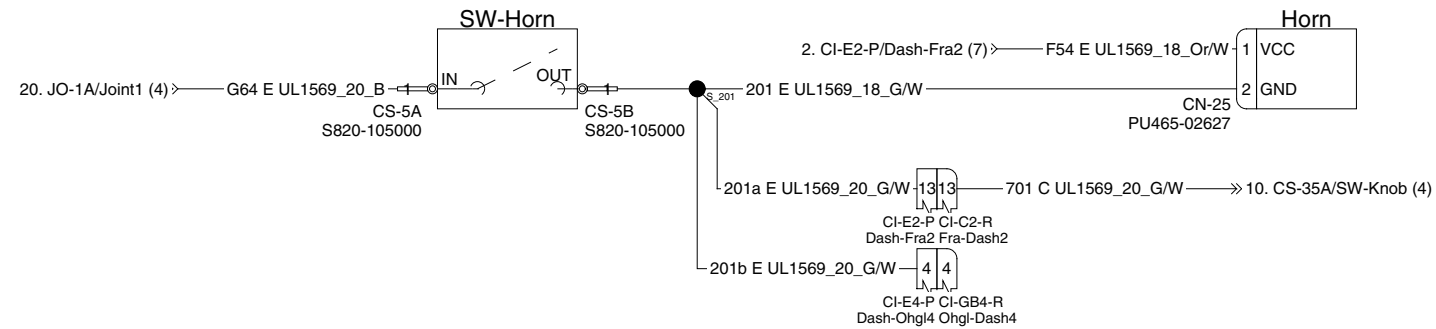
10) RMCU



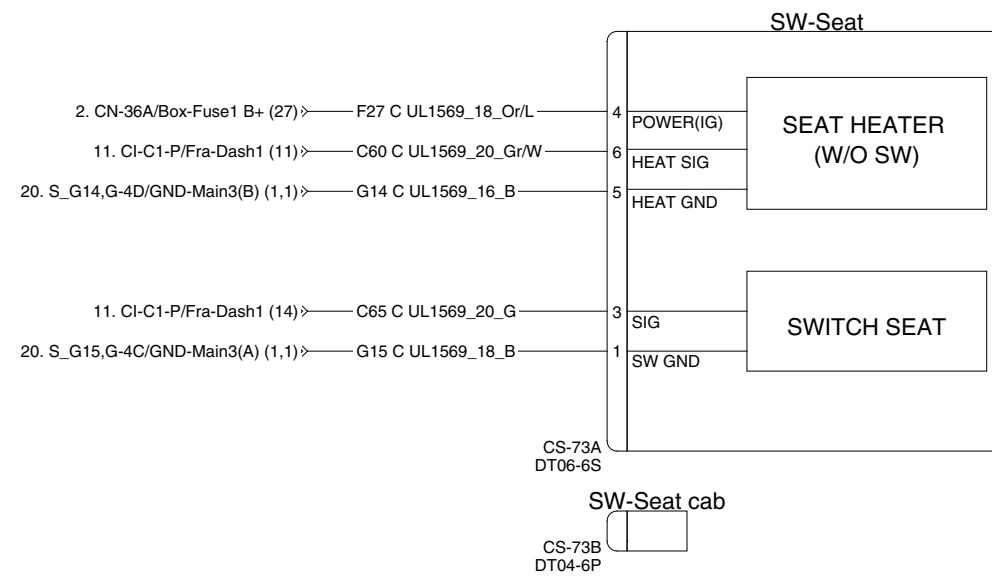
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11) HORN, SEAT, SOCKET

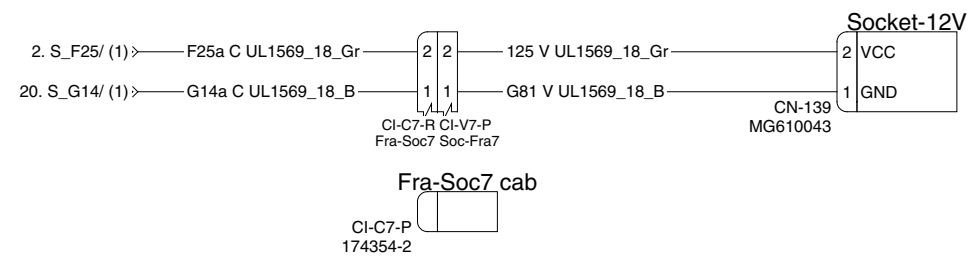
HORN



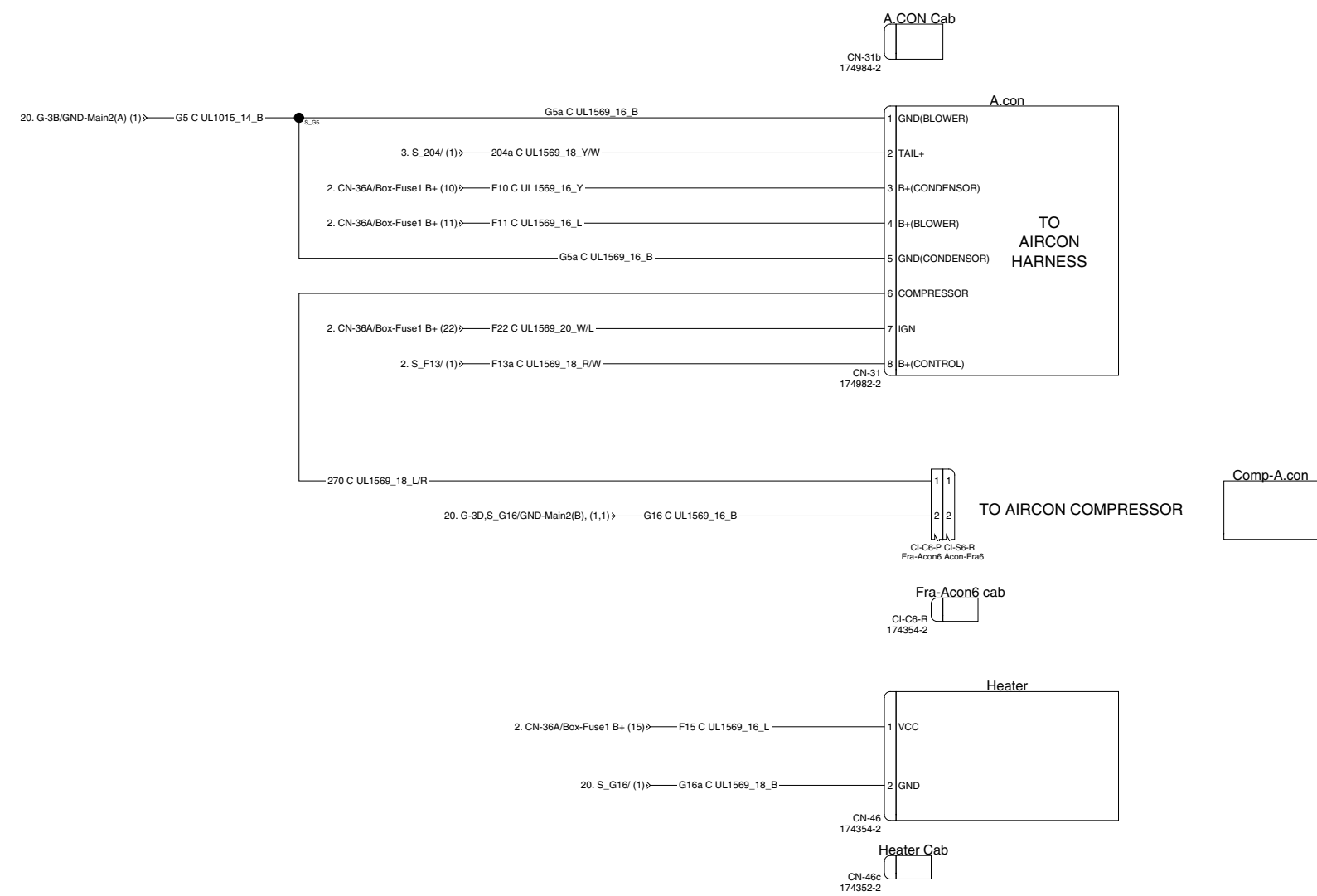
SEAT



12V SOCKET

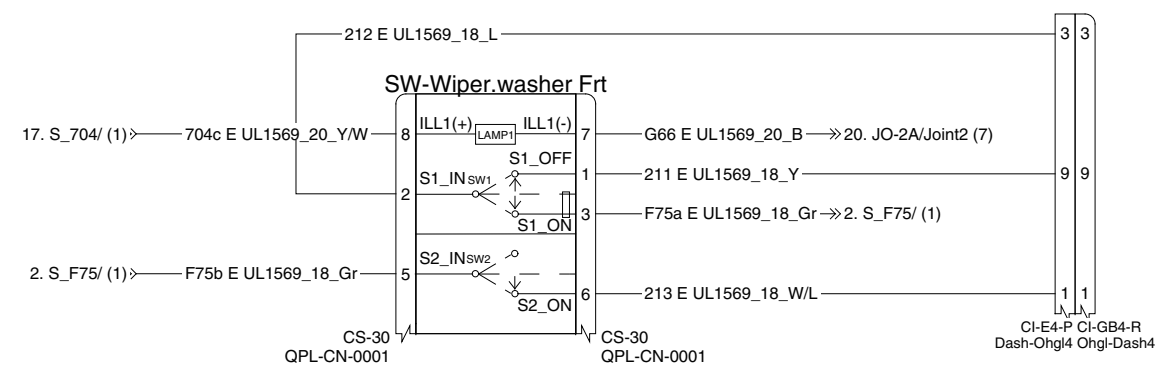


12) AIR-CON, HEATER



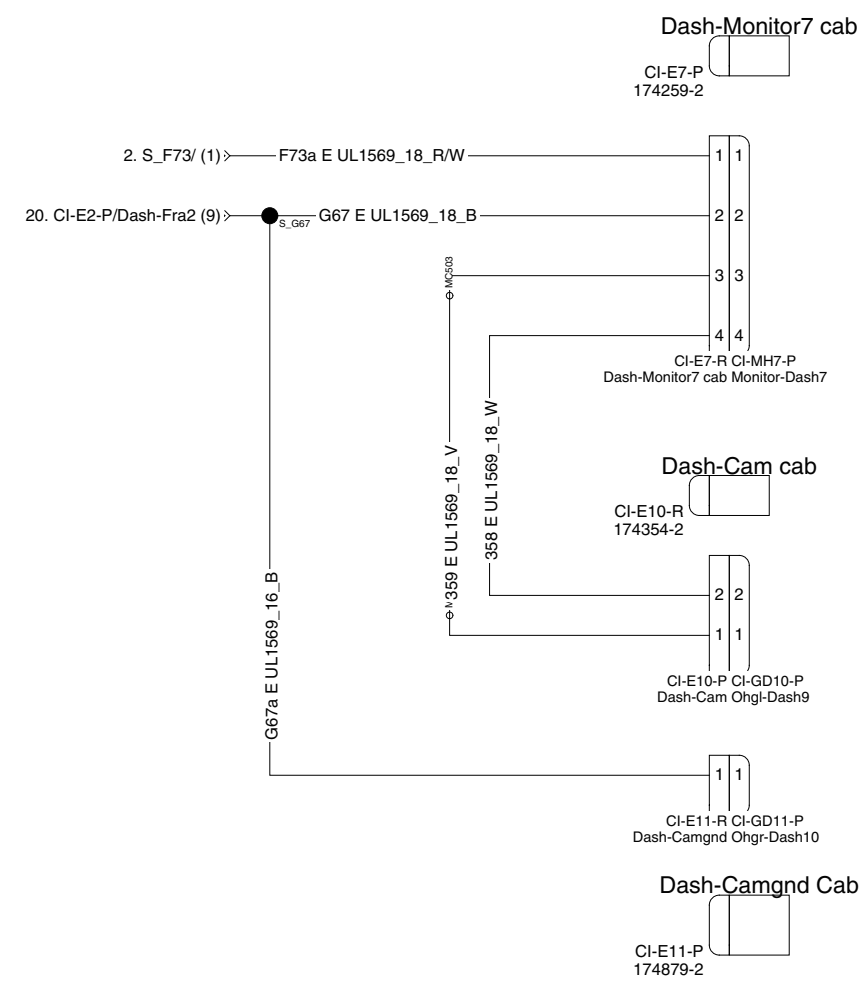
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13) WIPER, WASHER



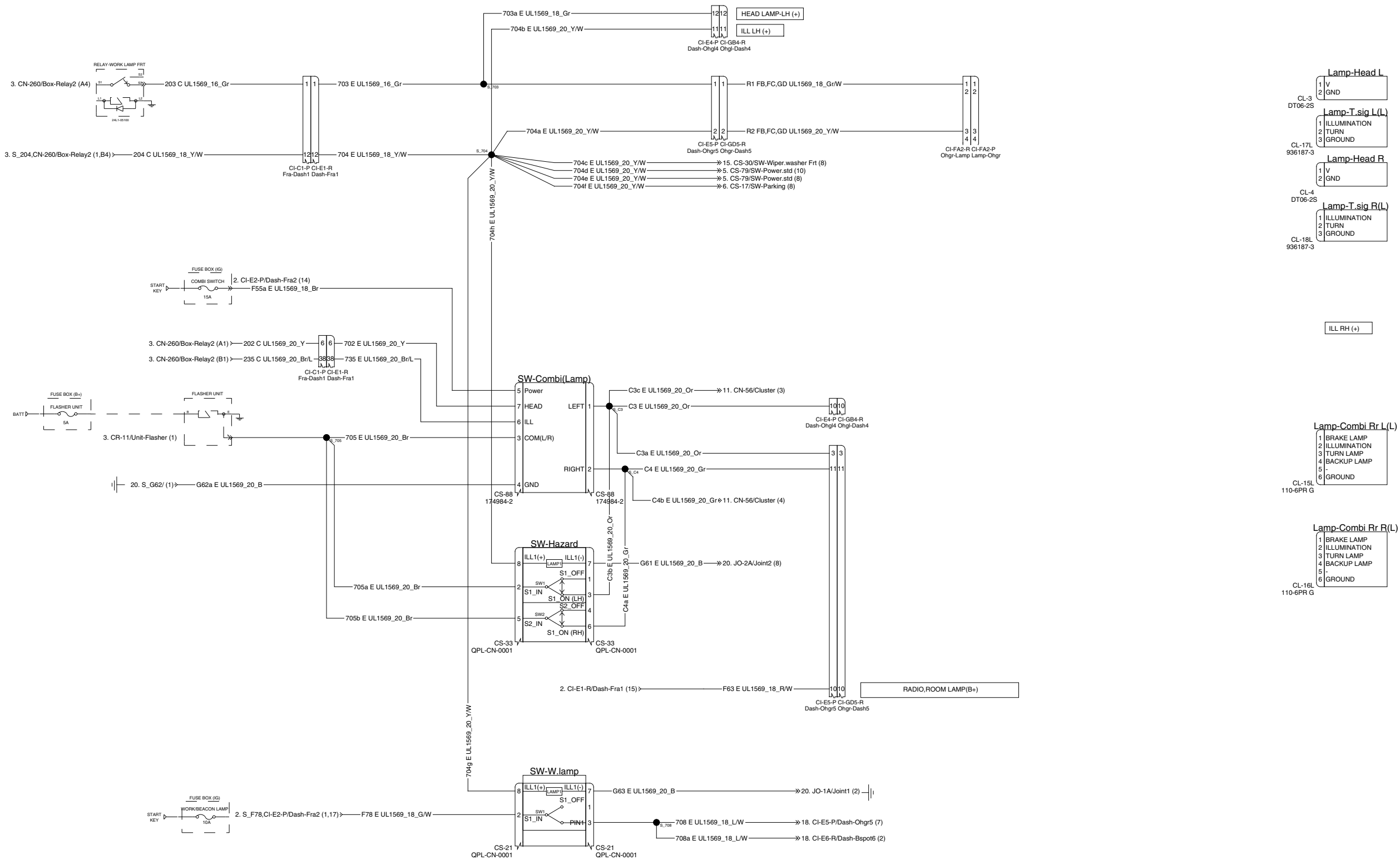
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14) MULTIMEDIA



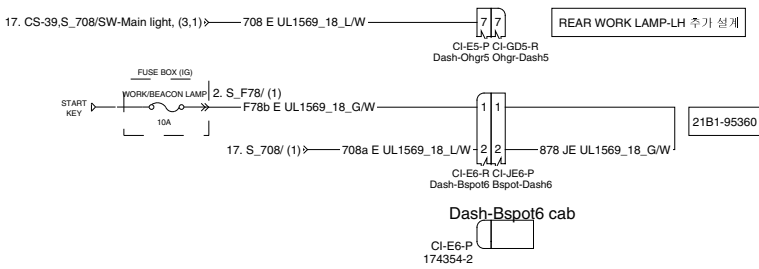
※ The circuit diagram may differ from the equipment, so please check before a repair.

15) LAMP-FRT, INTERIOR

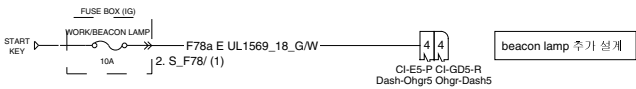


16) LAMP-REAR

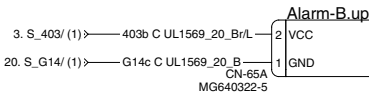
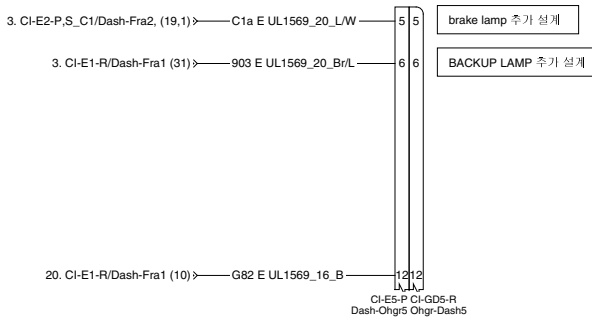
Rear Work/Blue spot Lamp



Beacon Lamp



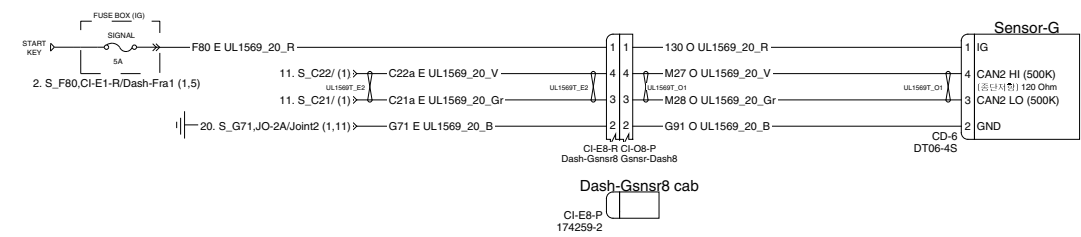
Rear Combi/Back Up/License Lamp



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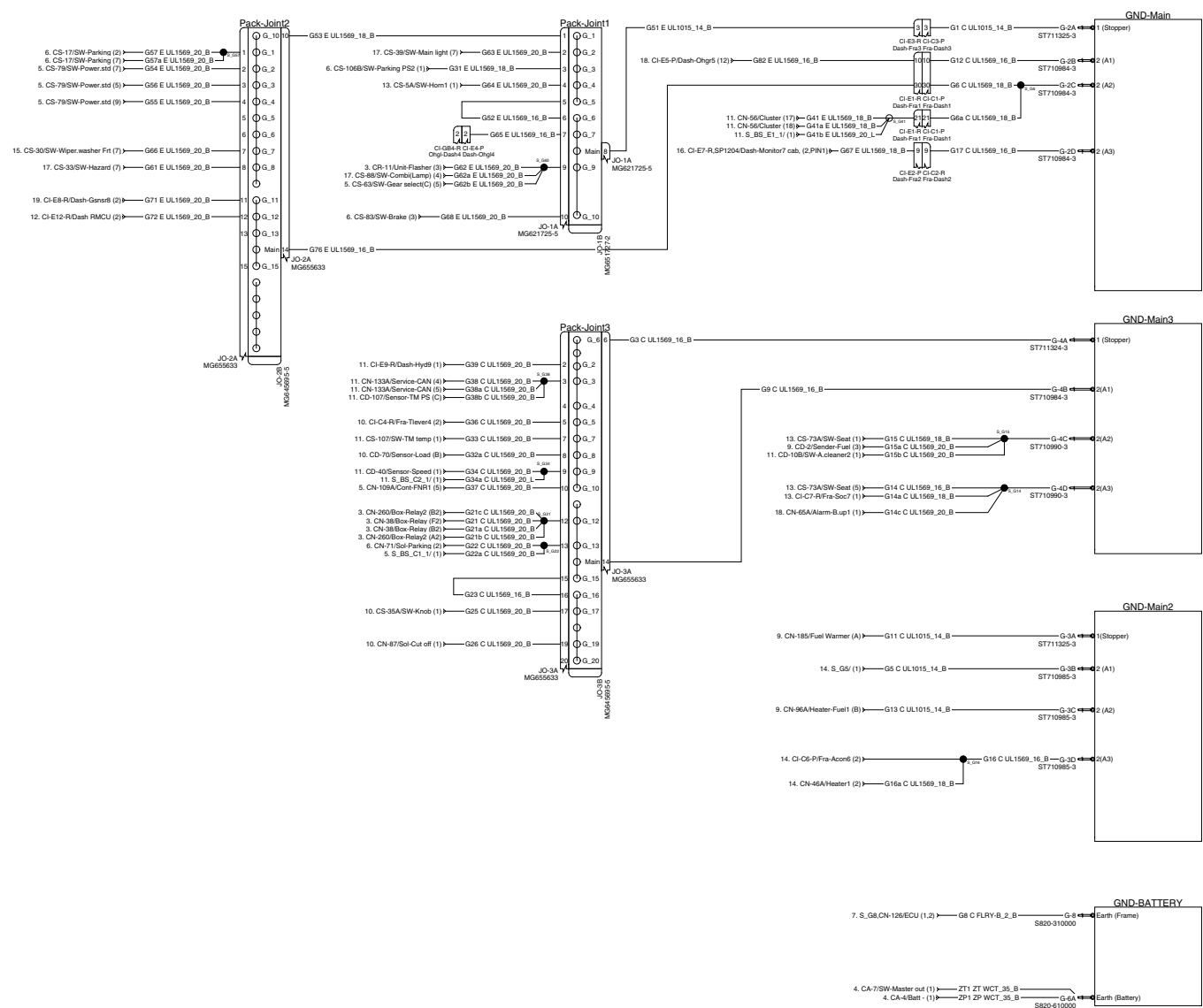
17) FORK, MAST, DIAGNOSIS

G-SENSOR



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

18) GND



※ 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 × 100 AH RC : 190 min CCA : 950 A																
2	Work lamp	1	12V, 55W																
3	Work lamp (LED, option)	1	12V, 22W																
4	License lamp (option)	1	12V, 10W																
5	Rear combination lamp (LED)	2	12V, 1.6/0.2W (Stop/Tail) 12V, 1.1W (Turn) 12V, 1.1W (Back Up)																
6	Flasher lamp	2	12V, 0.5/2.2W (posit/turn signal)																
7	Beacon lamp (LED, option)	1	12V, max. 0.800A																
8	Camera (option)	1	12V, 1.32W																
9	Flasher unit relay (3P)	1	12V, 20A																
10	Relay (5P)	10	12V, 20A																
11	Flasher Unit	1	12V, 85 ± 10 CM, $(23W + 23W) \times 2 + 3W \times 2$																
12	Back buzzer	1	12V, 90 ± 5 dB, 60 ± 10 C/M																
13	Horn	1	12V, MAX 3.5A, 105 ~ 120 dB																
14	Cluster (2" Display)	1	12V, 15W																
15	G-sensor (Mast angle, option)	1	12V, 5W																
16	Fuel level sender	1	<table border="1"> <tr> <td>Float indicator</td><td>E</td><td>4/8</td><td>F</td></tr> <tr> <td>Resistance (Ω)</td><td>700</td><td>350</td><td>50</td></tr> <tr> <td>Tolerance (Ω)</td><td>-0%</td><td>+5%</td><td>+0%</td></tr> <tr> <td></td><td>+5%</td><td></td><td>-5%</td></tr> </table>	Float indicator	E	4/8	F	Resistance (Ω)	700	350	50	Tolerance (Ω)	-0%	+5%	+0%		+5%		-5%
Float indicator	E	4/8	F																
Resistance (Ω)	700	350	50																
Tolerance (Ω)	-0%	+5%	+0%																
	+5%		-5%																
17	Master switch (option)	1	12V, 180A																
18	Gear selector switch	1	12V, 3.5A																
19	Combination switch	1	Direction : 12V, 3.5A Multi-function switch : 12V, 2A																
20	Rear worklamp switch (option)	1	12V, 15A																
21	Hazard switch (option)	1	12V, 15A																
22	Wiper/washer switch (option)	1	12V, 15A																
23	Accelerator pedal	1	12V, input voltage 5Vdc, current 16~20mA																
24	Parking switch	1	12V, 15A																
25	Socket assy (option)	1	12V, 10A																
26	Blue spot (LED, option)	1	12V, 8W																

GROUP 4 CONNECTOR DESTINATION

1. FRAME HARNESS

Short Description	Name	Supplier	Part Number	Type
-	CI-C6-R	AMP	174354-2	PLUG
A.con	CN-31	AMP	174982-2	RECP
A.con Cab	CN-31b	AMP	174984-2	PLUG
Alarm-B.up1	CN-65A	KET	MG640322-5	PLUG
ALT	CN-186	SMITOMO	6189-0443	RECP
ALT B+	CN-74	HCE	S820-308000	RTER
ALT B+	CA-1	HCE	S820-308000	RTER
Box-Fuse1 B+	CN-36A	QPL	21HN-55010	FBOX
Box-Relay	CN-38	QPL	21HN-55110	RBOX
Box-Relay2	CN-260	QPL	21HN-55110	RBOX
CI-C4-R cab	CI-C4-P	KET	MG640322-5	PLUG
Cont-FNR1	CN-109A	AMP	174264-2	PLUG
Cont-FNR1 cab	CN-109B	AMP	174262-2	RECP
Cont-FNR2	CN-110A	AMP	368523-1	RECP
Cont-FNR2 cab	CN-110B	AMP	174359-2	PLUG
Cont-Glow	CN-51	DEUTSCH	DTM06-4S	RECP
Dash-Hyd9	CI-C9-R	AMP	174257-2	RECP
Dash-Hyd9 cab	CI-E9-P	AMP	174259-2	PLUG
Diode1	DO-1	AMP	174352-2	RECP
ECU	CN-126	BOSCH	1-928-405-452	RECP
F.link	CN-95A	KET	MG620558	PLUG
Fra-Acon6	CI-C6-P	AMP	174352-2	RECP
Fra-Dash1	CI-C1-P	AMP	936429-2	PLUG
Fra-Dash2	CI-C2-R	AMP	1897009-2	RECP
Fra-Dash3	CI-C3-P	KET	MG652290-5	PLUG
Fra-Soc7	CI-C7-R	AMP	174352-2	RECP
Fra-Soc7 cab	CI-C7-P	AMP	174354-2	PLUG
Fra-Tlever4	CI-C4-R	KET	MG610320-5	RECP
Fuel Warmer	CN-185	DELPHI	15300027	RECP
GND-Eng	G-7	HCE	S820-310000	RTER
GND-Fra	G-8	HCE	S820-310000	RTER
GND-Main1(A)	G-2C	KET	ST710984-3	ETER
GND-Main1(A)	G-2D	KET	ST710984-3	ETER
GND-Main1(A)	G-2B	KET	ST710984-3	ETER
GND-Main1(S)	G-2A	KET	ST711325-3	ETER
GND-Main2(A)	G-3C	KET	ST710985-3	ETER

Short Description	Name	Supplier	Part Number	Type
GND-Main2(A)	G-3B	KET	ST710985-3	ETER
GND-Main2(B)	G-3D	KET	ST710985-3	ETER
GND-Main2(S)	G-3A	KET	ST711325-3	ETER
GND-Main3(A)	G-4B	KET	ST710984-3	ETER
GND-Main3(A)	G-4C	KET	ST710990-3	ETER
GND-Main3(B)	G-4D	KET	ST710990-3	ETER
GND-Main3(S)	G-4A	KET	ST711324-3	ETER
Heater	CN-46	AMP	174354-2	PLUG
Heater Cab	CN-46c	AMP	174352-2	RECP
Heater-Fuel1	CN-96A	DELPHI	15300027	RECP
Joint3	JO-3A	KET	MG655633	RECP
Joint3 pack	JO-3B	KET	MG645695-5	PLUG
Motor-Start1	CN-45A	HCE	S820-105000	RTER
Motor-Start2	CA-16	HCE	S820-310000	RTER
Pedal-Accel	CN-144	AMP	174262-2	RECP
Plug-Glow	CN-154	KET	MG643800-5	PLUG
Sender-Fuel	CD-2	KET	MG610327-5	RECP
Sensor-Fuel Temp	CD-104	AMP	936248-2	RECP
Sensor-Load	CD-70	DEUTSCH	DT06-3S	RECP
Sensor-Load cab	CD-70A	DEUTSCH	DT04-3P	PLUG
Sensor-Speed	CD-40	KET	MG610327-5	RECP
Sensor-TM PS	CD-107	DEUTSCH	DT06-3S	RECP
Sensor-Water fuel	CD-45	DEUTSCH	DT06-2S	RECP
Service-CAN	CN-133A	MOLEX	51115-1601	RECP
Sol-Backward	CN-123	DEUTSCH	DT06-2S	RECP
Sol-Cut off	CN-87	AMP	963040-3	RECP
Sol-Forward1	CN-261	DEUTSCH	DT06-2S	RECP
Sol-Forward2	CN-262	DEUTSCH	DT06-2S	RECP
Sol-Parking	CN-71	DEUTSCH	DT06-2S	RECP
SW-A.cleaner1	CD-10A	KET	ST730057-2	TERM
SW-A.cleaner2	CD-10B	KET	ST730057-2	TERM
SW-Knob	CS-35A	KET	MG640341-5	PLUG
SW-Knob cab	CS-35B	KET	MG610339-5	RECP
SW-Seat	CS-73A	DEUTSCH	DT06-6S	RECP
SW-Seat cab	CS-73B	DEUTSCH	DT04-6P	PLUG
SW-TM temp	CS-107	AMP	963040-3	RECP

2. DASHBOARD HARNESS

Short Description	Name	Supplier	Part Number	Type
Cluster	CN-56	KET	MG655708	RECP
Dash-Bspot6	CI-E6-R	AMP	174352-2	RECP
Dash-Bspot6 cab	CI-E6-P	AMP	174354-2	PLUG
Dash-Cam	CI-E10-P	AMP	174352-2	RECP
Dash-Cam cab	CI-E10-R	AMP	174354-2	PLUG
Dash-Camgnd	CI-E11-R	AMP	174877-2	RECP
Dash-Camgnd Cab	CI-E11-P	AMP	174879-2	PLUG
Dash-Fra1	CI-E1-R	AMP	936421-2	RECP
Dash-Fra2	CI-E2-P	AMP	1897013-2	PLUG
Dash-Fra3	CI-E3-R	KET	MG642292-5	RECP
Dash-Gsnsr8	CI-E8-R	AMP	174257-2	RECP
Dash-Gsnsr8 cab	CI-E8-P	AMP	174259-2	PLUG
Dash-Monitor7	CI-E7-P	AMP	174259-2	PLUG
Dash-Monitor7 cab	CI-E7-R	AMP	174257-2	RECP
Dash-Ohgl4	CI-E4-P	KET	MG640348-5	PLUG
Dash-Ohgr5	CI-E5-P	KET	MG640348-5	PLUG
Dash-RMCU	CI-E12-R	DEUTSCH	DT06-6S	RECP
Dash-RMCU cab	CI-E12-P	DEUTSCH	DT04-6P	PLUG
Horn	CN-25	MOLEX	35825-0211	RECP
Joint1	JO-1A	KET	MG621725-5	RECP
Joint1 pack	JO-1B	KET	MG651727-2	PLUG
Joint2	JO-2A	KET	MG655633	RECP
Joint2 pack	JO-2B	KET	MG645695-5	PLUG
Key start1	CS-2A	KET	MG610281	RECP
Key start2	CS-2B	KET	MG620282	PLUG
Relay-Fuel heater	CR-49	KET	MG612017-5	RECP
Relay-Start	CR-23	KET	MG612017-5	RECP
Resistor1	RS-1	AMP	174352-2	RECP
Resistor2	RS-2	DEUTSCH	DT06-3S-EP06	RECP
SW-Brake	CS-83	AMP	368523-1	RECP
SW-Combi(Lamp)	CS-88	AMP	174984-2	PLUG
SW-Gear select(C)	CS-63	AMP	174982-2	RECP
SW-Hazard	CS-33	QPL	QPL-CN-0001	RECP
SW-Horn1	CS-5A	HCE	S820-105000	RTER
SW-Horn2	CS-5B	HCE	S820-105000	RTER
SW-Parking	CS-17	QPL	QPL-CN-0001	RECP
SW-Parking PS1	CS-106A	AMP	171809-2	RECP
SW-Parking PS2	CS-106B	AMP	171809-2	RECP

Short Description	Name	Supplier	Part Number	Type
SW-Power.std	CS-79	QPL	QPL-CN-0001	RECP
SW-W.lamp	CS-21	QPL	QPL-CN-0001	RECP
SW-Wiper.washer Frt	CS-30	QPL	QPL-CN-0001	RECP
Unit-Flasher	CR-11	DAEDONG	312-GIHUNG-3P	RECP

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
Engine oil pressure caution lamp does not light when engine is stopped (with starting switch left in "ON" position).	· Caution lamp defective. · Caution lamp switch defective.	· Replace · Replace