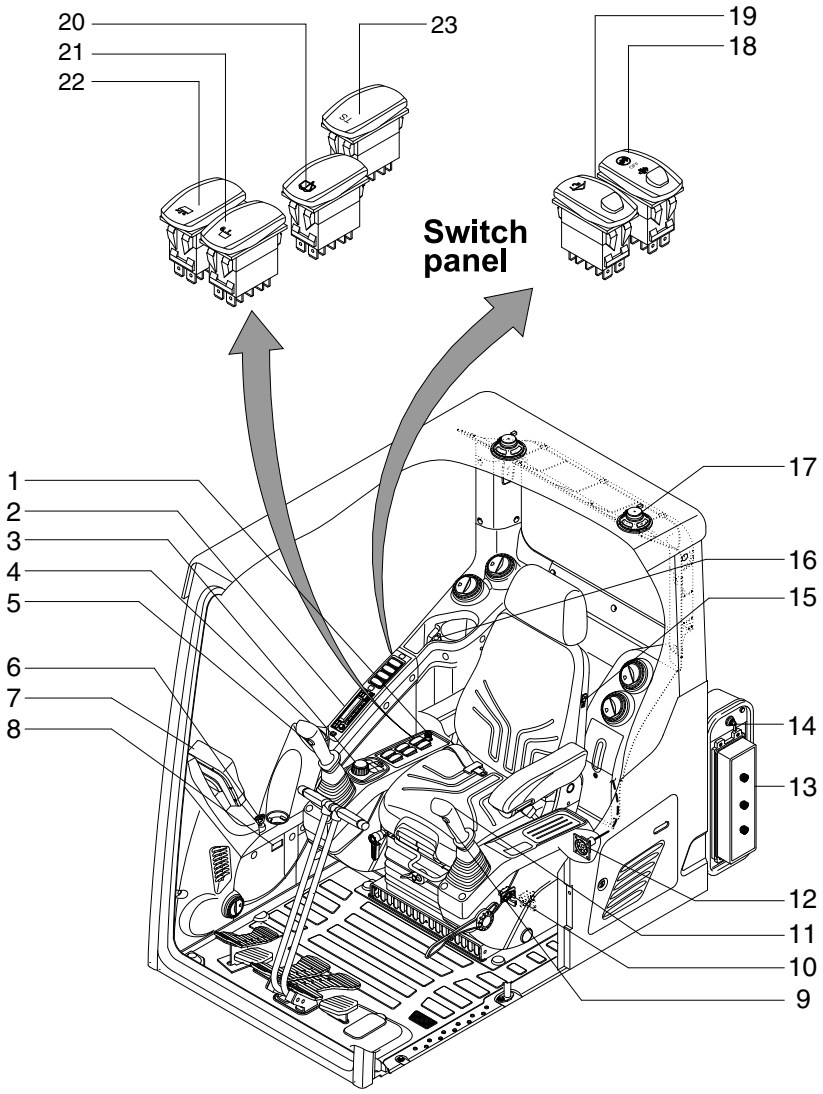
SECTION 4 ELECTRICAL SYSTEM

Group 1 Component Location 4-1
Group 2 Electrical Circuit 4-3
Group 3 Electrical Component Specification 4-23
Group 4 Connectors 4-36

GROUP 1 COMPONENT LOCATION

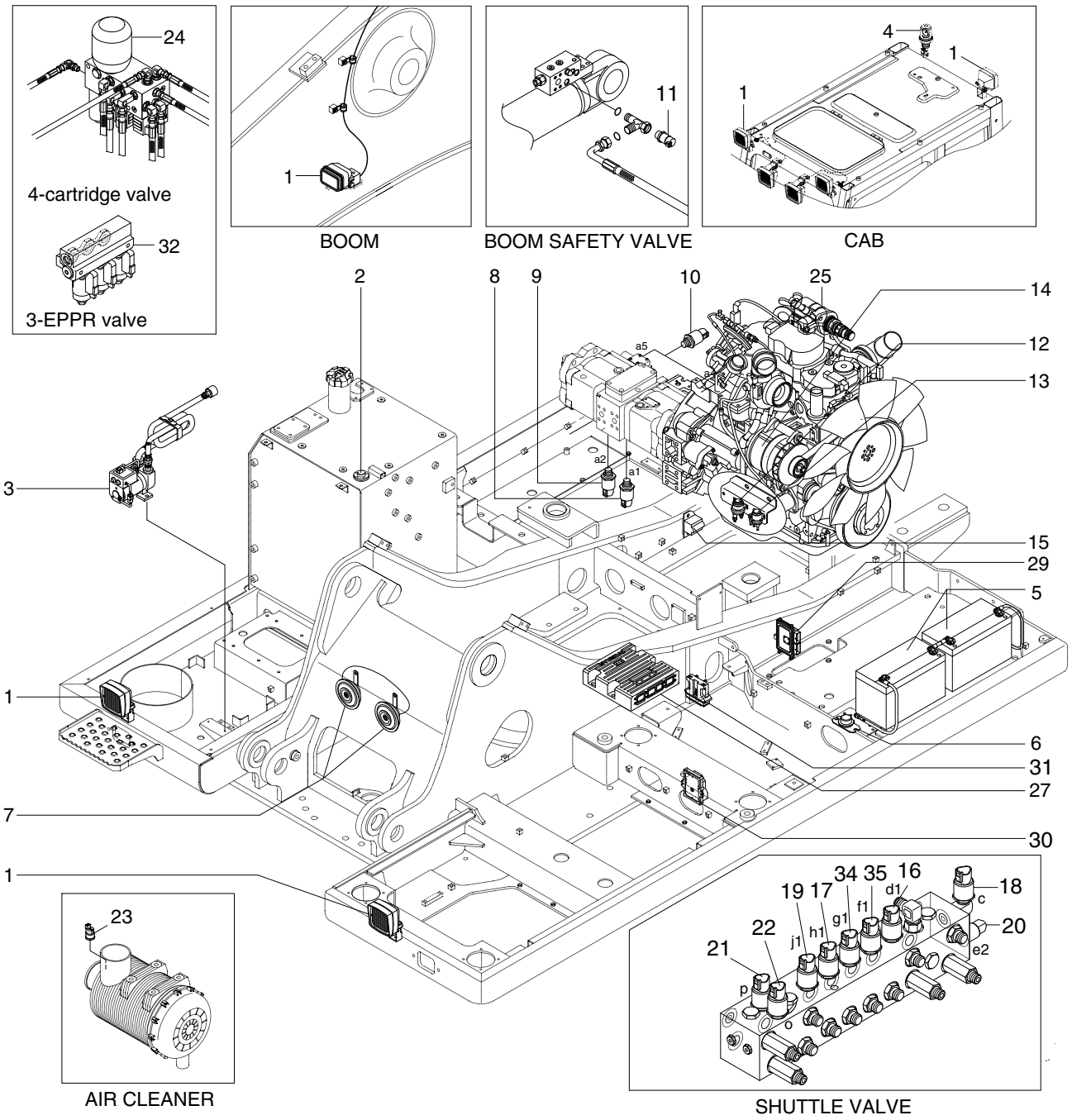
1. LOCATION 1



210A4EL01

1	Cigar lighter	9	Power max switch	17	Speaker
2	Radio & USB player	10	Emergency engine stop switch	18	Exhaust system cleaning switch
3	Jog dial module	11	One touch decel switch	19	Quick coupler switch
4	Horn switch	12	RS232 & J1939 service socket	20	Lower wiper & washer switch
5	Breaker operation switch	13	Fuse & relay box	21	Swing lock switch
6	Starting switch	14	Master switch	22	Free/fine swing switch
7	Cluster	15	Seat heater switch	23	Travel straight switch
8	Service meter	16	Power socket		

2. LOCATION 2



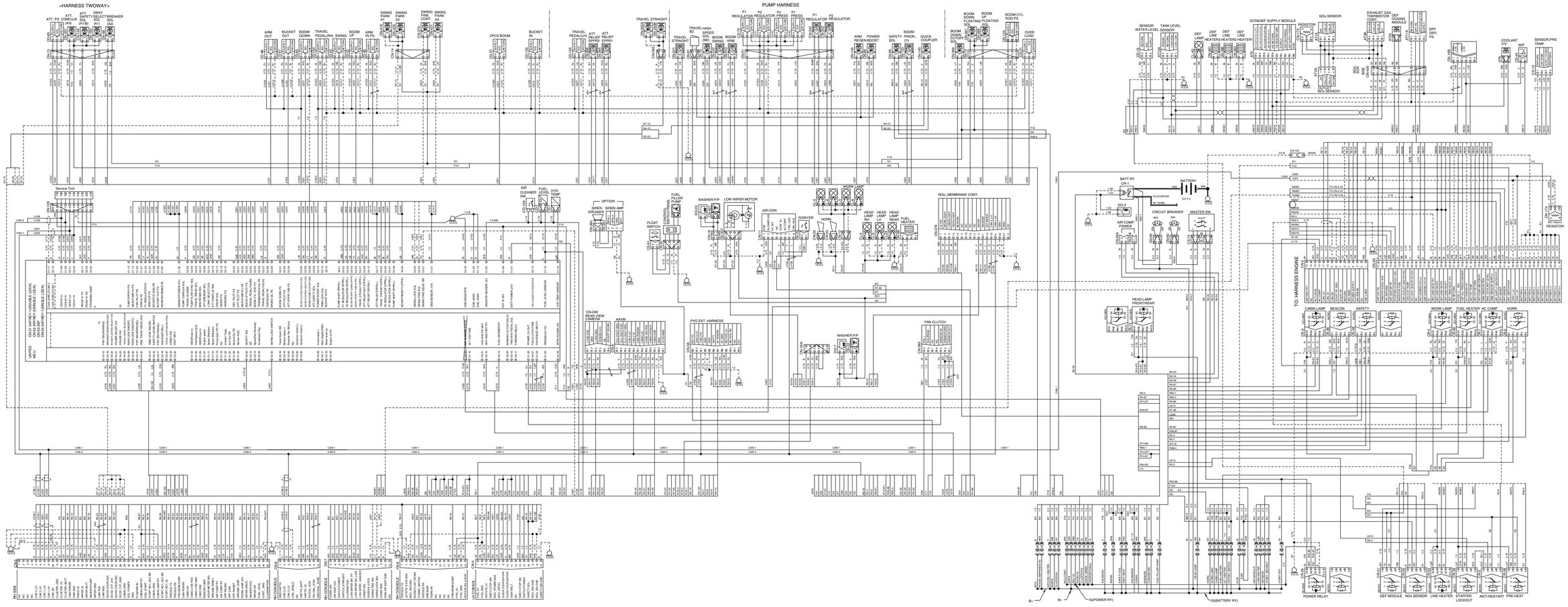
210A4EL02

1	Lamp	12	Start relay	23	Air cleaner sensor
2	Fuel sender	13	Heater relay	24	4-cartridge valve
3	Fuel filler pump	14	Alternator	25	Pump EPPR valve
4	Beacon lamp	15	Travel alarm buzzer	27	United MCU
5	Battery	16	Arm out pressure sensor	29	AAVM controller
6	Battery relay	17	Boom up pressure sensor	30	RDU assy
7	Horn	18	Swing pressure sensor	31	PVG32 controller
8	P1 pressure sensor	19	Boom down pressure sensor	32	3-EPPR valve
9	P2 pressure sensor	20	Arm in pressure sensor	34	Bucket out pressure sensor
10	EPPR pressure sensor	21	RH travel pressure sensor	35	Bucket in pressure sensor
11	Overload pressure sensor	22	LH travel pressure sensor		

GROUP 2 ELECTRICAL CIRCUIT

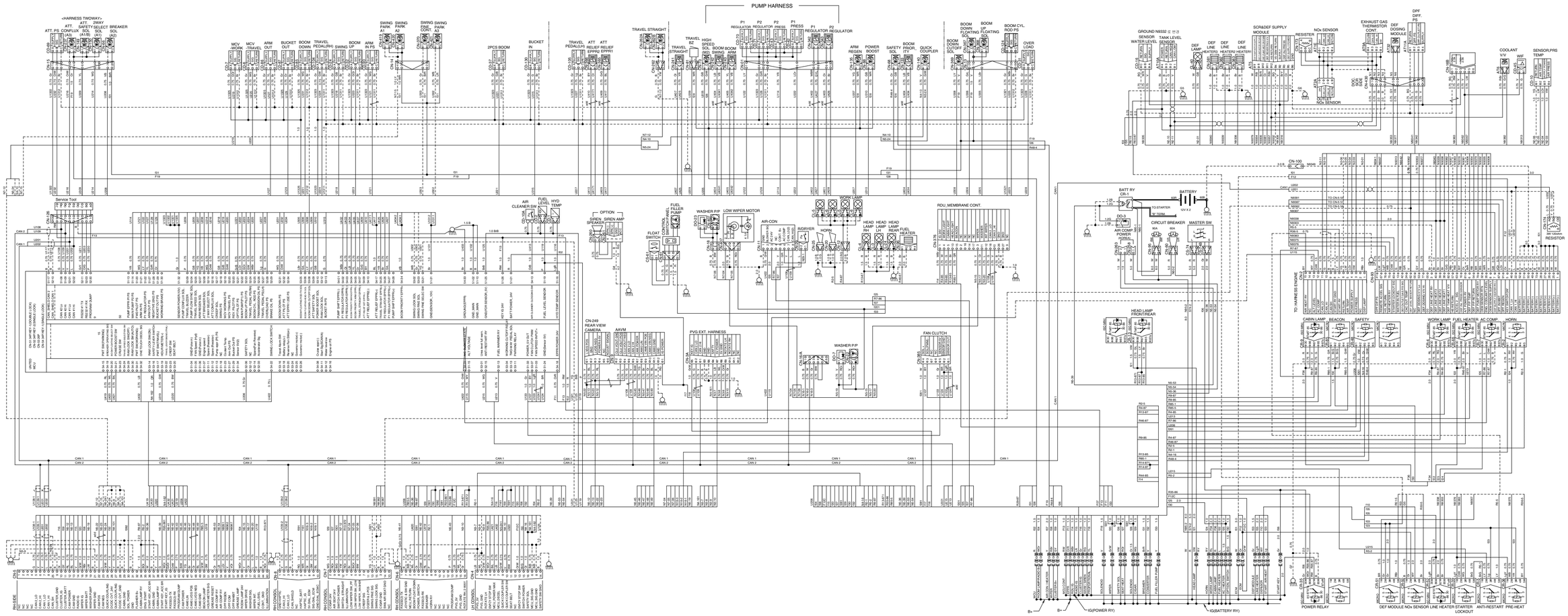
· ELECTRICAL CIRCUIT (1/3)

- MACHINE SERIAL NO. : -#0035

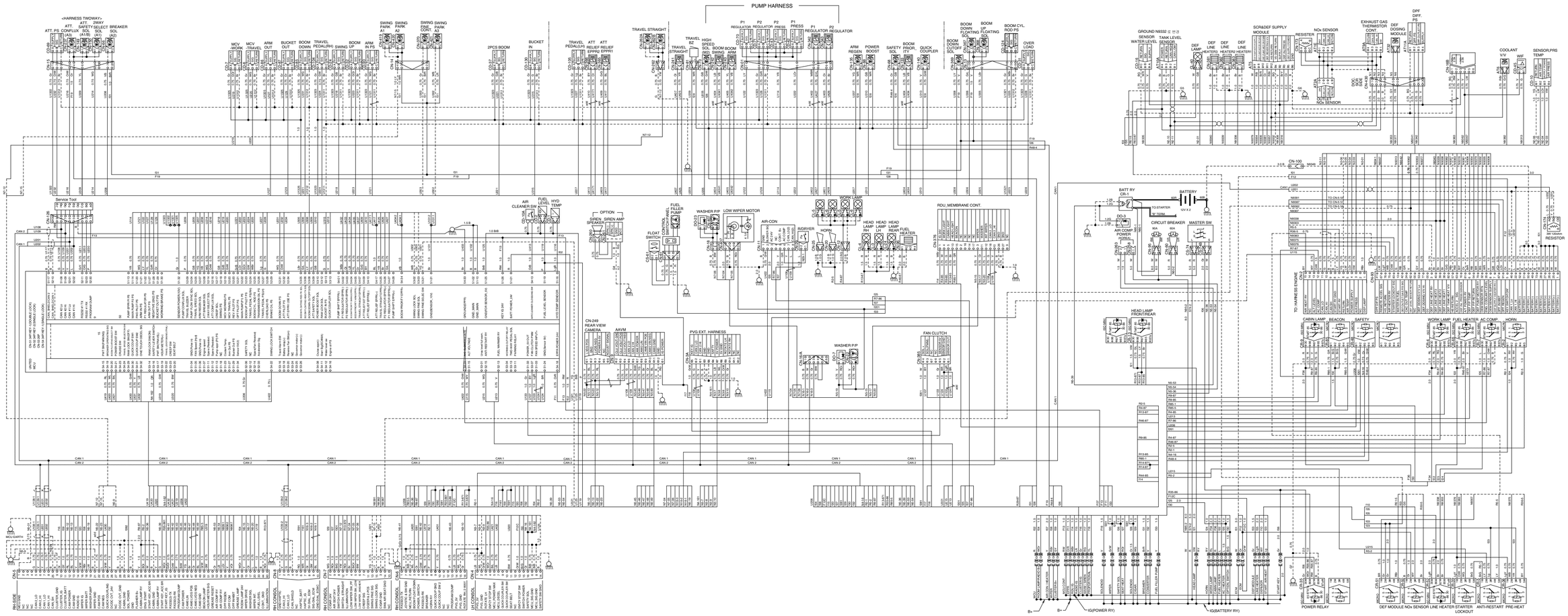


20K6-98320-00

- MACHINE SERIAL NO. : #0036-#0375

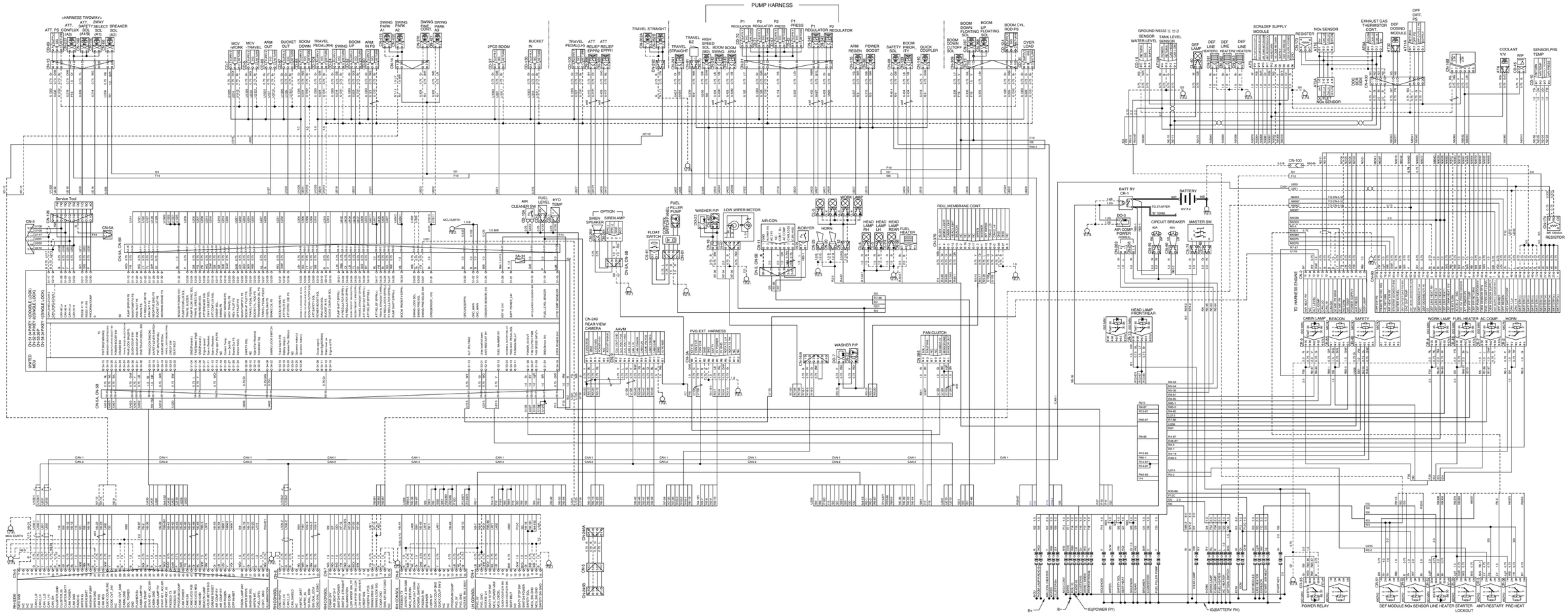

PUMP HARNESS
<HARNESS TWOWAY>
ATT PS CONFLUX
ATT CONFLUX SOL (A2)
ATT SAFETY SOL (A10)
2WAY SELECT SOL (A1)
BREAKER SOL (A2)
MCV WORK
MCV TRAVEL
ARM OUT
BUCKET OUT
BOOM DOWN
TRAVEL PEDAL(RH)
SWING
BOOM UP
ARM IN PS
SWING PARK A1
SWING PARK A2
SWING PARK A3
SWING FINE CONT
2PCS BOOM
BUCKET IN
TRAVEL PEDAL(LH)
ATT RELIEF EPPR2
ATT RELIEF EPPR1
TRAVEL STRAIGHT
TRAVEL STRAIGHT
TRAVEL HIGH SPEED SOL
BOOM SWING
BOOM ARM
P1 REGULATOR
P2 REGULATOR
P2 PRESS
P1 PRESS
P1 REGULATOR
P2 REGULATOR
ARM REGEN
POWER BOOST
SAFETY SOL
BOOM PRIOR. (TV)
QUICK COUPLER
BOOM DOWN FLOATING SOL
BOOM UP FLOATING SOL
BOOM CYL. ROD PS
OVER LOAD
GROUND N9332
SENSOR WATER LEVEL
TANK LEVEL SENSOR
DEF LAMP
DEF LINE HEATER1
DEF LINE HEATER2
DEF LINE HEATER3
SCR&DEF SUPPLY MODULE
RESISTER
NOx SENSOR
EXHAUST GAS THERMISTOR CONT.
DEF DOSING MODULE
DPF DIFF. PS
COOLANT V/V
WIF
SENSOR,PRS TEMP
CN-100
CN-74
8W 120ohm RESISTOR
Service Tool
AIR CLEANER SW
FUEL LEVEL
HYD TEMP
OPTION
SIREN SPEAKER
SIREN AMP
FUEL FILLER SWITCH
FLOAT SWITCH
WASHER P/P
LOW WIPER MOTOR
AIR-CON
R/DRYER
HORN
WORK LAMP
HEAD LAMP LH
HEAD LAMP RH
REAR FUEL HEATER
RDU_MEMBRANE CONT.
BATT RY CR.1
BATTERY
TO STARTER
12V X 2
DO-3
AIR COMP POWER (OPEN)
CIRCUIT BREAKER
MASTER SW
HEAD LAMP FRONT/REAR
CABIN LAMP
BEACON
SAFETY
WORK LAMP
FUEL HEATER
AC COMP.
HORN
TO HARNESS ENGINE
REAR VIEW CAMERA
AAVM
PVG.EXT. HARNESS
WASHER P/P
FAN CLUTCH
DEF MODULE
DEF HEATER
DEF LINE HEATER
DEF LINE HEATER
DEF LINE HEATER
DEF SPARE HEATER
DEF SPARE HEATER
DEF SPAR

- MACHINE SERIAL NO. : #0376-#0856



20K6-98322-00

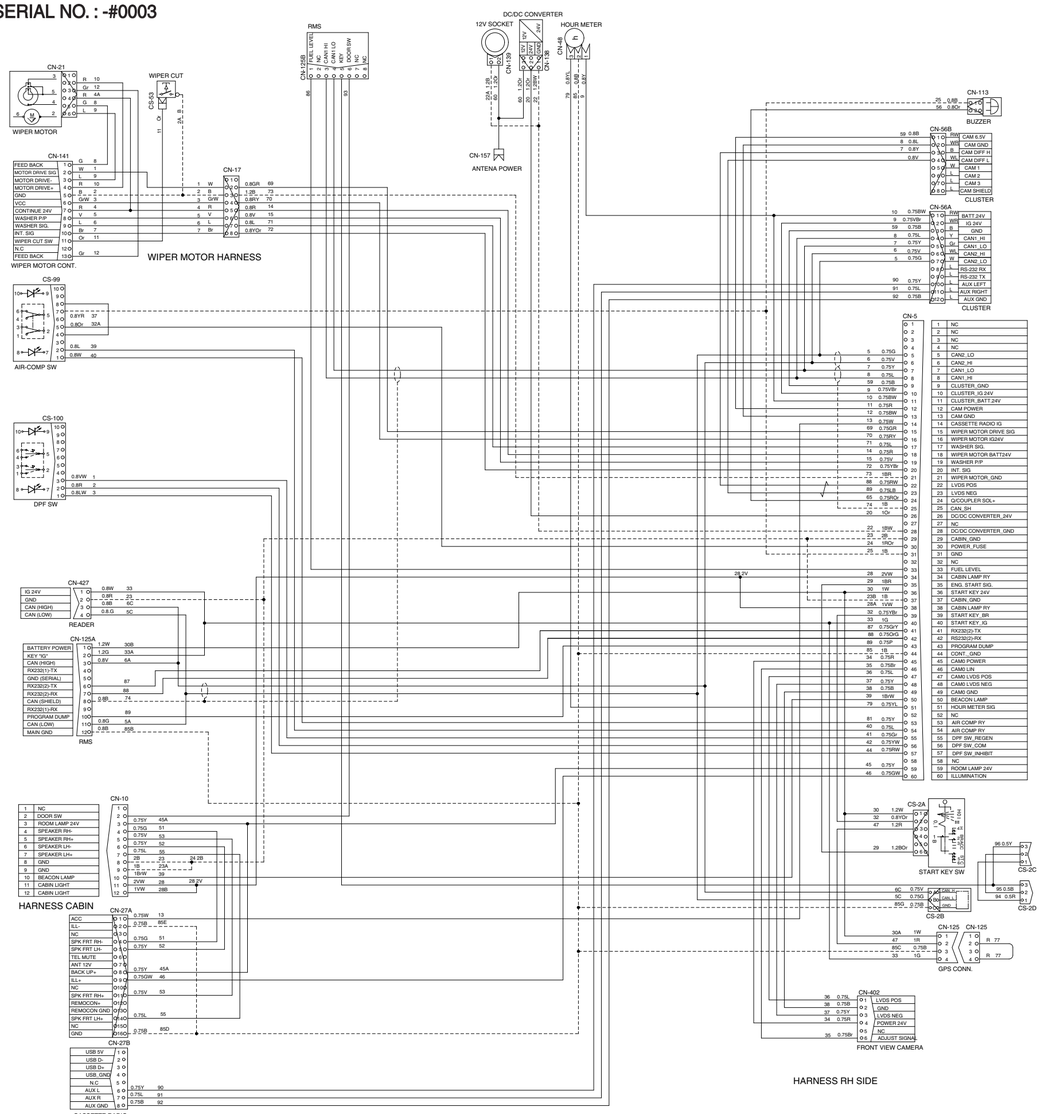
- MACHINE SERIAL NO. : #0857-

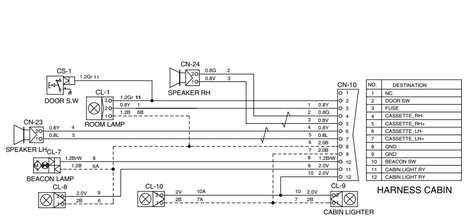


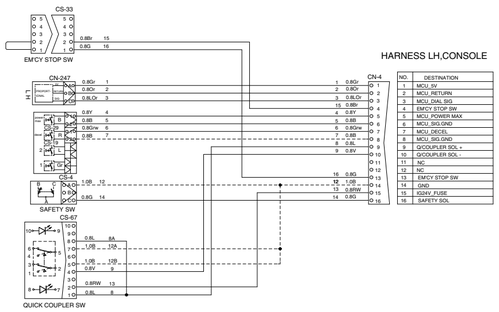
20K6-98323-00

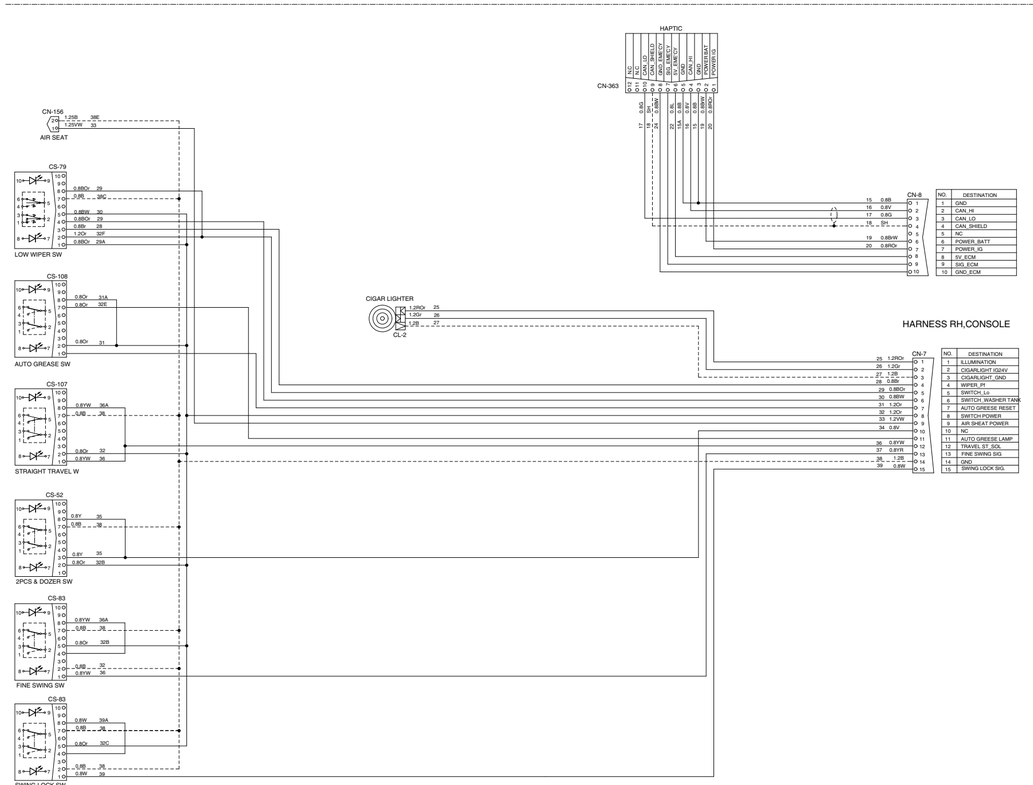
· ELECTRICAL CIRCUIT (2/3)

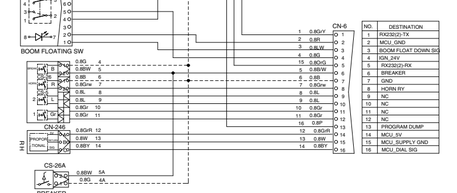
- MACHINE SERIAL NO. : -#0003





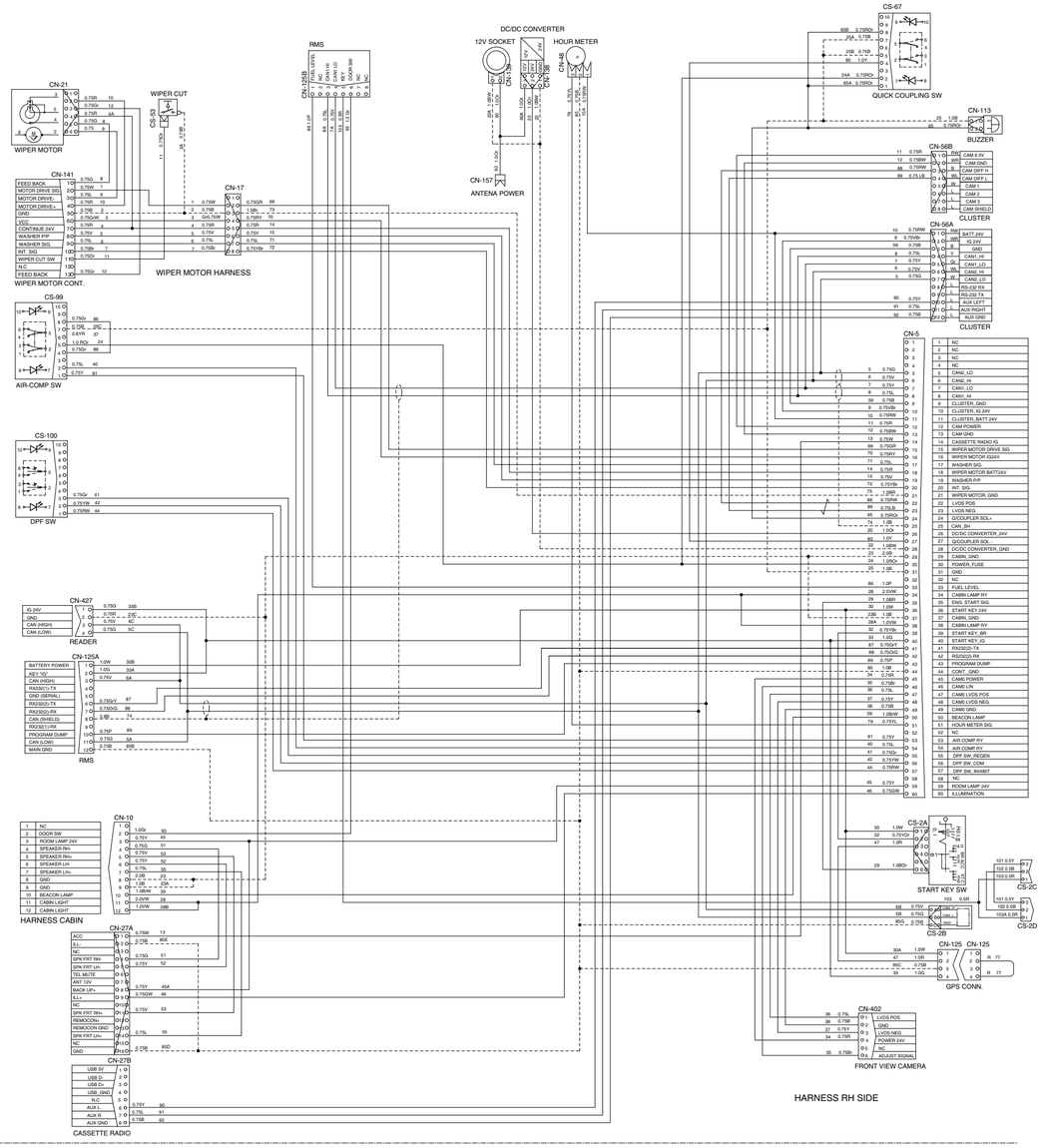






20K6-98310-00

- MACHINE SERIAL NO. : #0004-#0176

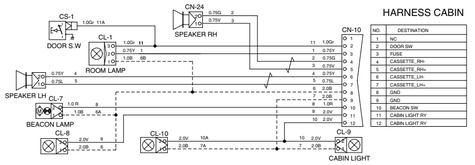


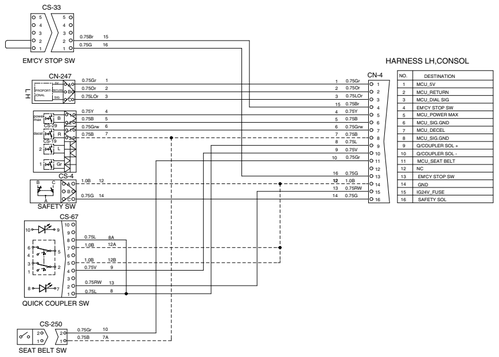
NO.	DESTINATION
1	NC
2	NC
3	NC
4	NC
5	CAN2_LO
6	CAN2_HI
7	CAN1_LO
8	CAN1_HI
9	CLUSTER_GND
10	CLUSTER_IG 24V
11	CLUSTER_BATT 24V
12	CAM POWER
13	CAM GND
14	CASSETTE RADIO IG
15	WIPER MOTOR DRIVE SIG
16	WIPER MOTOR IG24V
17	WASHER SIG.
18	WIPER MOTOR BATT24V
19	WASHER P/P
20	INT. SIG
21	WIPER MOTOR, GND
22	LVDS POS
23	LVDS NEG
24	G/COUPLER SOL+
25	CAN_SH
26	DC/DC CONVERTER_24V
27	G/COUPLER SOL-
28	DC/DC CONVERTER_GND
29	CABIN_GND
30	POWER_FUSE
31	GND
32	NC
33	FUEL LEVEL
34	CABIN LAMP RY
35	ENG. START SIG.
36	START KEY 24V
37	CABIN_GND
38	CABIN LAMP RY
39	START KEY_BR
40	START KEY_IG
41	RX232(2)-TX
42	RS232(2)-RX
43	PROGRAM DUMP
44	CONT_GND
45	CAM0 POWER
46	CAM0 LIN
47	CAM0 LVDS POS
48	CAM0 LVDS NEG
49	CAN0 GND
50	BEACON LAMP
51	HOUR METER SIG
52	NC
53	AIR COMP RY
54	AIR COMP RY
55	DPF SW_REGEN
56	DPF SW_COM
57	DPF SW_RHABIT
58	NC
59	ROOM LAMP 24V
60	ILLUMINATION

NO.	DESTINATION
1	NC
2	DOOR SW
3	SPEAKER RH+
4	SPEAKER RH-
5	SPEAKER LH+
6	SPEAKER LH-
7	BEACON LAMP
8	GND
9	ROOM LAMP 24V
10	CABIN LIGHT
11	CABIN LIGHT
12	CABIN LIGHT

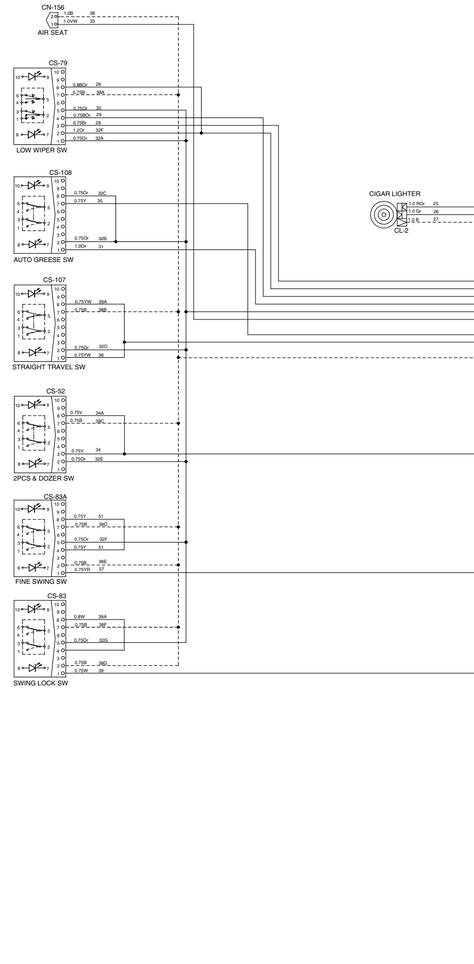
NO.	DESTINATION
1	ACC
2	ILL
3	NC
4	SPK FRT RH+
5	SPK FRT LH-
6	TEL MUTE
7	ANT 12V
8	BACK UP+
9	ILL+
10	NC
11	SPK FRT RH+
12	REMOCON+
13	REMOCON GND
14	SPK FRT LH+
15	NC
16	GND

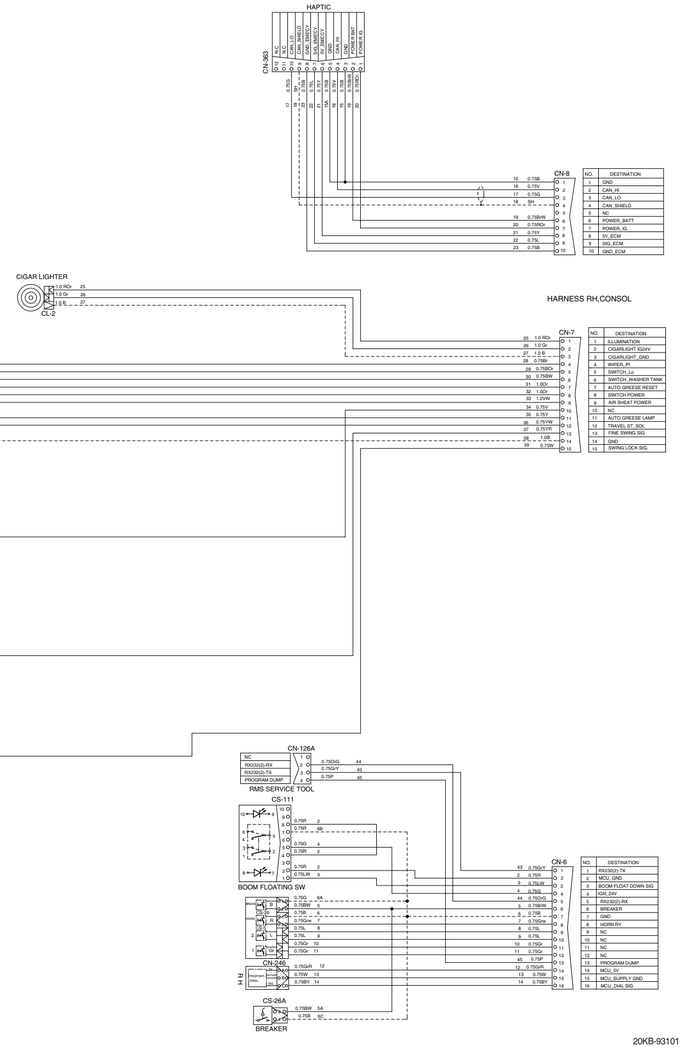
NO.	DESTINATION
1	USB 5V
2	USB D-
3	USB D+
4	USB_GND
5	N.C
6	AUX L
7	AUX R
8	AUX GND





NO.	DESTINATION
1	MCU_5V
2	MCU_RETURN
3	MCU_CAN_SIG
4	EMCY STOP SW
5	MCU_POWER MAX
6	MCU_SIG.GND
7	MCU_DICCEL
8	MCU_SIG.GND
9	G/COUPLER SOL+
10	G/COUPLER SOL-
11	MCU_SEAT BELT
12	NC
13	EMCY STOP SW
14	GND
15	IG24V_FUSE
16	SAFETY SOL

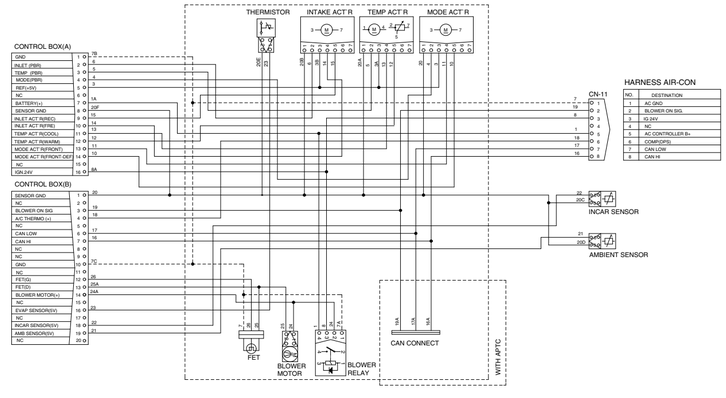




NO.	DESTINATION
1	ILLUMINATION
2	CIGARLIGHT IG24V
3	CIGARLIGHT_GND
4	WIPER_PI
5	SWITCH_Lo
6	SWITCH_WASHER TANK
7	AUTO GREESE RESET
8	SWITCH POWER
9	AIR SHEAT POWER
10	NC
11	AUTO GREESE LAMP
12	TRAVEL ST_SOL
13	FINE SWING SIG
14	GND
15	SWING LOCK SIG

NO.	DESTINATION
1	GND
2	CAN_HI
3	CAN_LO
4	CAN_SHIELD
5	NC
6	POWER_BATT
7	POWER_IG
8	5V_ECM
9	SIG_ECM
10	GND_ECM

NO.	DESTINATION
1	RX232(2)-TX
2	MCU_GND
3	BOOM FLOAT DOWN SIG
4	IG24_24V
5	RX232(2)-RX
6	BREAKER
7	GND
8	HORN RY
9	NC
10	NC
11	NC
12	NC
13	PROGRAM DUMP
14	MCU_5V
15	MCU_SUPPLY GND
16	MCU_DIAL SIG



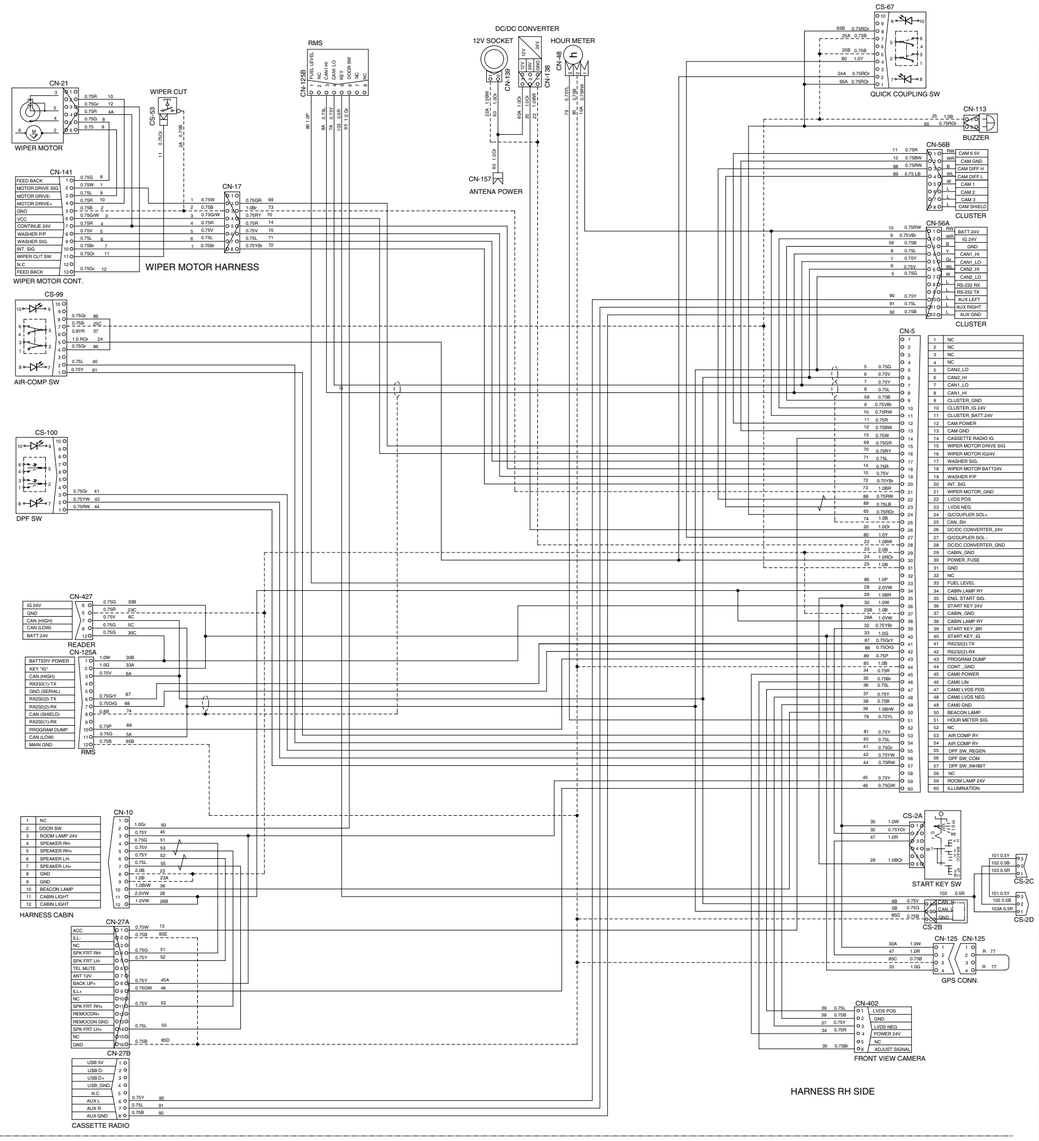
NO.	DESTINATION
1	AC GND
2	BLOWER ON SIG.
3	IG.24V
4	NC
5	AC CONTROLLER B+
6	COMP(DIT5)
7	CAN LOW
8	CAN HI

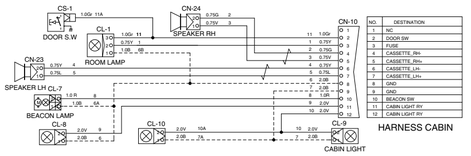
CONTROL BOX(A)
GND
INLET (PBR)
TEMP. (PBR)
MODE(PBR)
REF(+5V)
NC
BATTERY(+)
SENSOR GND
INLET ACT.R(REC)
INLET ACT.R (VENT)
TEMP ACT R(COOL)
TEMP. ACT R(WARM)
MODE ACT R(FRONT)
MODE ACT R(FRONT-DEF
NC
IGN.24V

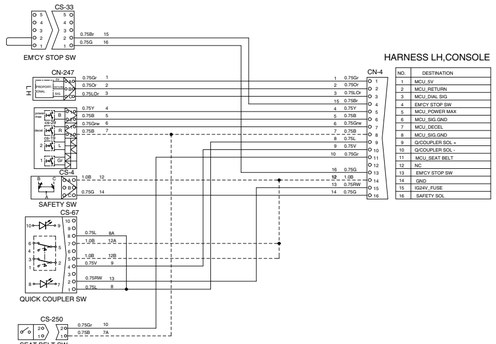
CONTROL BOX(B)
SENSOR GND
NC
BLOWER ON SIG
A/C THERMO (+)
NC
CAN LOW
CAN HI
NC
NC
GND
NC
FET(G)
FET(S)
BLOWER MOTOR(+)
NC
EVAP. SENSOR(5V)
NC
INCAR SENSOR(5V)
AMB SENSOR(5V)
NC

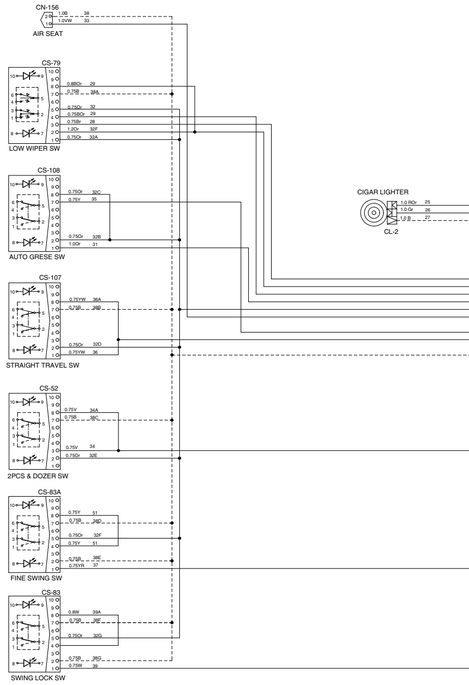
20KB-93101-01

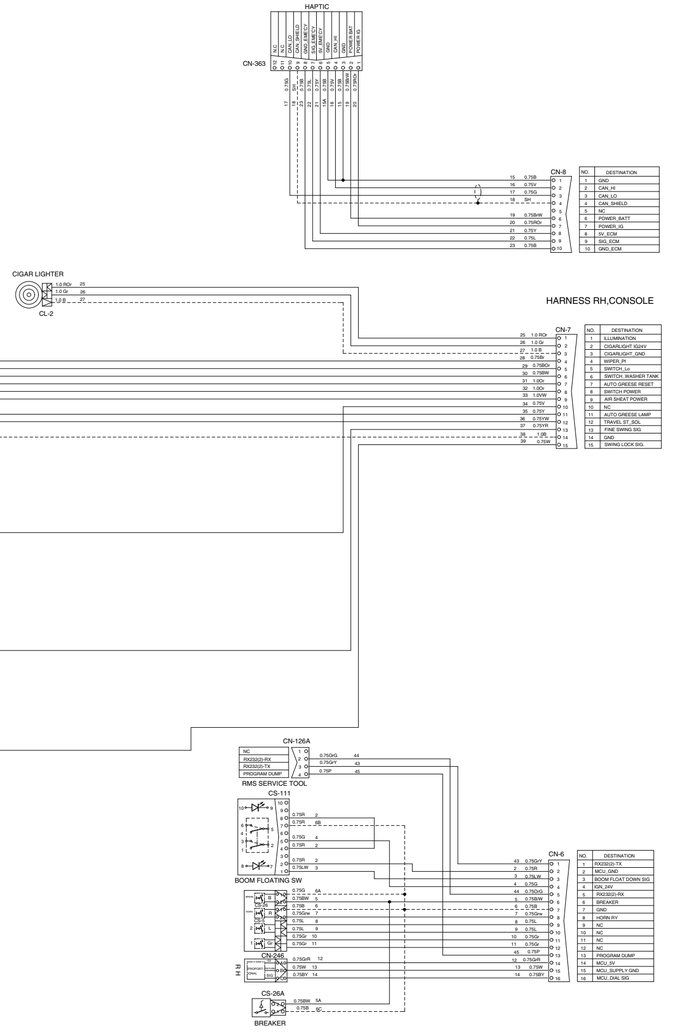
- MACHINE SERIAL NO. : #0177-#0375

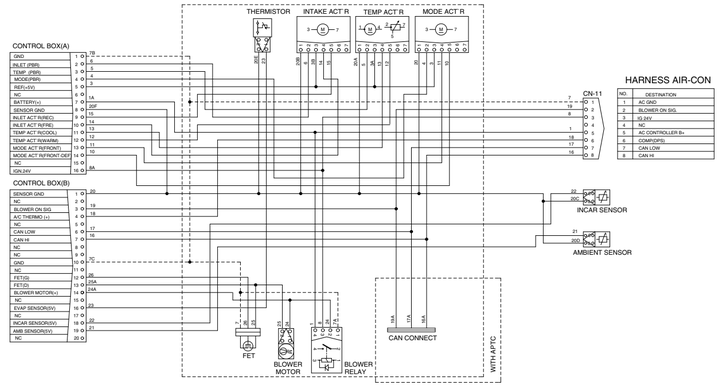






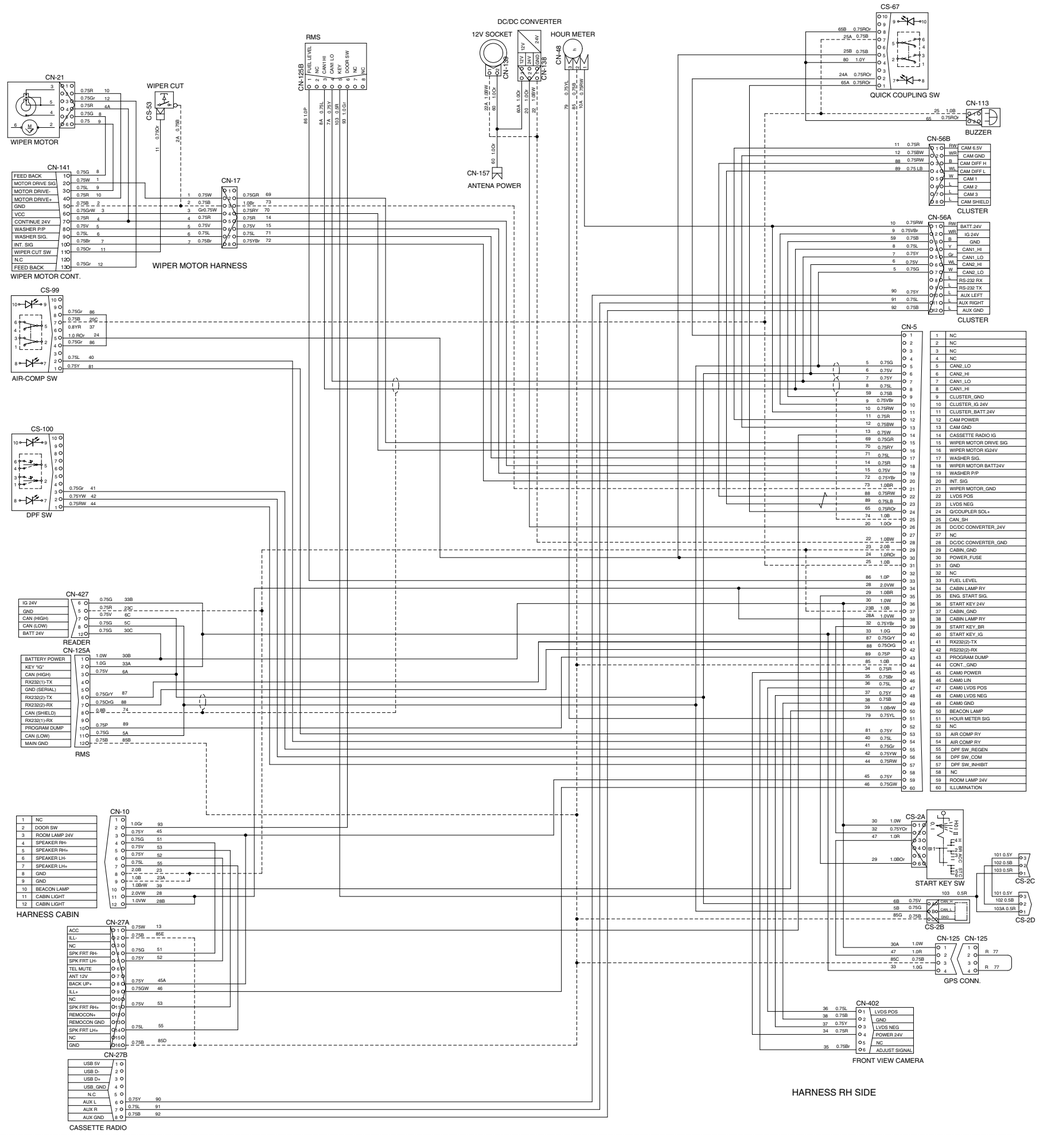


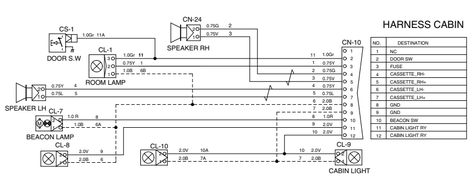


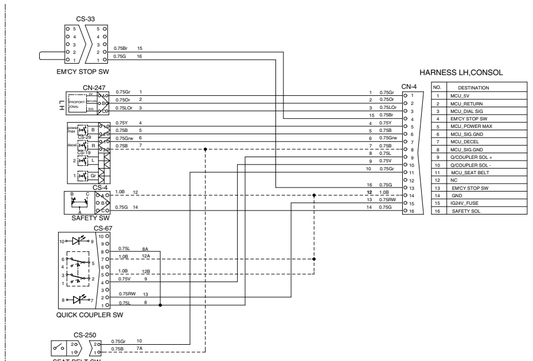


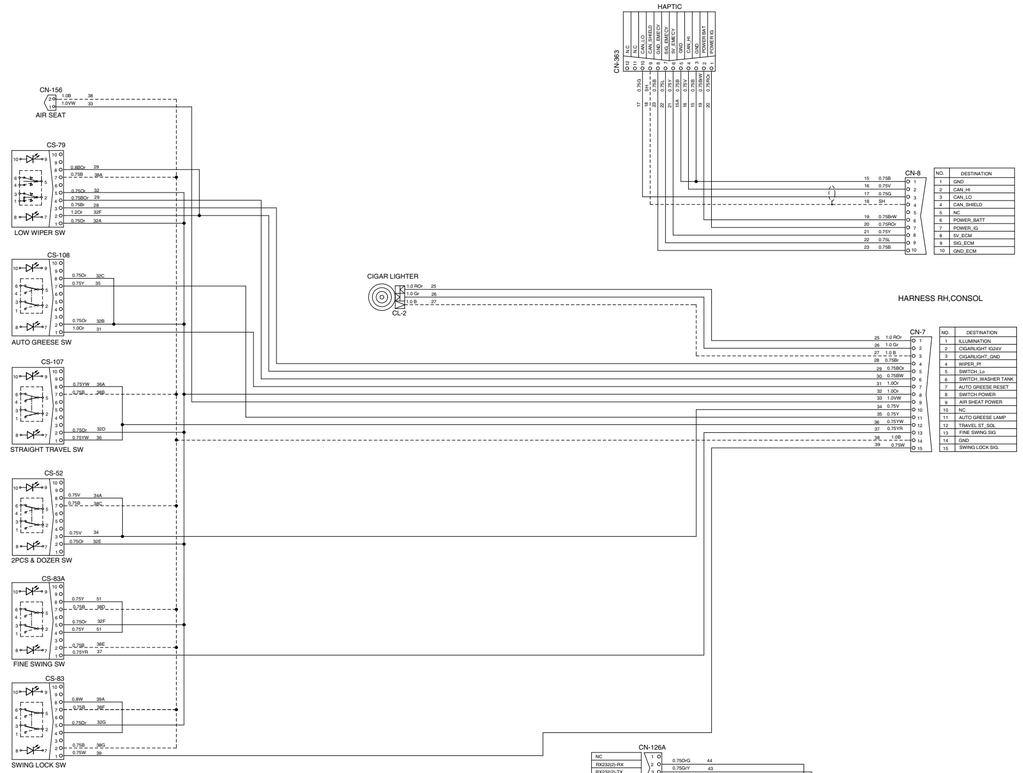
20KB-93102-00

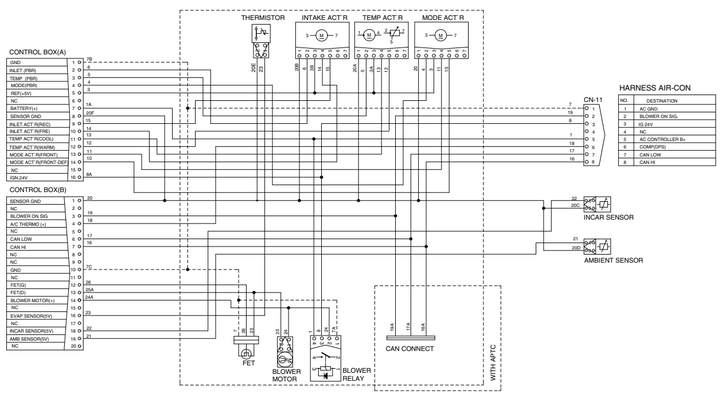
- MACHINE SERIAL NO. : #0376-







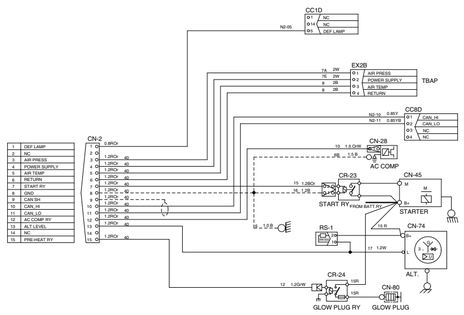




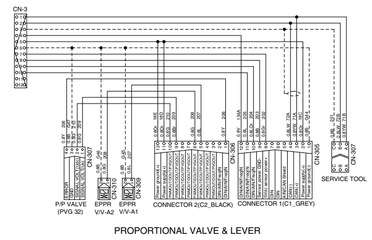
20KB-93103-00

· ELECTRICAL CIRCUIT (3/3)

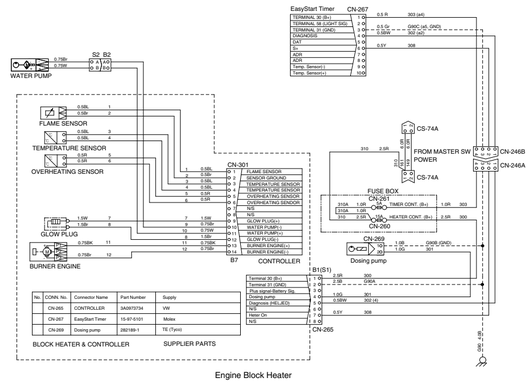
- MACHINE SERIAL NO. : -#0003



E/G HARNESS



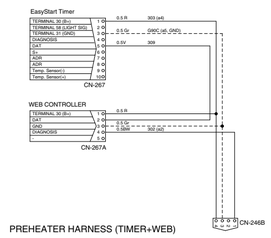
PROPORTIONAL VALVE & LEVER



No.	CONN. No.	Connector Name	Part Number	Supply
	CN-265	CONTROLLER	3A5979734	VW
	CN-267	EasyStart Timer	15-97-5101	Mokes
	CN-399	Dosing pump	2901KB-1	TE (Tyco)

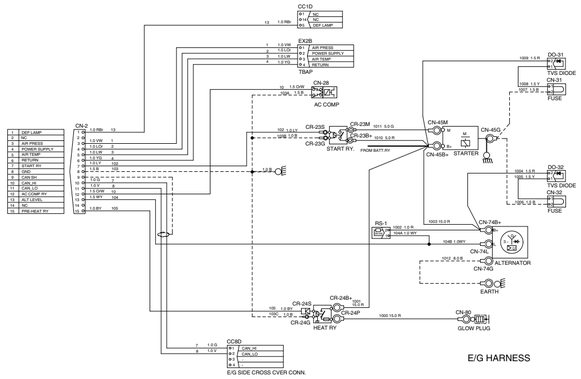
Engine Block Heater

PREHEATER HARNESS (ONLY TIMER)

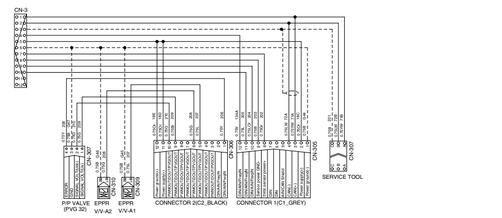


PREHEATER HARNESS (TIMER+WEB)

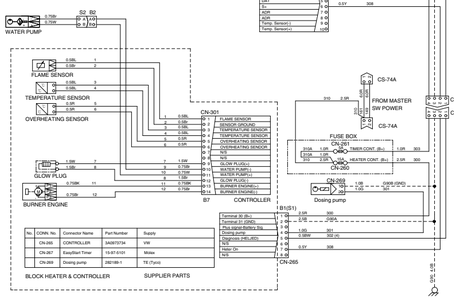
- MACHINE SERIAL NO. : #0004-#0278



E/G HARNESS



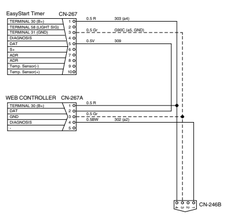
PROPORTIONAL VALVE & LEVER



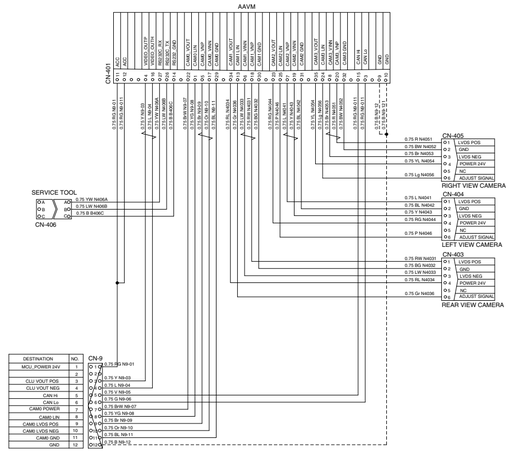
No.	CONN. No.	Connector Name	Part Number	Supply
	CN-265	CONTROLLER	34987/3734	VW
	CN-267	EasyStart Timer	19-97-0101	Mitex
	CN-263	Dosing pump	2921/65-1	TE (Tyco)

Engine Block Heater

REMOTE PREHEAT (TIMER ONLY, AW01)



REMOTE PREHEAT (TIMER+WEB, AW03)

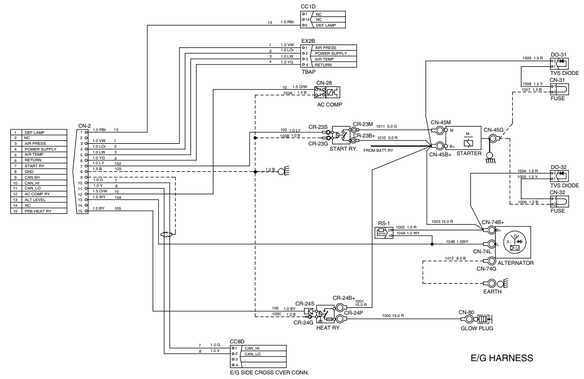


DESTINATION	NO.
MCU_POWER 24V	1
	2
CLU VOUT POS	3
CLU VOUT NEG	4
CAN HI	5
CAN LO	6
CAM2 POWER	7
CAM2 LIN	8
CAM2 LVDS POS	9
CAM2 LVDS NEG	10
CAM2 GND	11
GND	12

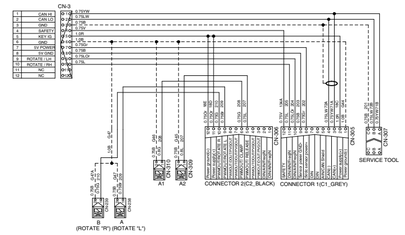
AAVM HARNESS

20K6-98331-00

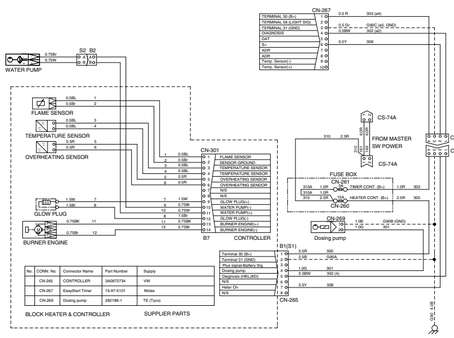
- MACHINE SERIAL NO. : #0279-



E/G HARNESS

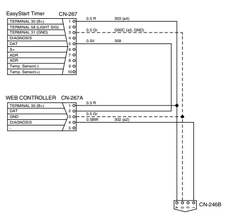


PROPORTIONAL VALVE & LEVER

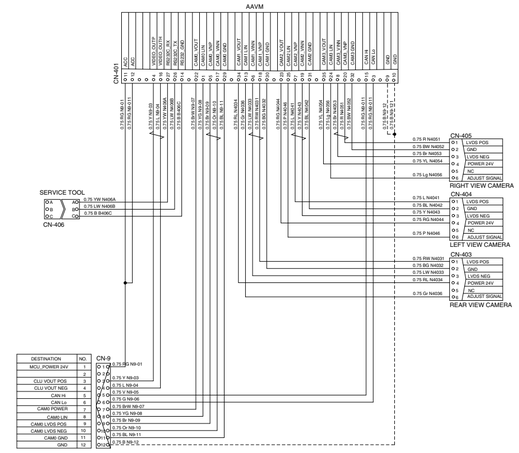


Engine Block Heater

REMOTE PREHEAT (TIMER ONLY, AW01)



REMOTE PREHEAT (TIMER+WEB, AW03)



AAVM HARNESS

20K6-98332-00

MEMORANDUM

1. POWER CIRCUIT (MACHINE SERIAL NO. : -#0176)

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

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 [CR-1] → Circuit breaker [CN-60] → Master switch [CS-74]

- → Fuse box [No.1] → Engine ECM [CN-93 (1, 25, 26, 27, 28)]
- → Fuse box [No.2] → United MCU [CN-51 (01)]
- → Fuse box [No.3]
  - → DEF module relay [CR-51 (2, 3)]
  - → Urea purging lamp [CL-40 (1)]
- → Fuse box [No.4] → I/conn [CN-5 (59)]
  - → I/conn [CN-10 (3)] → Room lamp [CL-1 (2)]
    - → Door switch [CS-1]
    - → I/conn [CN-10 (2)] → RMS [CN-125B (6)]
  - → Radio & USB player [CN-27A (8)]
- → Fuse box [No.5] → Line heater relay [CR-52 (30, 86)]
- → Fuse box [No.6]
  - → Master switch [CS-74B] → I/conn [CN-5 (36)]
    - → Start switch [CS-2A (1)]
    - → RMS [CN-125A (1)]
    - → GPS connection [CN-125 (1)]
  - → Power relay [CR-35 (30)]
- → Fuse box [No.7] → I/conn [CN-11 (5)]
  - → AC & Heater controller box A (7)
  - → Blower relay (4)
- → Fuse box [No.8] → I/conn [CN-5 (18)] → I/conn [CN-17 (5)]
  - → Wiper motor controller [CN-141 (7)]
  - → Wiper motor [CN-21 (4)]
- → Fuse box [No.9]
  - → I/conn [CN-5 (11)]
    - → Cluster [CN-56A (1)]
    - → Hour meter [CN-48 (1)]
  - → I/conn [CN-8 (6)] → Jog dial module [CN-363 (2)]
- → Fuse box [No.10] → NOx sensor relay [CR-50 (3)]
- → Fuse box [No.11] → United MCU [CN-54 (18)]

※ I/conn : Intermediate connector

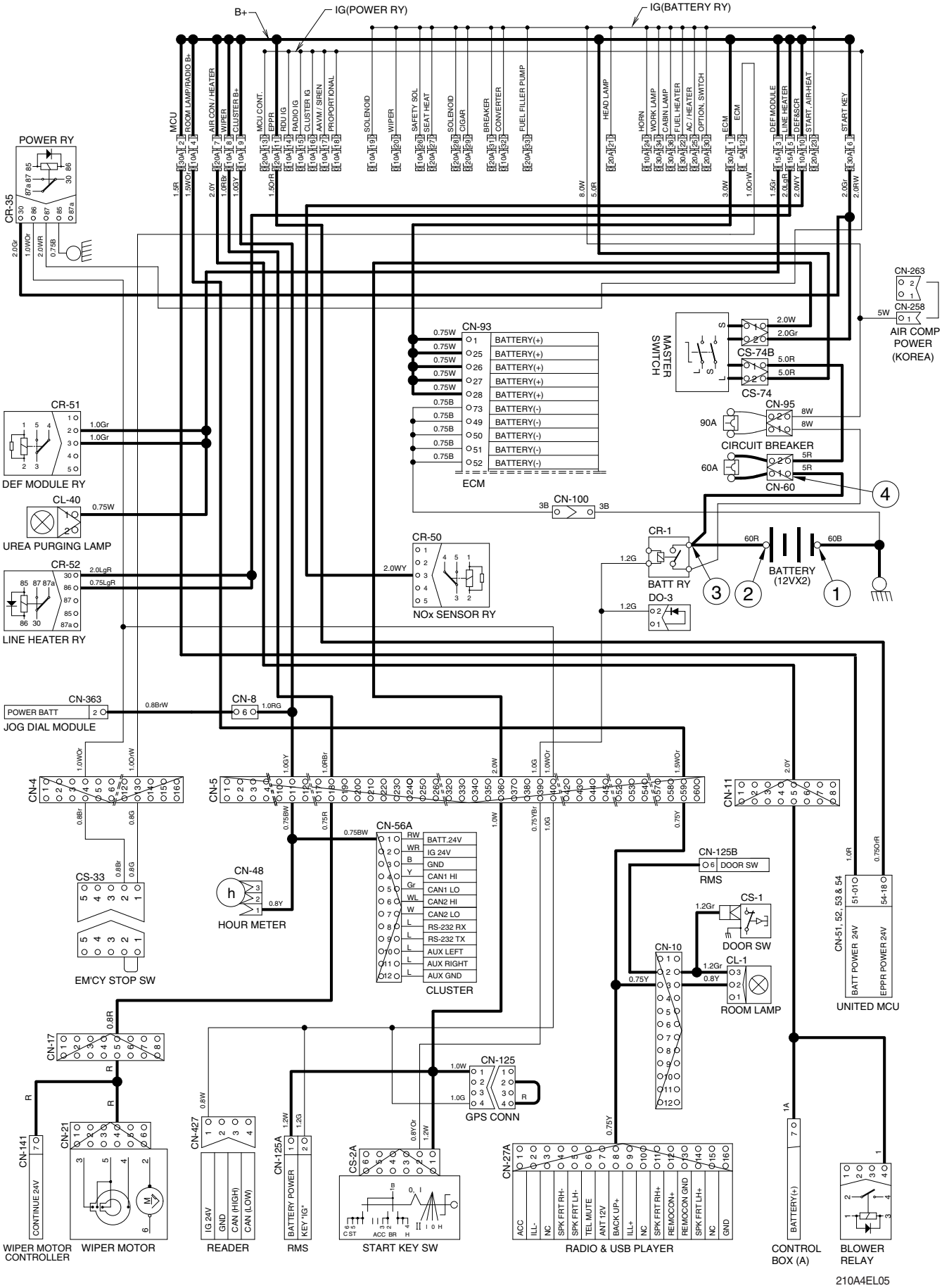
2) CHECK POINT

Engine	Start switch	Check point	Voltage
STOP	OFF	① - GND (battery 1EA)	10~12.5V
		② - GND (battery 2EA)	20~25V
		③ - GND (battery relay)	20~25V
		④ - GND (circuit breaker)	20~25V

※ GND : Ground

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

POWER CIRCUIT (MACHINE SERIAL NO. : -#0176)



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

POWER CIRCUIT (MACHINE SERIAL NO. : #0177-)

The negative terminal of battery is grounded to the machine chassis directly.
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 [CR-1] → Circuit breaker [CN-60] → Master switch [CS-74]
  - → Fuse box [No.1] → Engine ECM [CN-93 (1, 25, 26, 27, 28)]
  - → Fuse box [No.2] → United MCU [CN-51 (01)]
  - → Fuse box [No.3]
    - → DEF module relay [CR-51 (2, 3)]
    - → Urea purging lamp [CL-40 (1)]
  - → Fuse box [No.4] → I/conn [CN-5 (59)]
    - → I/conn [CN-10 (3)] → Room lamp [CL-1 (2)]
      - → Door switch [CS-1]
      - → I/conn [CN-10 (2)] → RMS [CN-125B (6)]
    - → Radio & USB player [CN-27A (8)]
  - → Fuse box [No.5] → Line heater relay [CR-52 (30, 86)]
  - → Fuse box [No.6]
    - → Master switch [CS-74B] → I/conn [CN-5 (36)]
      - → Start switch [CS-2A (1)]
      - → RMS [CN-125A (1)]
      - → GPS connection [CN-125 (1)]
      - → Reader [CN-427 (12)]
    - → Power relay [CR-35 (30)]
  - → Fuse box [No.7] → I/conn [CN-11 (5)]
    - → AC & Heater controller box A (7)
    - → Blower relay (4)
  - → Fuse box [No.8] → I/conn [CN-5 (18)] → I/conn [CN-17 (5)]
    - → Wiper motor controller [CN-141 (7)]
    - → Wiper motor [CN-21 (4)]
  - → Fuse box [No.9]
    - → I/conn [CN-5 (11)]
      - → Cluster [CN-56A (1)]
      - → Hour meter [CN-48 (1)]
    - → I/conn [CN-8 (6)] → Jog dial module [CN-363 (2)]
  - → Fuse box [No.10] → NOx sensor relay [CR-50 (3)]
  - → Fuse box [No.11] → United MCU [CN-54 (18)]

※ I/conn : Intermediate connector

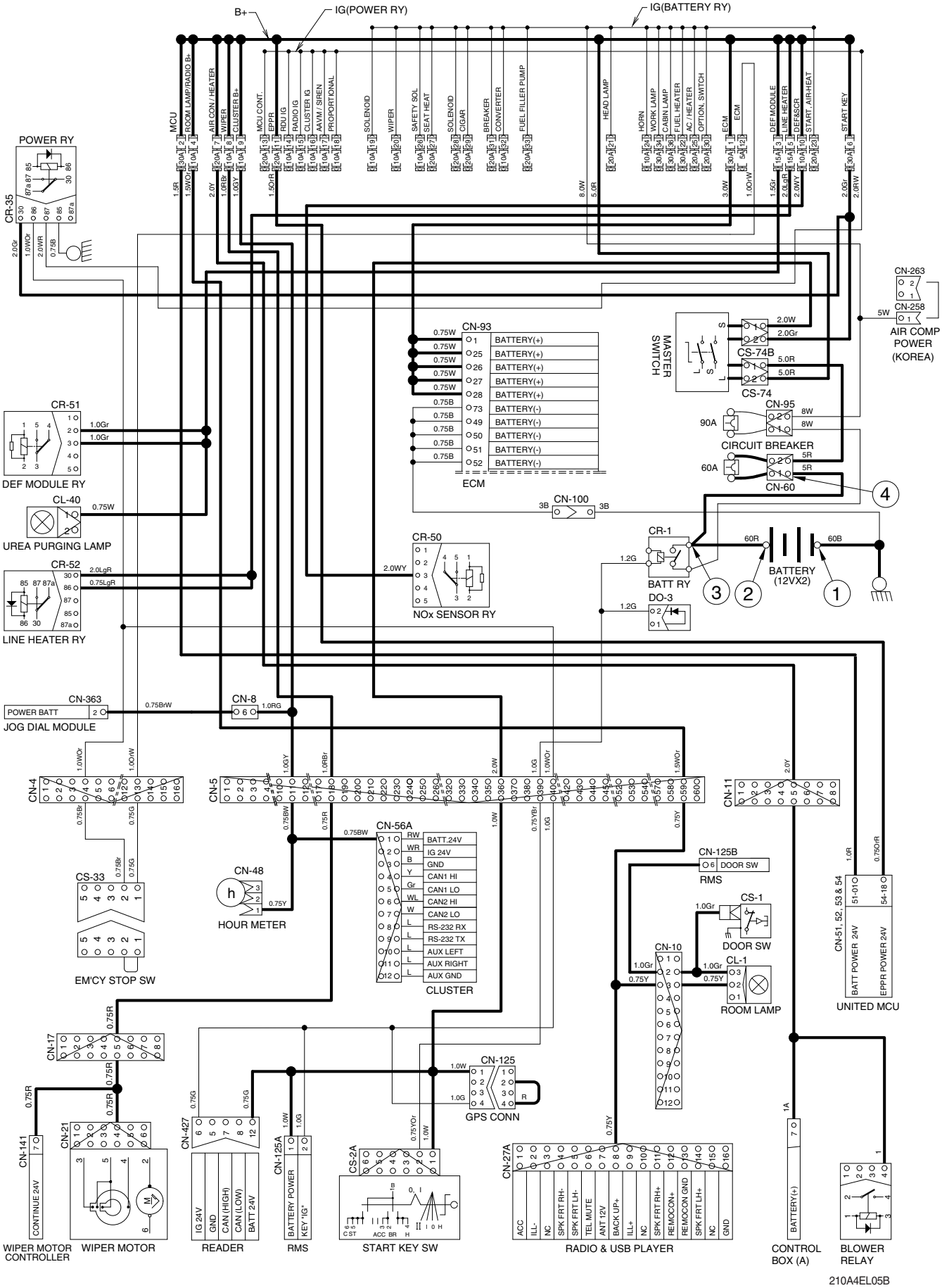
2) CHECK POINT

Engine	Start switch	Check point	Voltage
STOP	OFF	① - GND (battery 1EA)	10~12.5V
		② - GND (battery 2EA)	20~25V
		③ - GND (battery relay)	20~25V
		④ - GND (circuit breaker)	20~25V

※ GND : Ground

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

POWER CIRCUIT (MACHINE SERIAL NO. : #0177-)



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

2. STARTING CIRCUIT (MACHINE SERIAL NO. : -#0002)

1) OPERATING FLOW

Battery (+) terminal → Battery relay [CR-1] → Circuit breaker [CN-60] → Master switch [CS-74]
→ Fuse box [No.6] → Master switch [CS-74B] → I/conn [CN-5 (36)] → Start switch [CS-2A (1)]
→ Power relay [CR-35 (30)]

(1) When start key switch is in ON position

→ Start switch ON [CS-2A (2)] → I/conn [CN-5 (39)]
→ Battery relay [CR-1] → Battery relay operating (all power is supplied with the electric component)
→ Start switch ON [CS-2A (3)] → GPS conn [CN-125 (2) → (4)
→ I/conn [CN-5 (40)] → Power relay [CR-35 (86) → (87)]
→ Fuse box [IG (power)]
→ I/conn [CN-4 (4)]
→ Emergency engine stop sw [CS-33 (2)→(1)] → I/conn [CN-4 (13)]
→ Fuse box [No. 12] → Engine ECM [CN-93 (5)]
→ Reader [CN-427 (1)]
→ RMS [CN-125A (2)]

(2) When start key switch is in START position

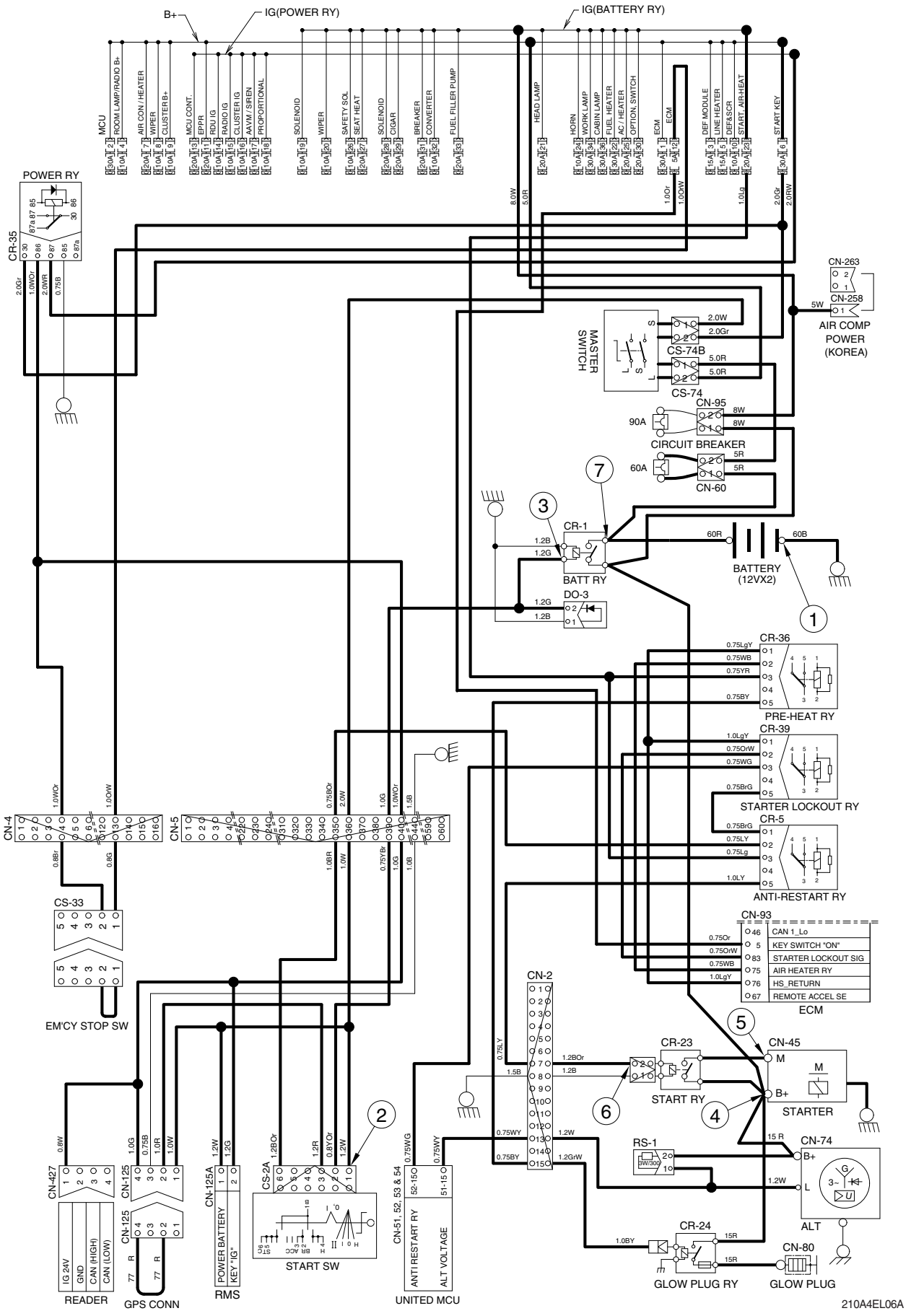
Start switch START [CS-2A (6)] → I/conn [CN-5 (35)] → Anti-restart relay [CR-5 (2) → (5)]
→ I/conn [CN-2 (7)] → Start relay [CR-23 (2)] → Starter motor operating

2) CHECK POINT

Engine	Start switch	Check point	Voltage
OPERATING	START	① - GND (battery) ② - GND (start switch) ③ - GND (battery relay M4) ④ - GND (starter B^+) ⑤ - GND (starter M) ⑥ - GND (start relay) ⑦ - GND (battery relay M8)	20~25V

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

STARTING CIRCUIT (MACHINE SERIAL NO. : -#0002)



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

STARTING CIRCUIT (MACHINE SERIAL NO. : #0003-#0176)

1) OPERATING FLOW

Battery (+) terminal → Battery relay [CR-1] → Circuit breaker [CN-60] → Master switch [CS-74]
→ Fuse box [No.6] → Master switch [CS-74B] → I/conn [CN-5 (36)] → Start switch [CS-2A (1)]
→ Power relay [CR-35 (30)]

(1) When start key switch is in ON position

- Start switch ON [CS-2A (2)] → I/conn [CN-5 (39)]
  → Battery relay [CR-1] → Battery relay operating (all power is supplied with the electric component)
- Start switch ON [CS-2A (3)] → GPS conn [CN-125 (2) → (4)
- I/conn [CN-5 (40)] → Power relay [CR-35 (86) → (87)]
  → Fuse box [IG (power)]
  → I/conn [CN-4 (4)]
  → Emergency engine stop sw [CS-33 (2)→(1)] → I/conn [CN-4 (13)]
  → Fuse box [No. 12] → Engine ECM [CN-93 (5)]
- Reader [CN-427 (1)]
- RMS [CN-125A (2)]

(2) When start key switch is in START position

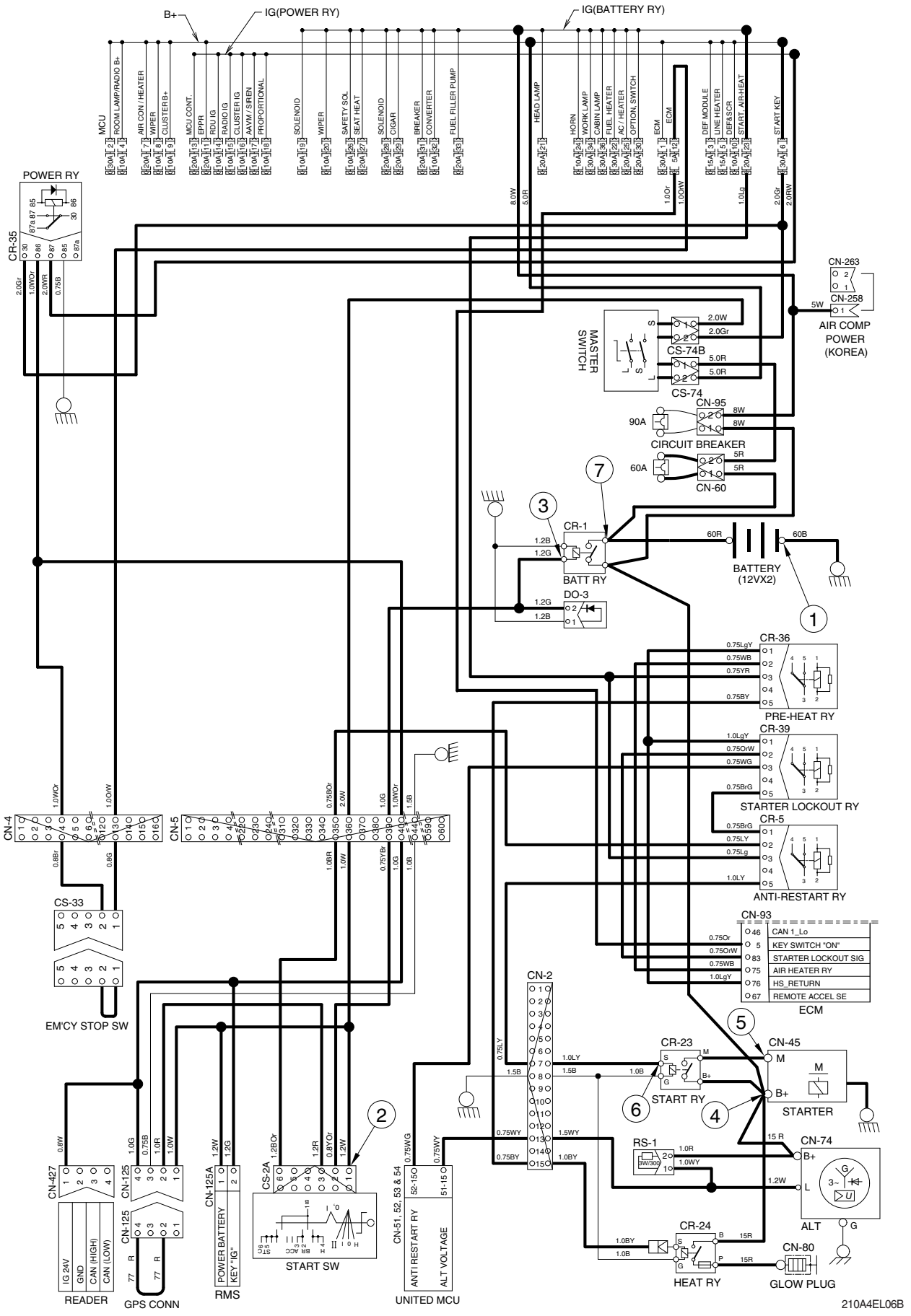
Start switch START [CS-2A (6)] → I/conn [CN-5 (35)] → Anti-restart relay [CR-5 (2) → (5)]
→ I/conn [CN-2 (7)] → Start relay [CR-23 (S)] → Starter motor operating

2) CHECK POINT

Engine	Start switch	Check point	Voltage
OPERATING	START	① - GND (battery) ② - GND (start switch) ③ - GND (battery relay M4) ④ - GND (starter B^+) ⑤ - GND (starter M) ⑥ - GND (start relay) ⑦ - GND (battery relay M8)	20~25V

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

STARTING CIRCUIT (MACHINE SERIAL NO. : #0003-#0176)



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

STARTING CIRCUIT (MACHINE SERIAL NO. : #0177-)

1) OPERATING FLOW

Battery (+) terminal → Battery relay [CR-1] → Circuit breaker [CN-60] → Master switch [CS-74]
→ Fuse box [No.6] → Master switch [CS-74B] → I/conn [CN-5 (36)] → Start switch [CS-2A (1)]
→ Power relay [CR-35 (30)]

(1) When start key switch is in ON position

- Start switch ON [CS-2A (2)] → I/conn [CN-5 (39)]
  → Battery relay [CR-1] → Battery relay operating (all power is supplied with the electric component)
- Start switch ON [CS-2A (3)] → GPS conn [CN-125 (2) → (4)
- I/conn [CN-5 (40)] → Power relay [CR-35 (86) → (87)]
  → Fuse box [IG (power)]
  → I/conn [CN-4 (4)]
  → Emergency engine stop sw [CS-33 (2)→(1)] → I/conn [CN-4 (13)]
  → Fuse box [No. 12] → Engine ECM [CN-93 (5)]
- Reader [CN-427 (6)]
- RMS [CN-125A (2)]

(2) When start key switch is in START position

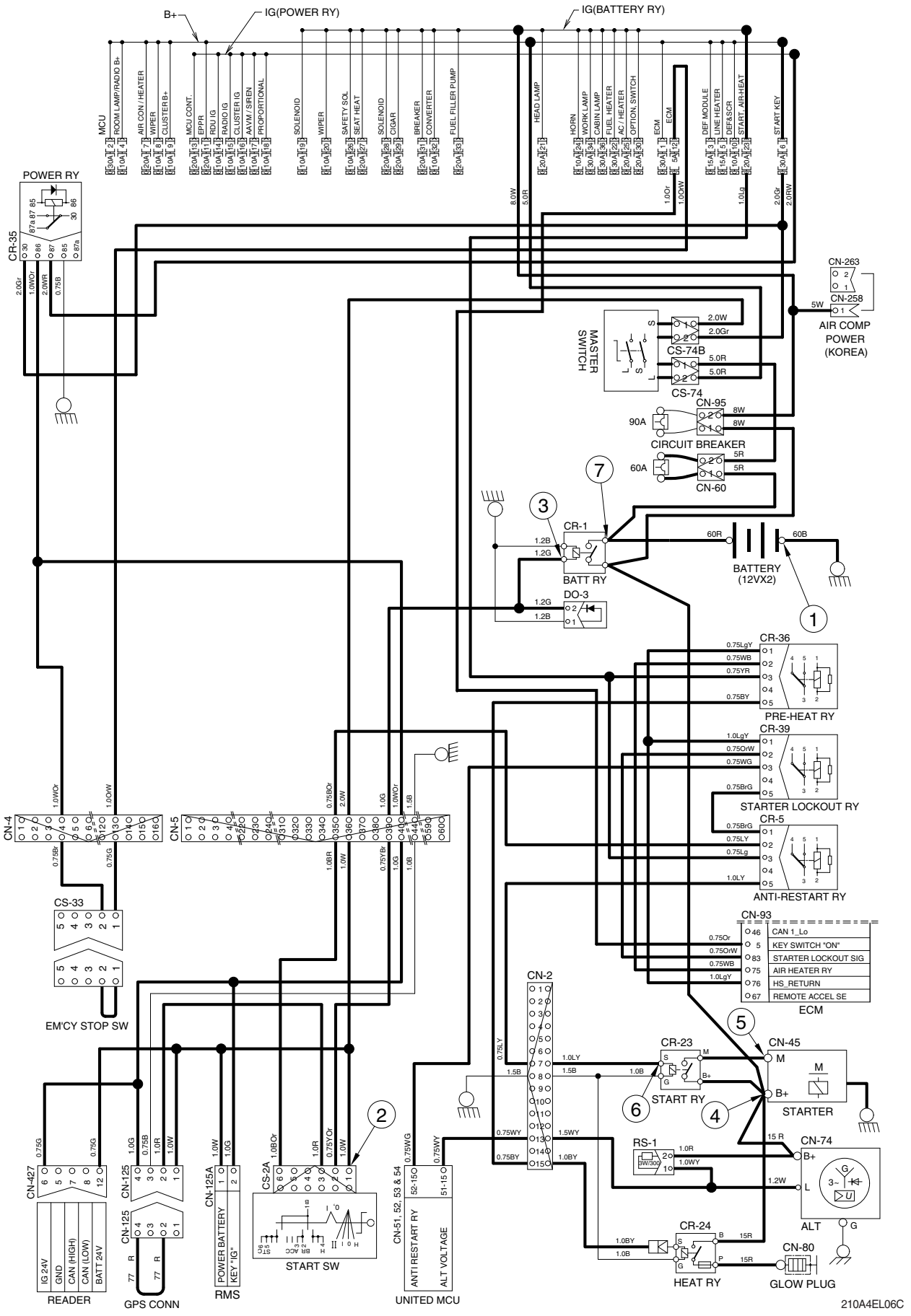
Start switch START [CS-2A (6)] → I/conn [CN-5 (35)] → Anti-restart relay [CR-5 (2) → (5)]
→ I/conn [CN-2 (7)] → Start relay [CR-23 (S)] → Starter motor operating

2) CHECK POINT

Engine	Start switch	Check point	Voltage
OPERATING	START	① - GND (battery) ② - GND (start switch) ③ - GND (battery relay M4) ④ - GND (starter B^+) ⑤ - GND (starter M) ⑥ - GND (start relay) ⑦ - GND (battery relay M8)	20~25V

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

STARTING CIRCUIT (MACHINE SERIAL NO. : #0177-)



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

3. CHARGING CIRCUIT (MACHINE SERIAL NO. : -#0002)

When the starter is activated and the engine is started, the operator releases the start 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-2 (13)] → United MCU alternator voltage [CN-51 (15)]
→ Cluster charging warning lamp (Via CAN interface)

(2) Charging flow

Alternator "B^+" terminal → Starter [CN-45 (B^+)] → Battery relay (CR-1)
- → Battery (+) terminal
- → Circuit breaker [CN-60] → Master switch [CS-74] → Fuse box [B^+]
- → Circuit breaker [CN-95] → Fuse box [IG, battery] → Power relay [CR-35 (30→87)]
  - → Fuse box [IG, power]
  - → Air comp power [CN-258 (1)]

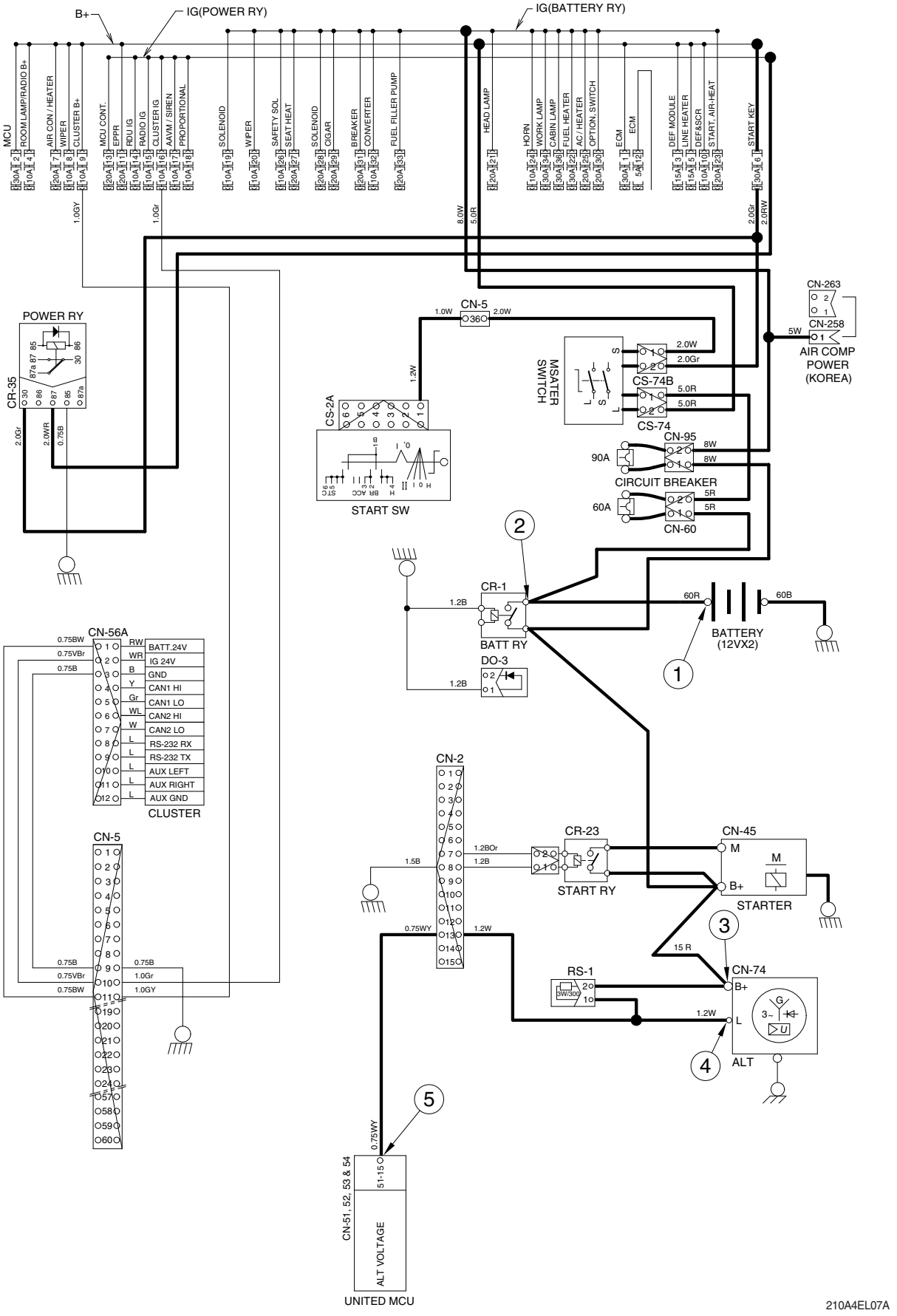
2) CHECK POINT

Engine	Start switch	Check point	Voltage
OPERATING	ON	① - GND (battery voltage) ② - GND (battery relay) ③ - GND (alternator B^+ terminal) ④ - GND (alternator L terminal) ⑤ - GND (United MCU)	20~25V

※ GND : Ground

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

CHARGING CIRCUIT (MACHINE SERIAL NO. : -#0002)



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

CHARGING CIRCUIT (MACHINE SERIAL NO. : #0003~#0176)

When the starter is activated and the engine is started, the operator releases the start 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-2 (13)] → United MCU alternator voltage [CN-51 (15)]
→ Cluster charging warning lamp (Via CAN interface)

(2) Charging flow

Alternator "B^+" terminal → Starter [CN-45 (B^+)] → Battery relay (CR-1)
- → Battery (+) terminal
- → Circuit breaker [CN-60] → Master switch [CS-74] → Fuse box [B^+]
- → Circuit breaker [CN-95] → Fuse box [IG, battery] → Power relay [CR-35 (30→87)]
  - → Fuse box [IG, power]
  - → Air comp power [CN-258 (1)]

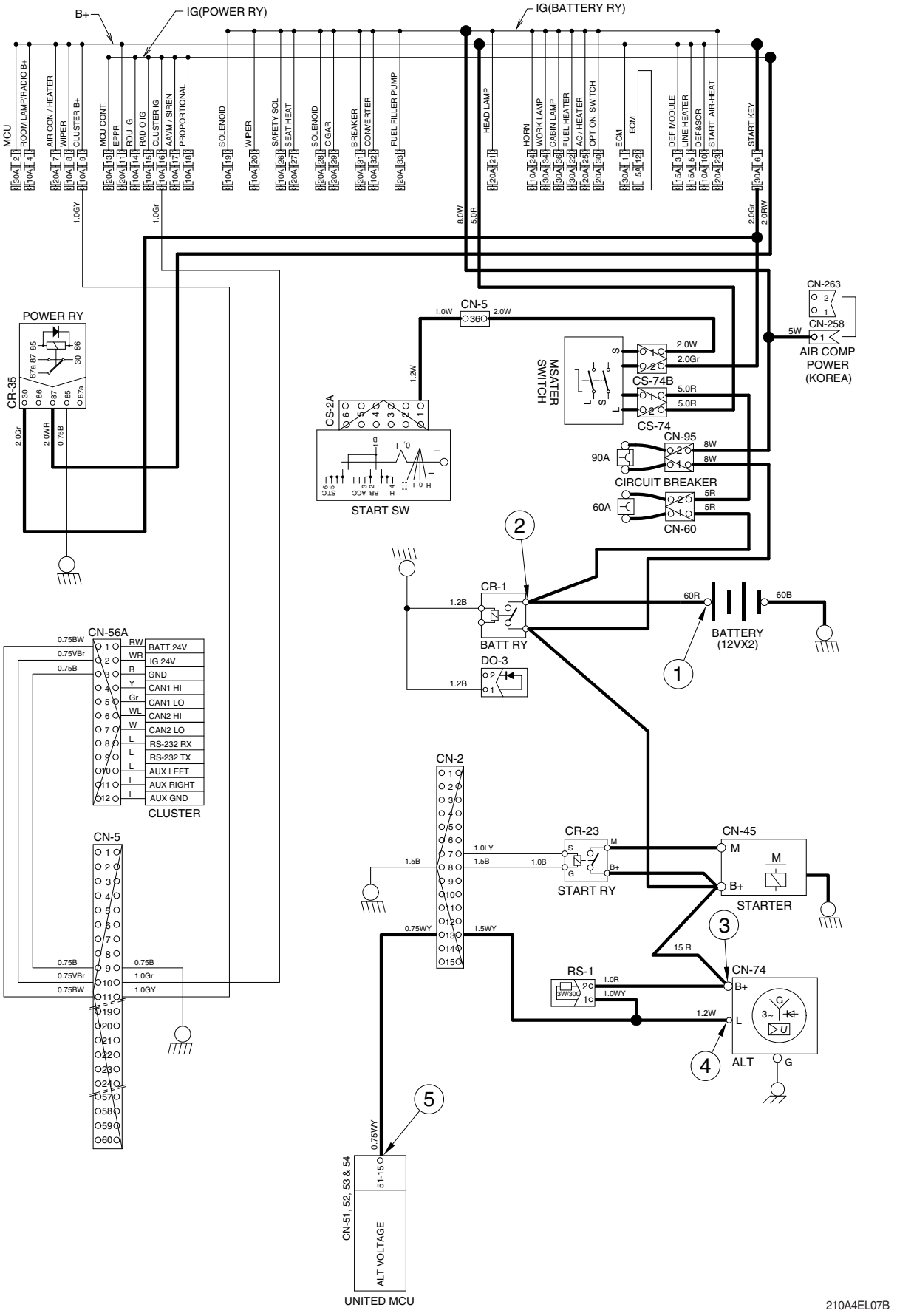
2) CHECK POINT

Engine	Start switch	Check point	Voltage
OPERATING	ON	① - GND (battery voltage) ② - GND (battery relay) ③ - GND (alternator B^+ terminal) ④ - GND (alternator L terminal) ⑤ - GND (United MCU)	20~25V

※ GND : Ground

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

CHARGING CIRCUIT (MACHINE SERIAL NO. : #0003~#0176)



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

CHARGING CIRCUIT (MACHINE SERIAL NO. : #0177-)

When the starter is activated and the engine is started, the operator releases the start 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-2 (13)] → United MCU alternator voltage [CN-51 (15)]
→ Cluster charging warning lamp (Via CAN interface)

(2) Charging flow

Alternator "B^+" terminal → Starter [CN-45 (B^+)] → Battery relay (CR-1)
- → Battery (+) terminal
- → Circuit breaker [CN-60] → Master switch [CS-74] → Fuse box [B^+]
- → Circuit breaker [CN-95] → Fuse box [IG, battery] → Power relay [CR-35 (30→87)]
  - → Fuse box [IG, power]
  - → Air comp power [CN-263]

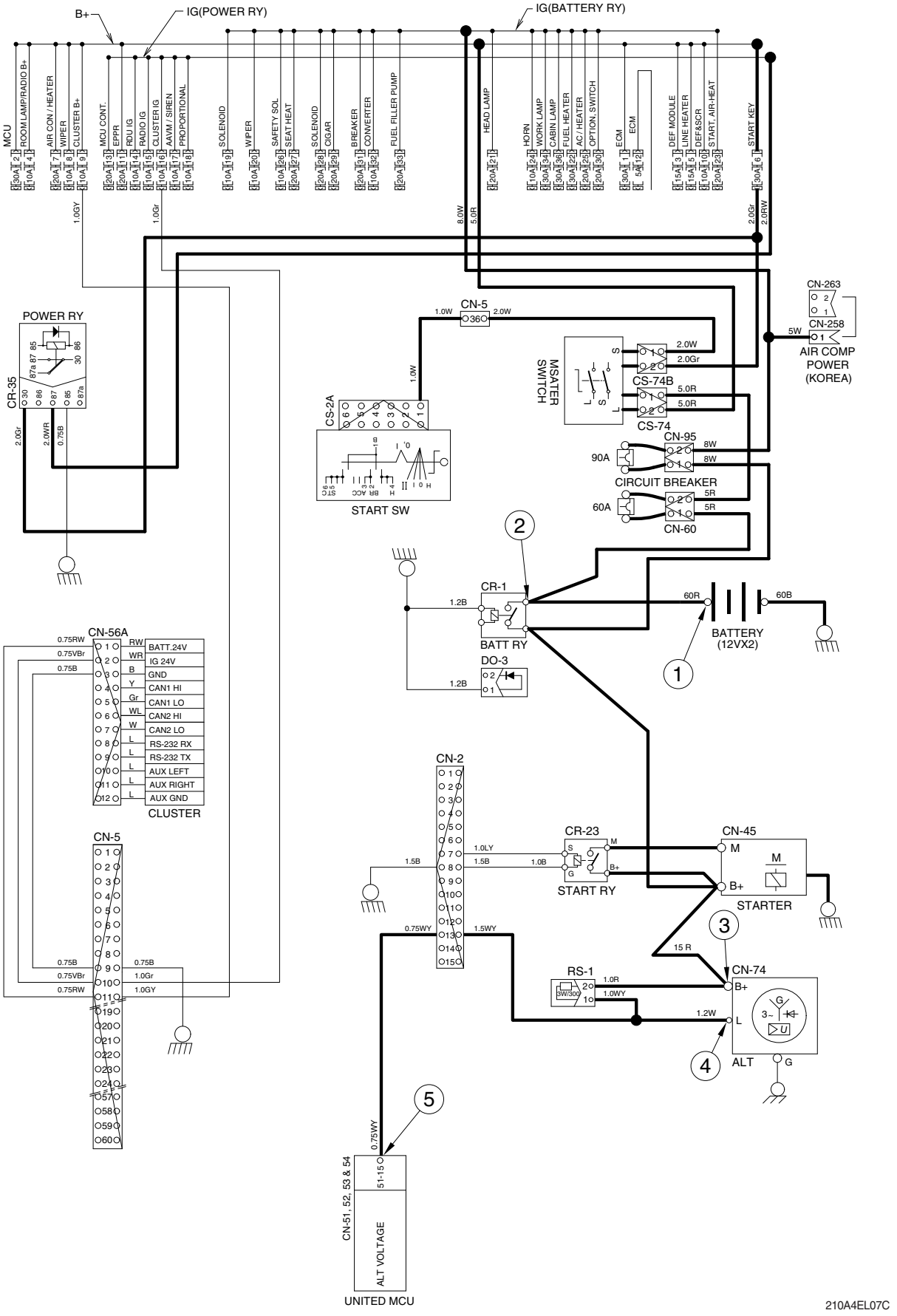
2) CHECK POINT

Engine	Start switch	Check point	Voltage
OPERATING	ON	① - GND (battery voltage) ② - GND (battery relay) ③ - GND (alternator B^+ terminal) ④ - GND (alternator L terminal) ⑤ - GND (United MCU)	20~25V

※ GND : Ground

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

CHARGING CIRCUIT (MACHINE SERIAL NO. : #0177-)



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

4. HEAD AND WORK LIGHT CIRCUIT (MACHINE SERIAL NO. : -#0176)

1) OPERATING FLOW

Fuse box (No.21) → Head light relay [CR-13 (30, 86)]
Fuse box (No.34) → Work light relay [CR-4 (30, 86)]
Fuse box (No.14) → RDU membrane controller [CN-376 (1)]

(1) Head light switch ON

Head light switch ON [CN-376 (13)] → Head light relay [CR-13 (85) → (87)]
→ Head light ON [CL-3 (1), CL-4 (1), CL-24 (1)]
→ I/conn [CN-7 (1)] → Cigar lighter [CL-2]
→ I/conn [CN-5 (60)] → Radio & USB player illumination ON [CN-27A (9)]

(2) Work light switch ON

Work light switch ON [CN-376 (4)] → Work light relay [CR-4 (85) → (87)]
→ I/conn [CN-12 (1)] → Work light ON [CL-5 (1), CL-6 (1)]

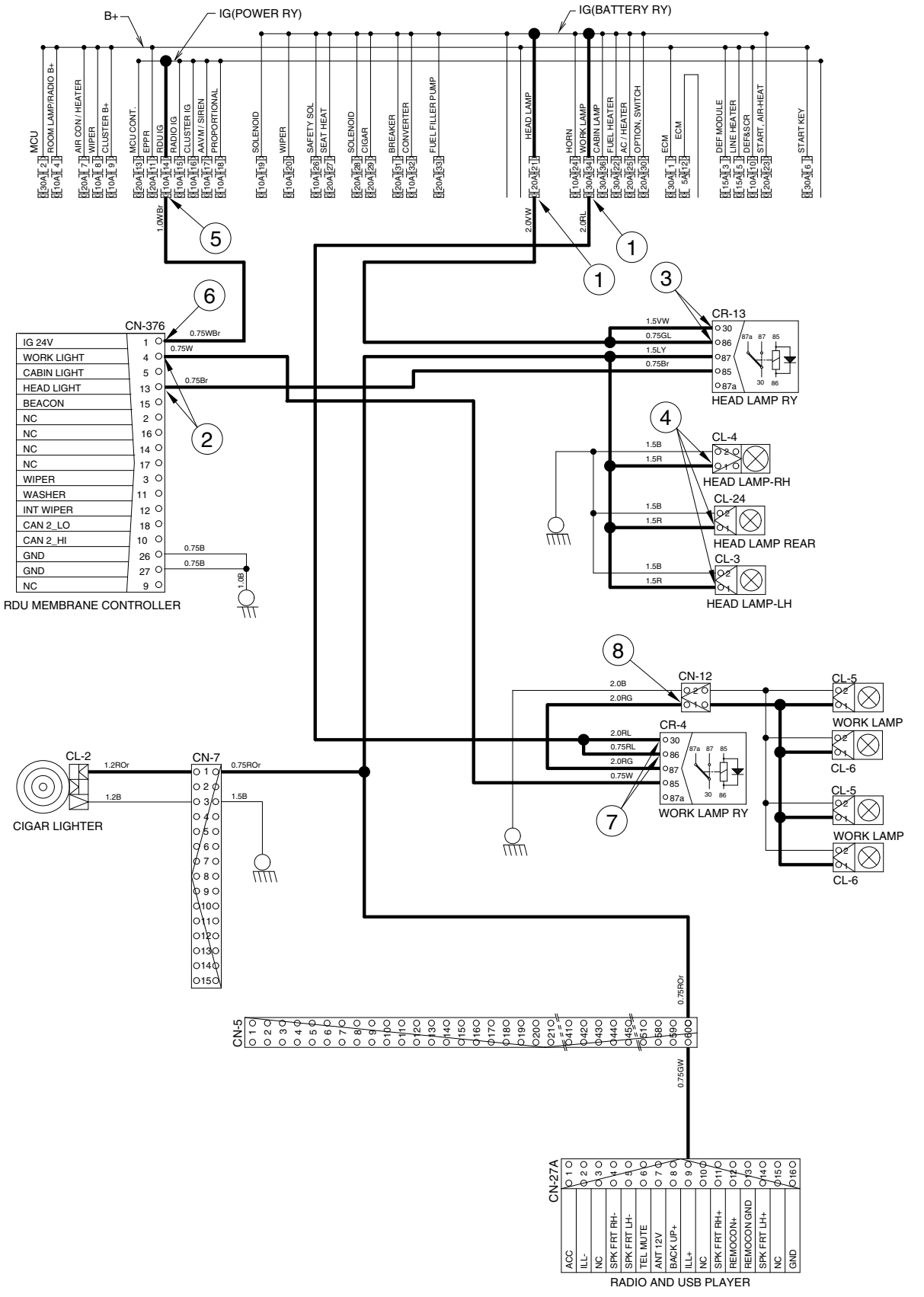
2) CHECK POINT

Engine	Start switch	Check point	Voltage
STOP	ON	① - GND (fuse box) ② - GND (switch power output) ③ - GND (head light relay) ④ - GND (head light) ⑤ - GND (fuse box) ⑥ - GND (switch power input) ⑦ - GND (work light relay) ⑧ - GND (work light)	20~25V

※ GND : Ground

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

HEAD AND WORK LIGHT CIRCUIT (MACHINE SERIAL NO. : -#0176)



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

HEAD AND WORK LIGHT CIRCUIT (MACHINE SERIAL NO. : #0177-)

1) OPERATING FLOW

Fuse box (No.21) → Head light relay [CR-13 (30, 86)]
Fuse box (No.34) → Work light relay [CR-4 (30, 86)]
Fuse box (No.14) → RDU membrane controller [CN-376 (1)]

(1) Head light switch ON

Head light switch ON [CN-376 (13)] → Head light relay [CR-13 (85) → (87)]
→ Head light ON [CL-3 (1), CL-4 (1), CL-24 (1)]
→ I/conn [CN-7 (1)] → Cigar lighter [CL-2]
→ I/conn [CN-5 (60)] → Radio & USB player illumination ON [CN-27A (9)]

(2) Work light switch ON

Work light switch ON [CN-376 (4)] → Work light relay [CR-4 (85) → (87)]
→ I/conn [CN-12 (1)] → Work light ON [CL-5 (1), CL-6 (1)]

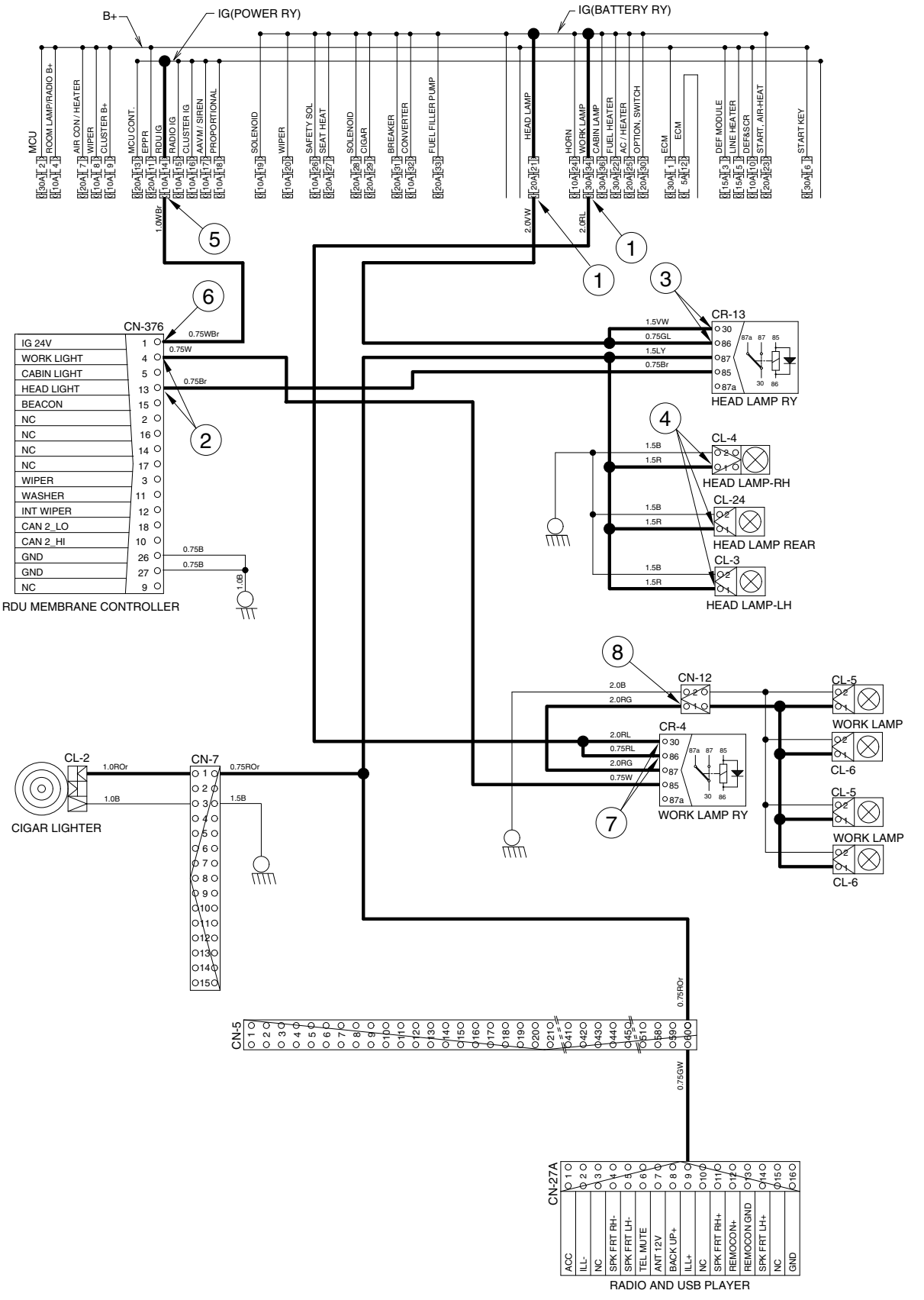
2) CHECK POINT

Engine	Start switch	Check point	Voltage
STOP	ON	① - GND (fuse box) ② - GND (switch power output) ③ - GND (head light relay) ④ - GND (head light) ⑤ - GND (fuse box) ⑥ - GND (switch power input) ⑦ - GND (work light relay) ⑧ - GND (work light)	20~25V

※ GND : Ground

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

HEAD AND WORK LIGHT CIRCUIT (MACHINE SERIAL NO. : #0177-)



210A4EL08A

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

5. BEACON LAMP AND CAB LIGHT CIRCUIT (MACHINE SERIAL NO. : -#0176)

1) OPERATING FLOW

Fuse box (No.30) → Beacon lamp relay [CR-85 (2, 3)]
Fuse box (No.36) → Cab light relay [CR-9 (30, 86)]
Fuse box (No.14) → RDU membrane controller [CN-376 (1)]

(1) Beacon lamp switch ON

Beacon lamp switch ON [CN-376 (15)] → Beacon lamp relay [CR-85 (1)→ (5)]
→ I/conn [CN-5 (50)] → I/conn [CN-10 (10)] → Beacon lamp ON [CL-7]

(2) Cab light switch ON

Cab light switch ON [CN-376 (5)] → Cab lamp relay [CR-9 (85)→ (87)]
→ I/conn [CN-5 (34, 38)] → I/conn [CN-10 (11)] → Cab light ON [CL-8 (2)]
→ I/conn [CN-10 (12)] → Cab light ON [CL-9 (2), CL-10 (2)]

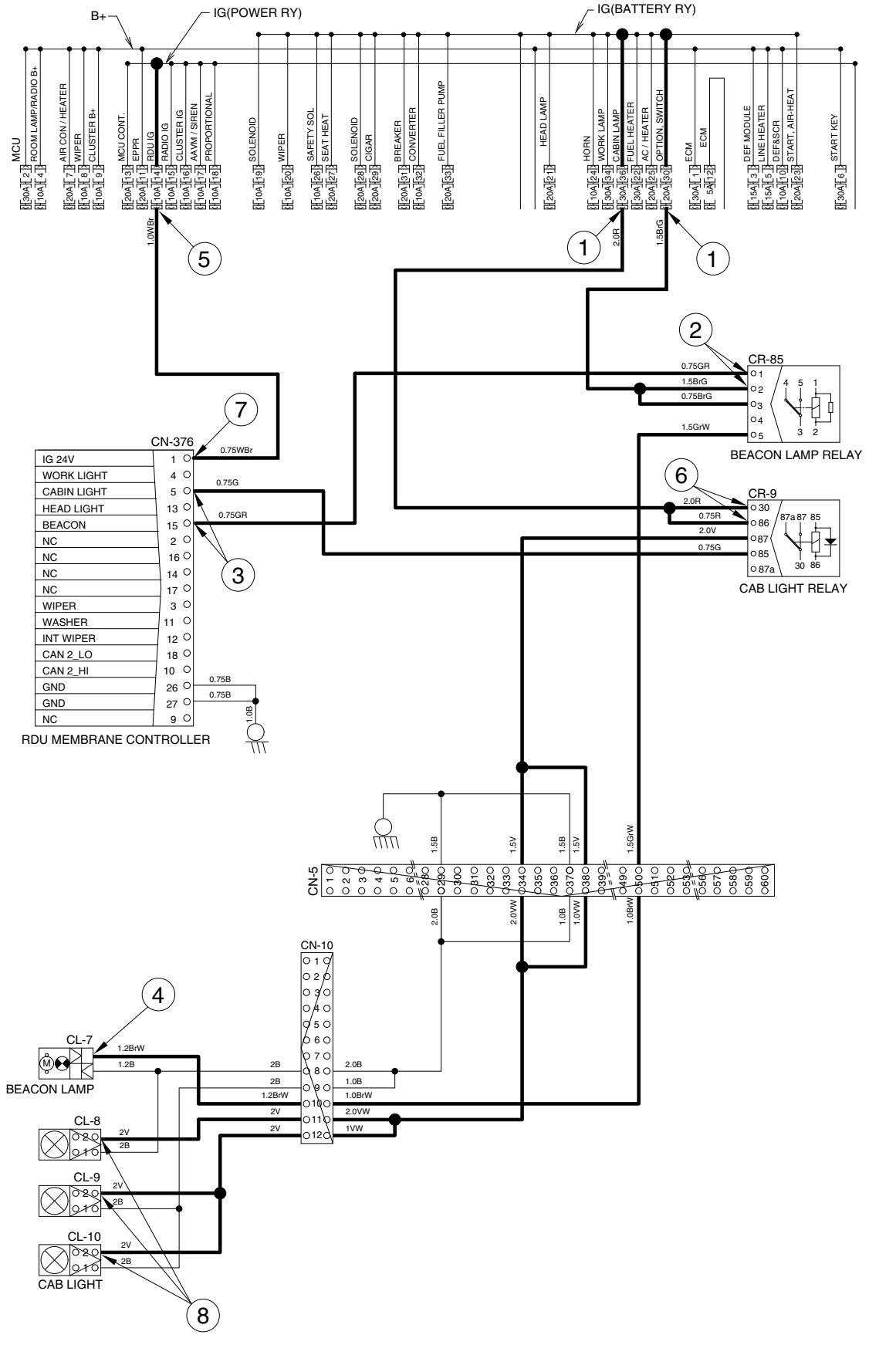
2) CHECK POINT

Engine	Start switch	Check point	Voltage
STOP	ON	① - GND (fuse box) ② - GND (beacon lamp relay) ③ - GND (switch power output) ④ - GND (beacon lamp) ⑤ - GND (fuse box) ⑥ - GND (cabin light relay) ⑦ - GND (switch power input) ⑧ - GND (cab light)	20~25V

※ GND : Ground

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

BEACON LAMP AND CAB LIGHT CIRCUIT (MACHINE SERIAL NO. : -#0176)



210A4EL09

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

BEACON LAMP AND CAB LIGHT CIRCUIT (MACHINE SERIAL NO. : #0177-)

1) OPERATING FLOW

Fuse box (No.30) → Beacon lamp relay [CR-85 (2, 3)]
Fuse box (No.36) → Cab light relay [CR-9 (30, 86)]
Fuse box (No.14) → RDU membrane controller [CN-376 (1)]

(1) Beacon lamp switch ON

Beacon lamp switch ON [CN-376 (15)] → Beacon lamp relay [CR-85 (1)→ (5)]
→ I/conn [CN-5 (50)] → I/conn [CN-10 (10)] → Beacon lamp ON [CL-7 (2)]

(2) Cab light switch ON

Cab light switch ON [CN-376 (5)] → Cab lamp relay [CR-9 (85)→ (87)]
→ I/conn [CN-5 (34, 38)] → I/conn [CN-10 (11)] → Cab light ON [CL-8 (2)]
→ I/conn [CN-10 (12)] → Cab light ON [CL-9 (2), CL-10 (2)]

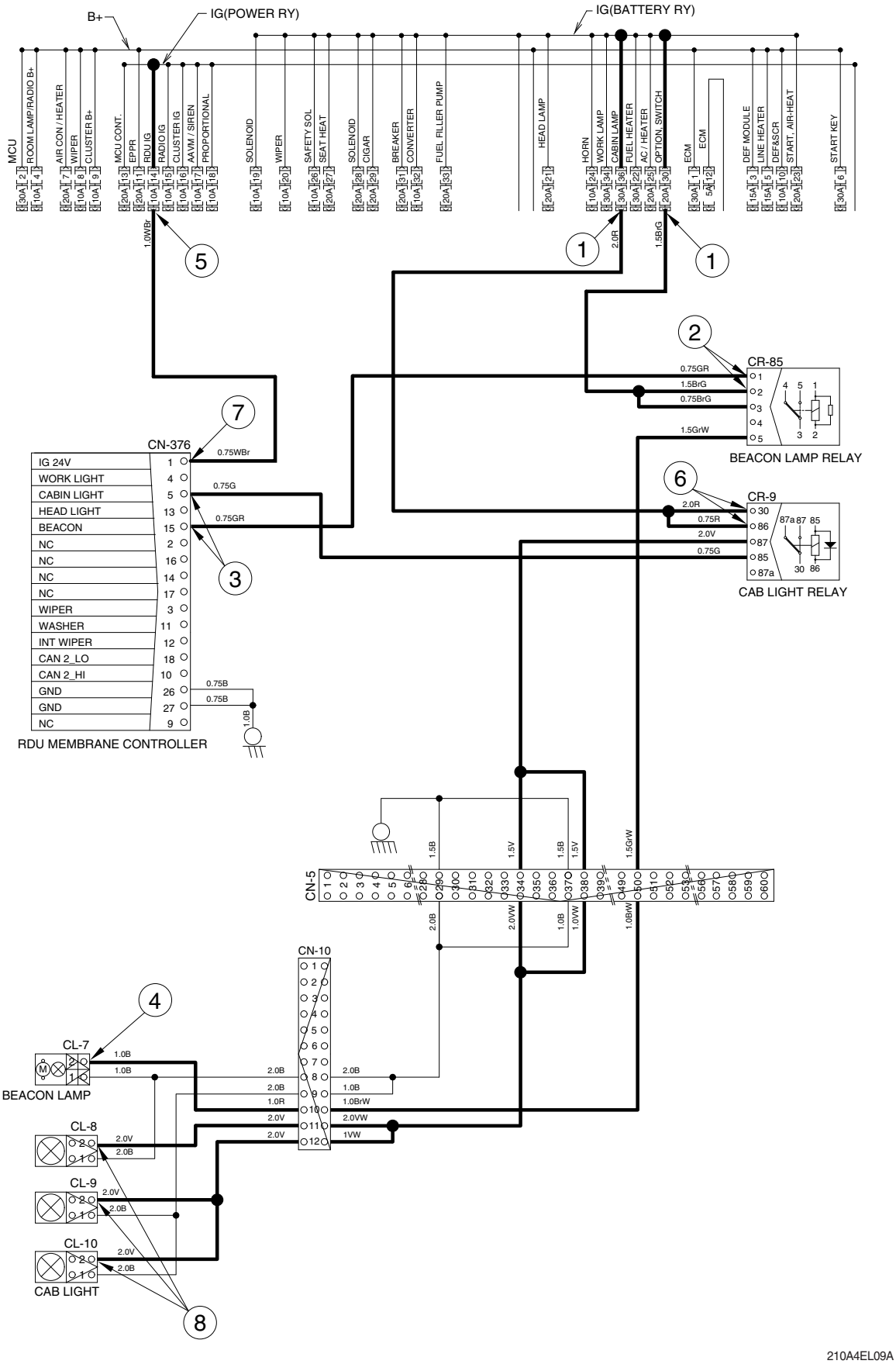
2) CHECK POINT

Engine	Start switch	Check point	Voltage
STOP	ON	① - GND (fuse box) ② - GND (beacon lamp relay) ③ - GND (switch power output) ④ - GND (beacon lamp) ⑤ - GND (fuse box) ⑥ - GND (cabin light relay) ⑦ - GND (switch power input) ⑧ - GND (cab light)	20~25V

※ GND : Ground

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

BEACON LAMP AND CAB LIGHT CIRCUIT (MACHINE SERIAL NO. : #0177-)



210A4EL09A

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

6. WIPER AND WASHER CIRCUIT (MACHINE SERIAL NO. : -#0176)

1) OPERATING FLOW

(1) Key switch ON

Fuse box (No.14) → RDU membrance controller [CN-376 (1)]

Fuse box (No.8) → I/conn [CN-5 (18)] → I/conn [CN-17 (5)] → Wiper motor controller [CN-141 (7)]
→ Wiper motor [CN-21 (4)]

Fuse box (No.20) → I/conn [CN-5 (16)] → I/conn [CN-17 (4)] → Wiper motor controller [CN-141 (6)]
→ Low wiper motor [CN-407 (3)]
→ Washer pump [CN-22 (2)]

(2) Wiper switch ON (Intermittent)

Wiper switch ON [CN-376 (12)] → I/conn [CN-5 (20)] → I/conn [CN-17 (8)]
→ Wiper motor controller [CN-141 (10)→(3)] → Wiper motor [CN-21 (6)] → Intermittently operating

(3) Wiper switch ON (continual)

Wiper switch ON [CN-376 (3)] → I/conn[CN-5 (15)] → I/conn[CN-17 (2)]
→ Wiper motor controller [CN-141 (2) → (4)] → Wiper motor [CN-21 (2)] → Continual operating

(4) Washer switch ON

Washer switch ON [CN-376 (11)] → I/conn [CN-5 (17)] → I/conn [CN-17 (7)]
→ Wiper motor controller [CN-141 (9) → (8)] → I/conn [CN-17 (6)] → I/conn [CN-5 (19)]
→ Washer pump [CN-22 (1)] → Washer operating

Wiper switch ON [CN-376 (3)] → I/conn[CN-5 (15)] → I/conn[CN-17 (2)]
→ Wiper motor controller [CN-141 (2) → (4)] → Wiper motor [CN-21 (2)] → Continual operating

(5) Auto parking (when switch OFF)

Switch OFF [CN-376 (3, 12)] → Wiper motor parking position by wiper motor controller

2) OPERATING FLOW (LOW WIPER)

(1) Key switch ON

Fuse box (No. 30) → I/conn [CN-7 (8)] → Low wiper switch [CS-79 (1, 5)]

(2) Wiper switch ON (1st)

Wiper switch ON [CS-79 (1 → 2)] → I/conn [CN-7 (5)] → Wiper motor [CN-407 (4)] → Wiper operating

(3) Wiper switch ON (2nd)

Wiper switch ON [CS-79 (5 → 4)] → I/conn [CN-7 (6)] → I/conn [CN-18 (2)] → Washer pump [CN-407 (2)]
→ Washer operating

Wiper switch ON [CS-79 (1 → 2)] → I/conn [CN-7 (5)] → Wiper motor [CN-407 (4)] → Wiper operating

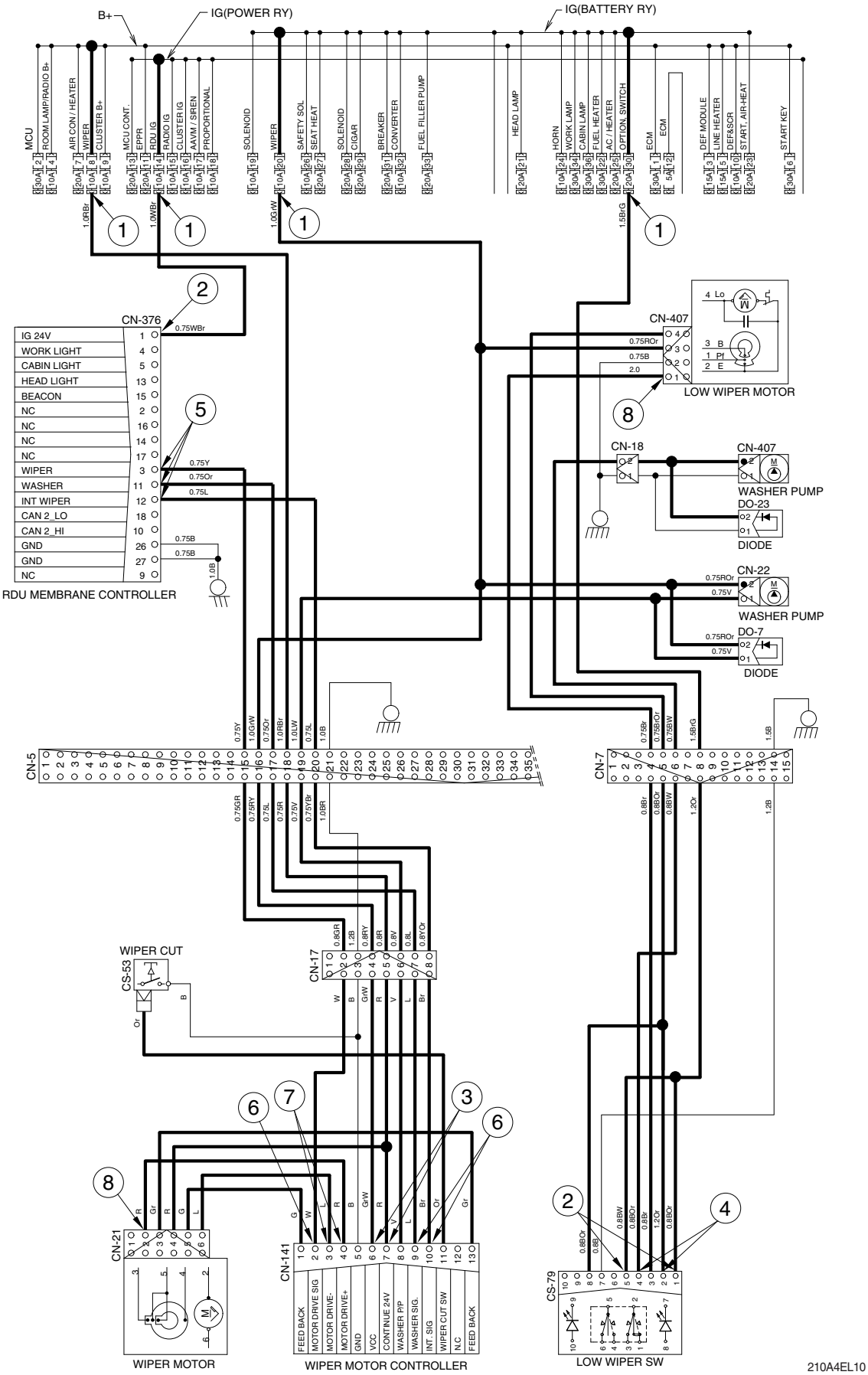
3) CHECK POINT

Engine	Start switch	Check point	Voltage
STOP	ON	① - GND (fuse box) ② - GND (switch power input) ③ - GND (wiper power input) ④ - GND (switch power output)	20~25V
		⑤ - GND (switch power output) ⑥ - GND (wiper power switch input)	0 ~ 5V
		⑦ - GND (wiper power output)	24V
		⑧ - GND (wiper motor)	0 or 24V

※ GND : Ground

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

WIPER AND WASHER CIRCUIT (MACHINE SERIAL NO. : -#0176)



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

6. WIPER AND WASHER CIRCUIT (MACHINE SERIAL NO. : #0177-)

1) OPERATING FLOW

(1) Key switch ON

Fuse box (No.14) → RDU membrance controller [CN-376 (1)]

Fuse box (No.8) → I/conn [CN-5 (18)] → I/conn [CN-17 (5)] → Wiper motor controller [CN-141 (7)]
→ Wiper motor [CN-21 (4)]

Fuse box (No.20) → I/conn [CN-5 (16)] → I/conn [CN-17 (4)] → Wiper motor controller [CN-141 (6)]
→ Low wiper motor [CN-407 (3)]
→ Washer pump [CN-22 (2)]

(2) Wiper switch ON (Intermittent)

Wiper switch ON [CN-376 (12)] → I/conn [CN-5 (20)] → I/conn [CN-17 (8)]
→ Wiper motor controller [CN-141 (10)→(3)] → Wiper motor [CN-21 (6)] → Intermittently operating

(3) Wiper switch ON (continual)

Wiper switch ON [CN-376 (3)] → I/conn[CN-5 (15)] → I/conn[CN-17 (2)]
→ Wiper motor controller [CN-141 (2) → (4)] → Wiper motor [CN-21 (2)] → Continual operating

(4) Washer switch ON

Washer switch ON [CN-376 (11)] → I/conn [CN-5 (17)] → I/conn [CN-17 (7)]
→ Wiper motor controller [CN-141 (9) → (8)] → I/conn [CN-17 (6)] → I/conn [CN-5 (19)]
→ Washer pump [CN-22 (1)] → Washer operating

Wiper switch ON [CN-376 (3)] → I/conn[CN-5 (15)] → I/conn[CN-17 (2)]
→ Wiper motor controller [CN-141 (2) → (4)] → Wiper motor [CN-21 (2)] → Continual operating

(5) Auto parking (when switch OFF)

Switch OFF [CN-376 (3, 12)] → Wiper motor parking position by wiper motor controller

2) OPERATING FLOW (LOW WIPER)

(1) Key switch ON

Fuse box (No. 30) → I/conn [CN-7 (8)] → Low wiper switch [CS-79 (1, 5)]

(2) Wiper switch ON (1st)

Wiper switch ON [CS-79 (1 → 2)] → I/conn [CN-7 (5)] → Wiper motor [CN-407 (4)] → Wiper operating

(3) Wiper switch ON (2nd)

Wiper switch ON [CS-79 (5 → 4)] → I/conn [CN-7 (6)] → I/conn [CN-18 (2)] → Washer pump [CN-407 (2)]
→ Washer operating

Wiper switch ON [CS-79 (1 → 2)] → I/conn [CN-7 (5)] → Wiper motor [CN-407 (4)] → Wiper operating

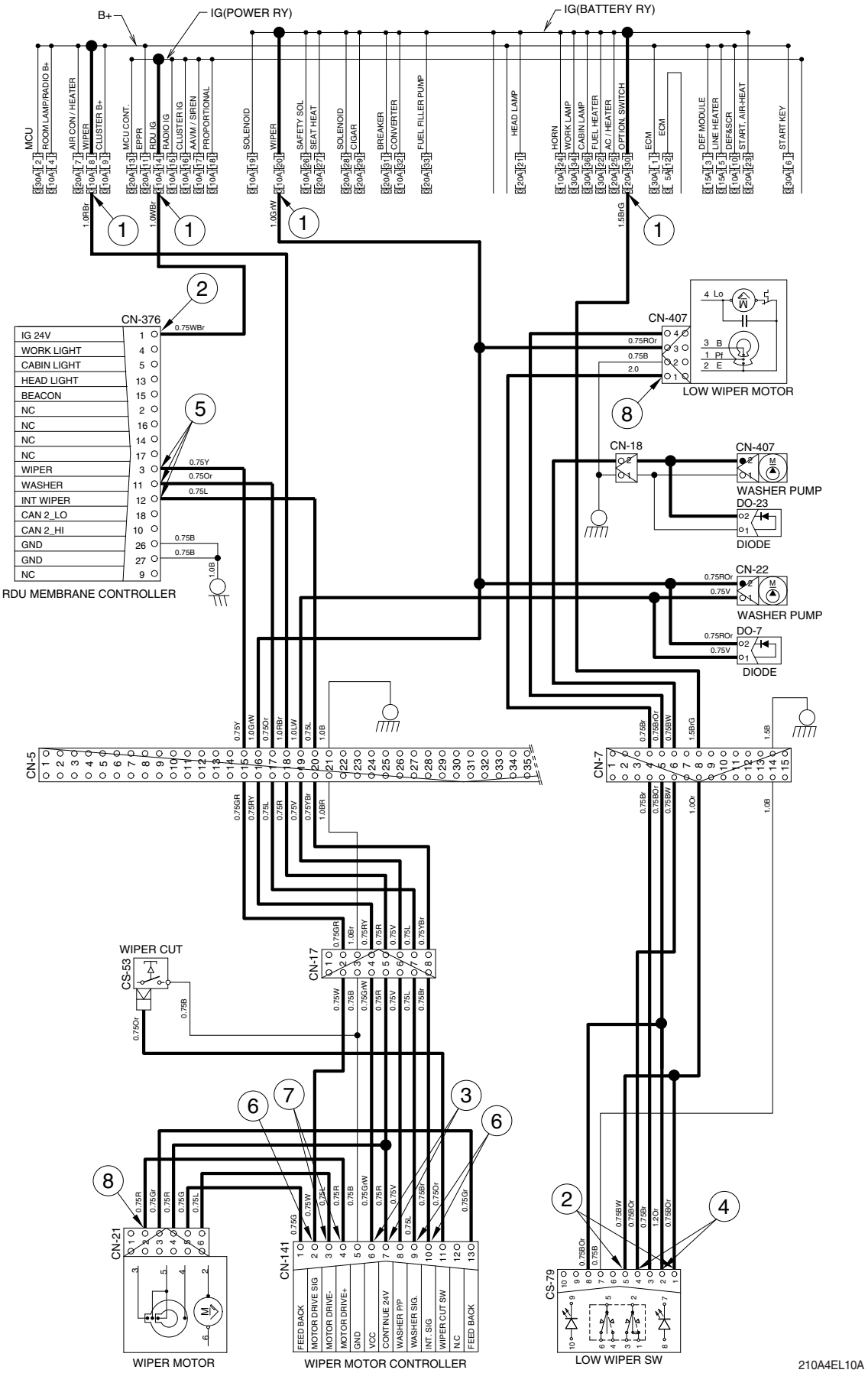
3) CHECK POINT

Engine	Start switch	Check point	Voltage
STOP	ON	① - GND (fuse box) ② - GND (switch power input) ③ - GND (wiper power input) ④ - GND (switch power output)	20~25V
		⑤ - GND (switch power output) ⑥ - GND (wiper power switch input)	0 ~ 5V
		⑦ - GND (wiper power output)	24V
		⑧ - GND (wiper motor)	0 or 24V

※ GND : Ground

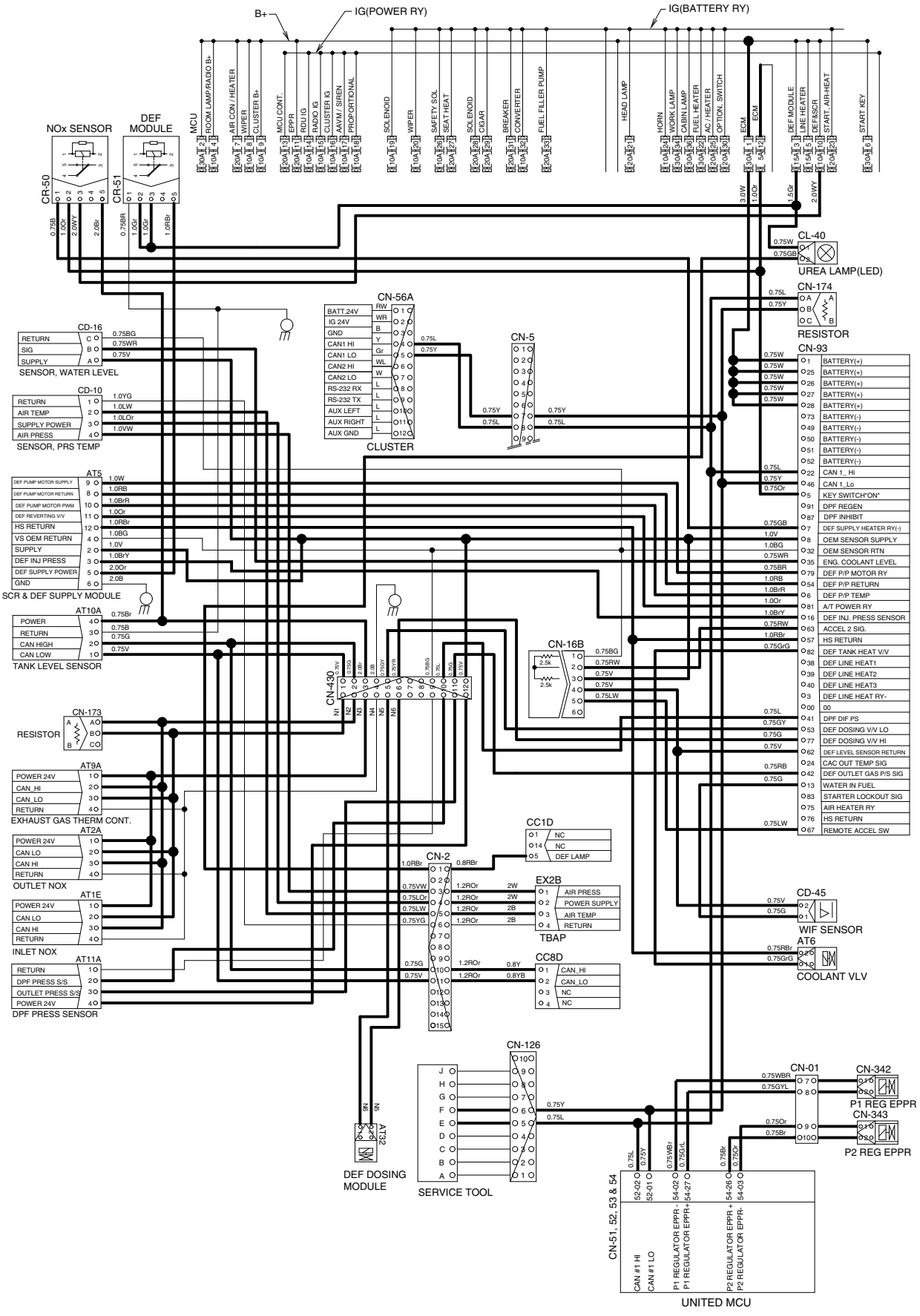
※ The circuit diagram may differ from the equipment, so please check before a repair.

WIPER AND WASHER CIRCUIT (MACHINE SERIAL NO. : #0177-)



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

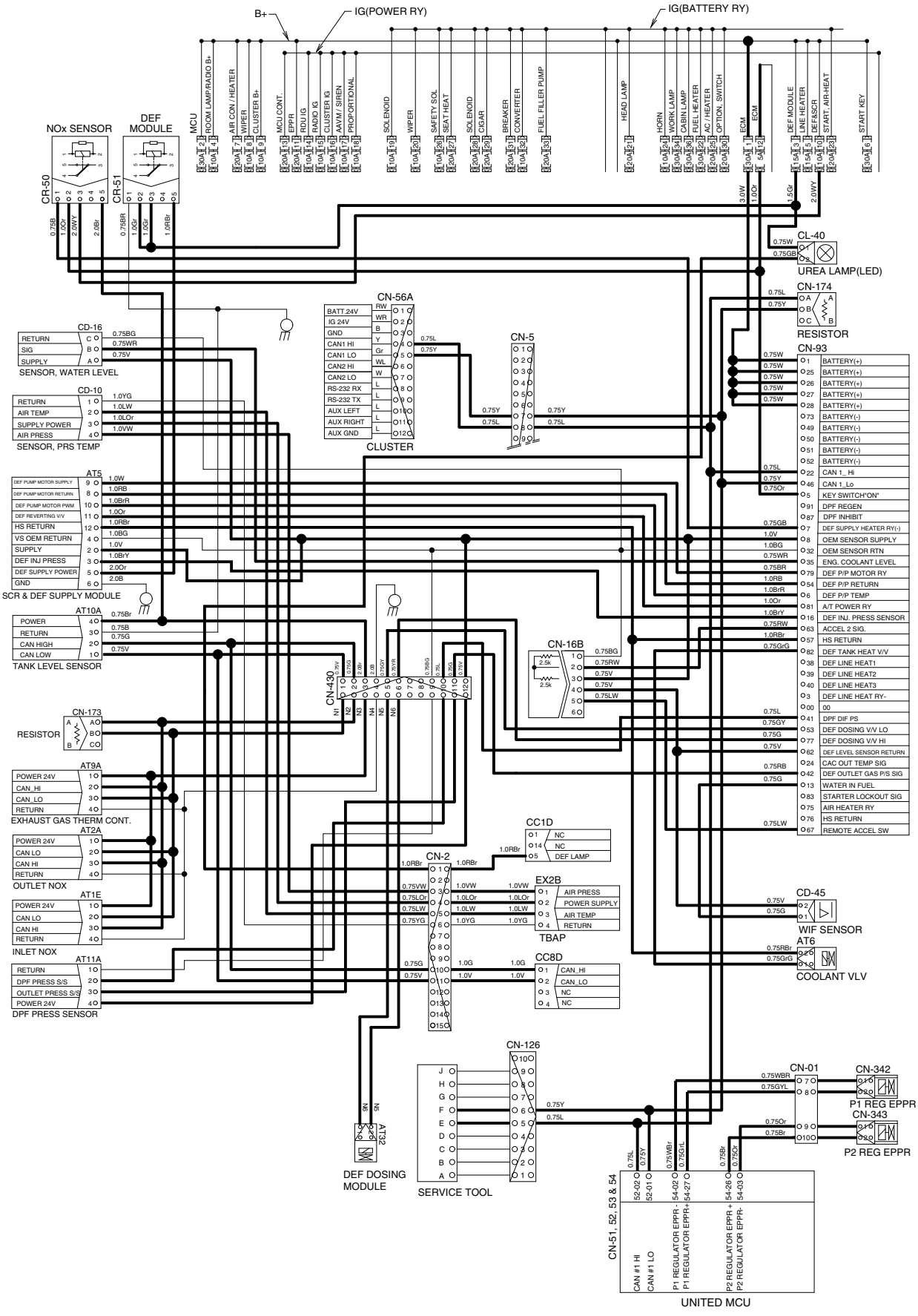
7. CONTROLLER CIRCUIT (MACHINE SERIAL NO. : -#0002)



210A4EL11A

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

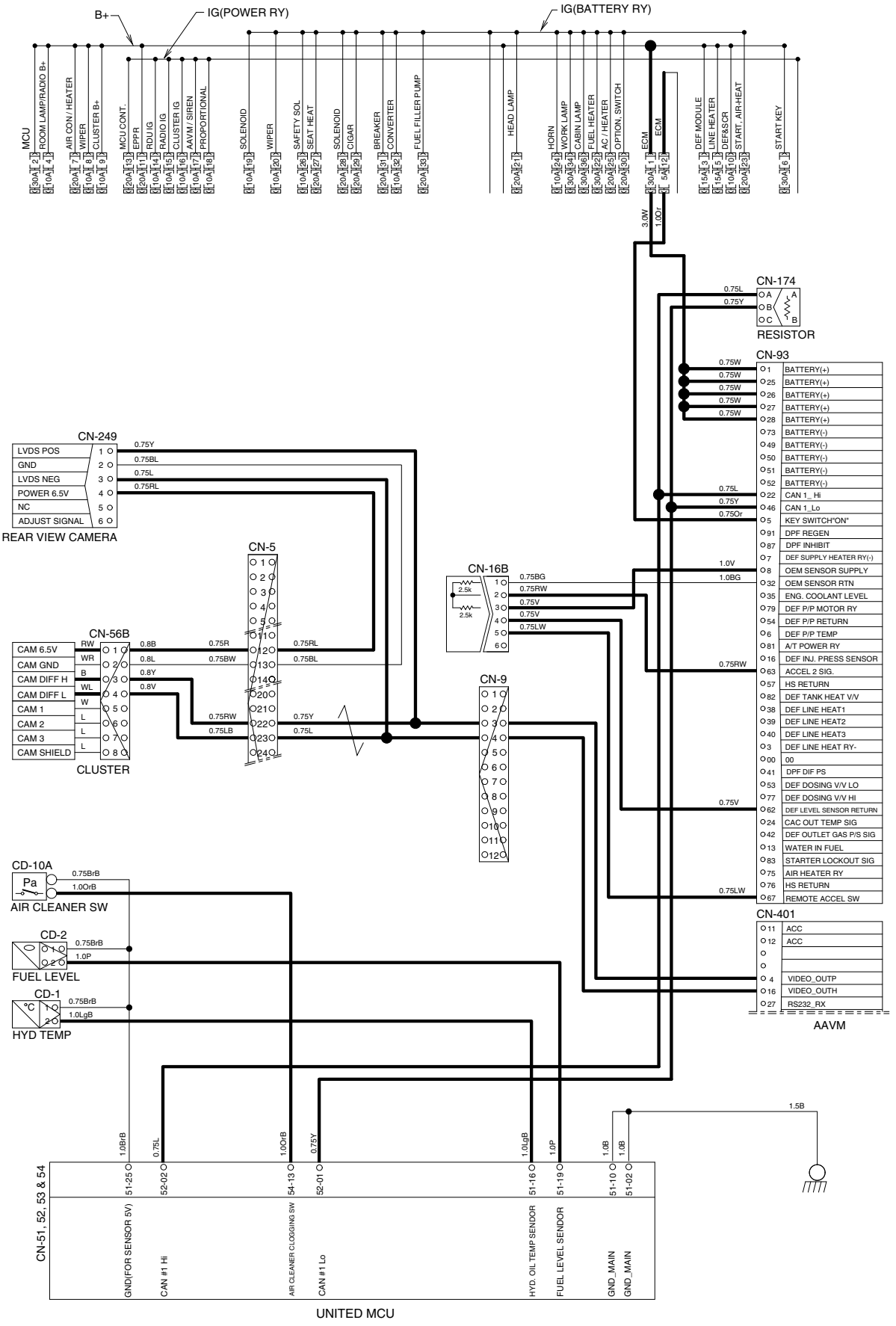
CONTROLLER CIRCUIT (MACHINE SERIAL NO. : #0003-)



210A4EL11B

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

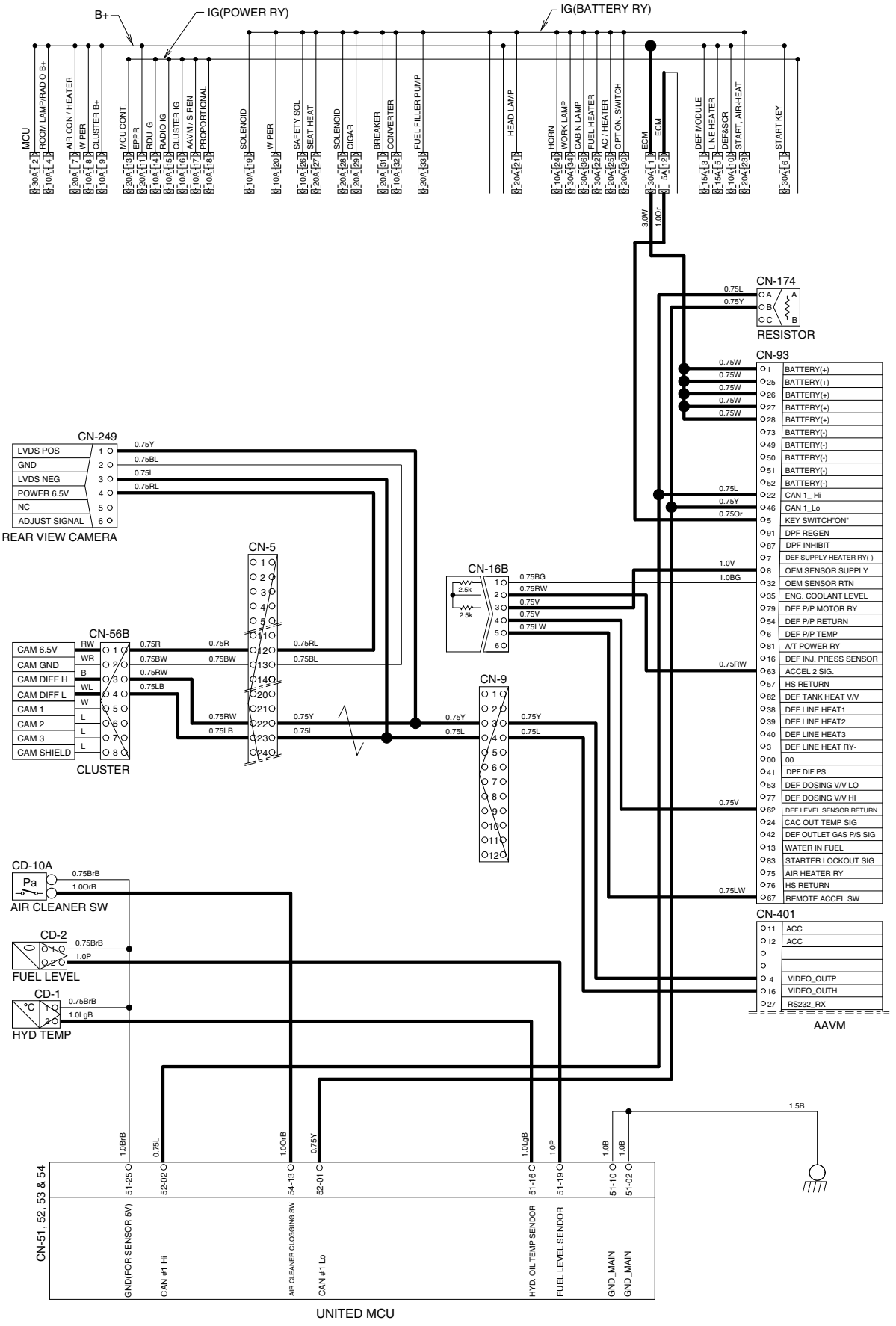
8. MONITORING CIRCUIT (MACHINE SERIAL NO. : -#0176)



210A4EL12A

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

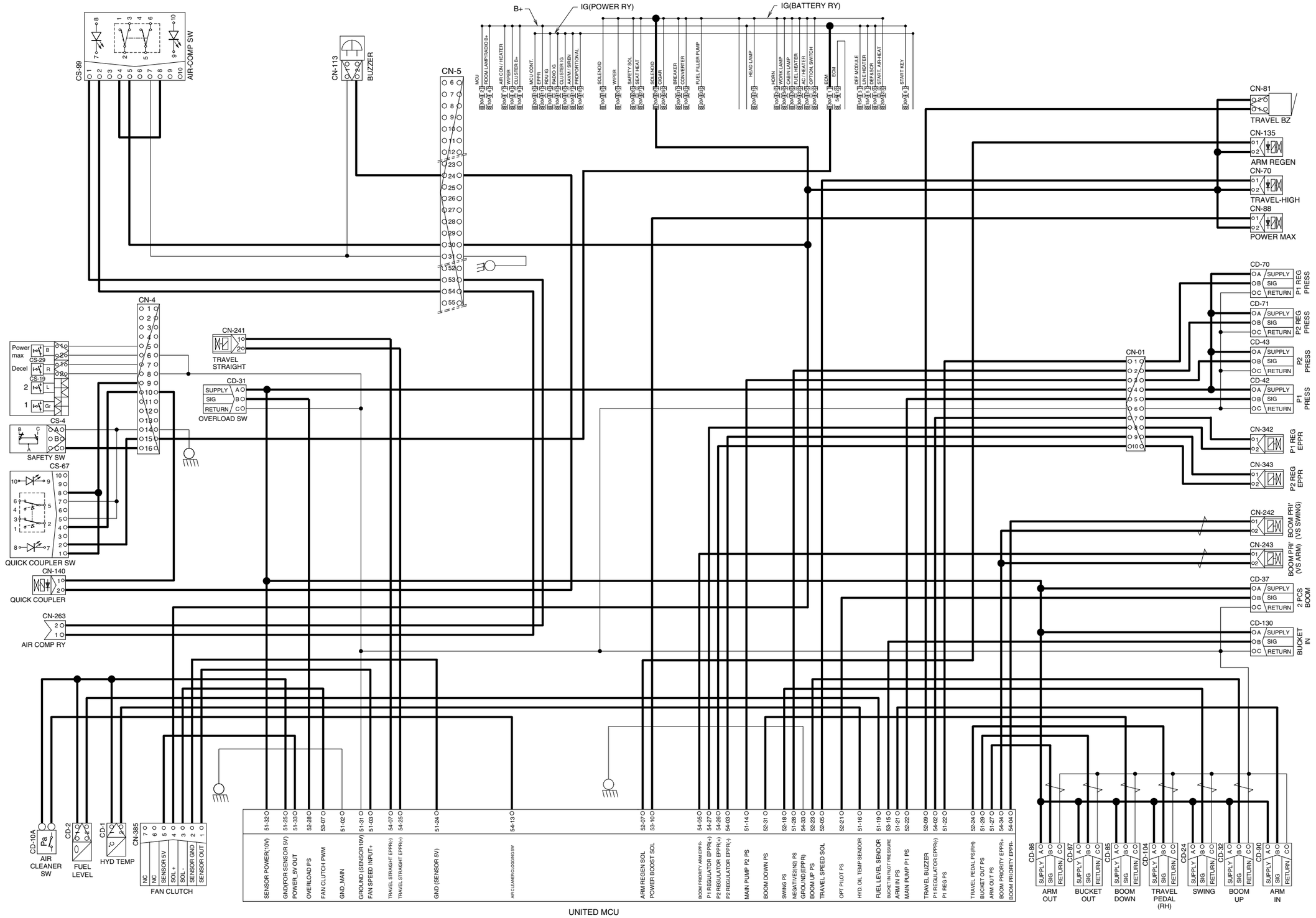
MONITORING CIRCUIT (MACHINE SERIAL NO. : #0177-)



210A4EL12B

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

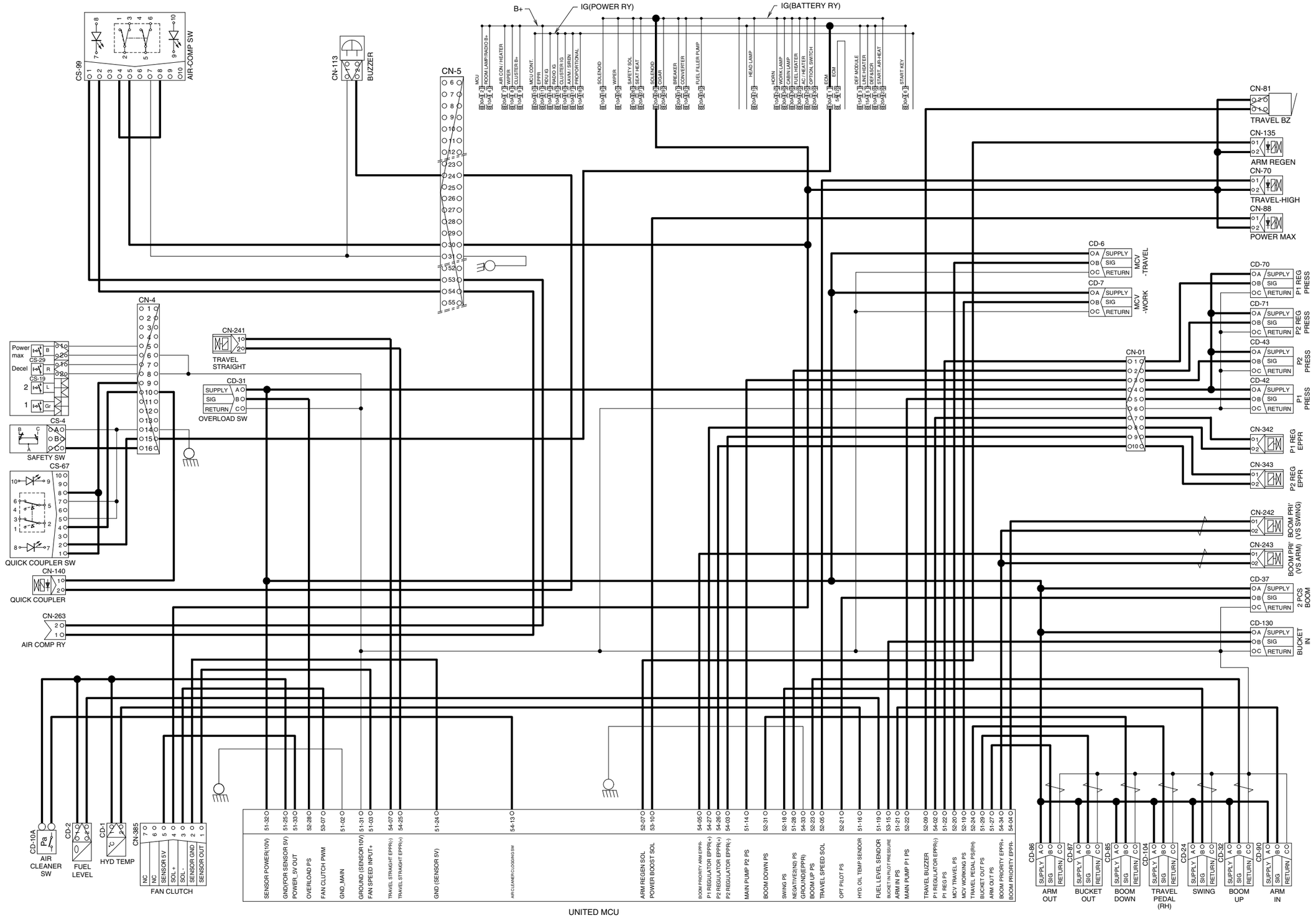
9. ELECTRIC CIRCUIT FOR HYDRAULIC (1/2, MACHINE SERIAL NO. : -#0035)



210A4EL13A

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

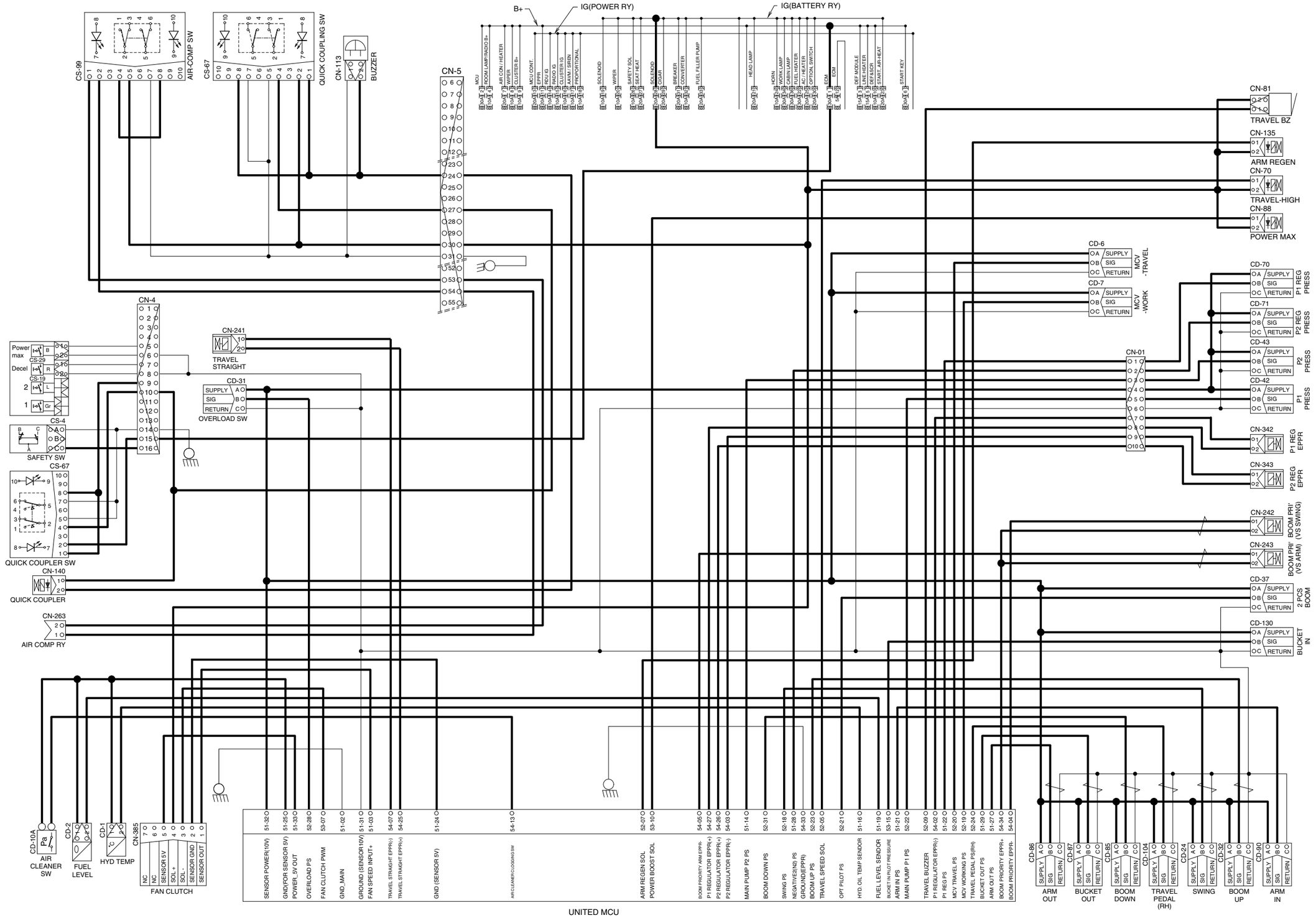
ELECTRIC CIRCUIT FOR HYDRAULIC (1/2, MACHINE SERIAL NO. : #0035-#0176)



210A4EL13B

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

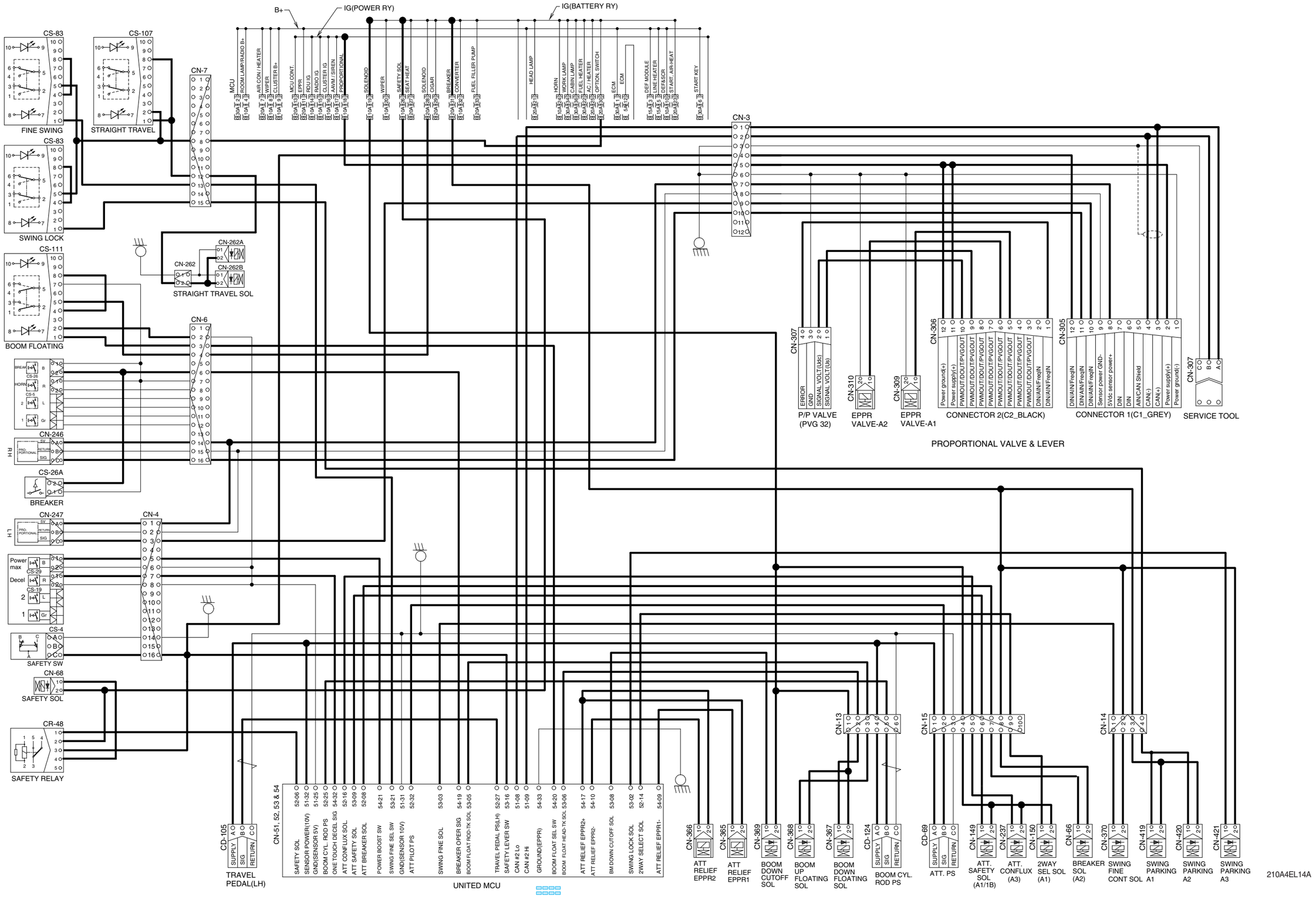
ELECTRIC CIRCUIT FOR HYDRAULIC (1/2, MACHINE SERIAL NO. : #0177-)



210A4EL13C

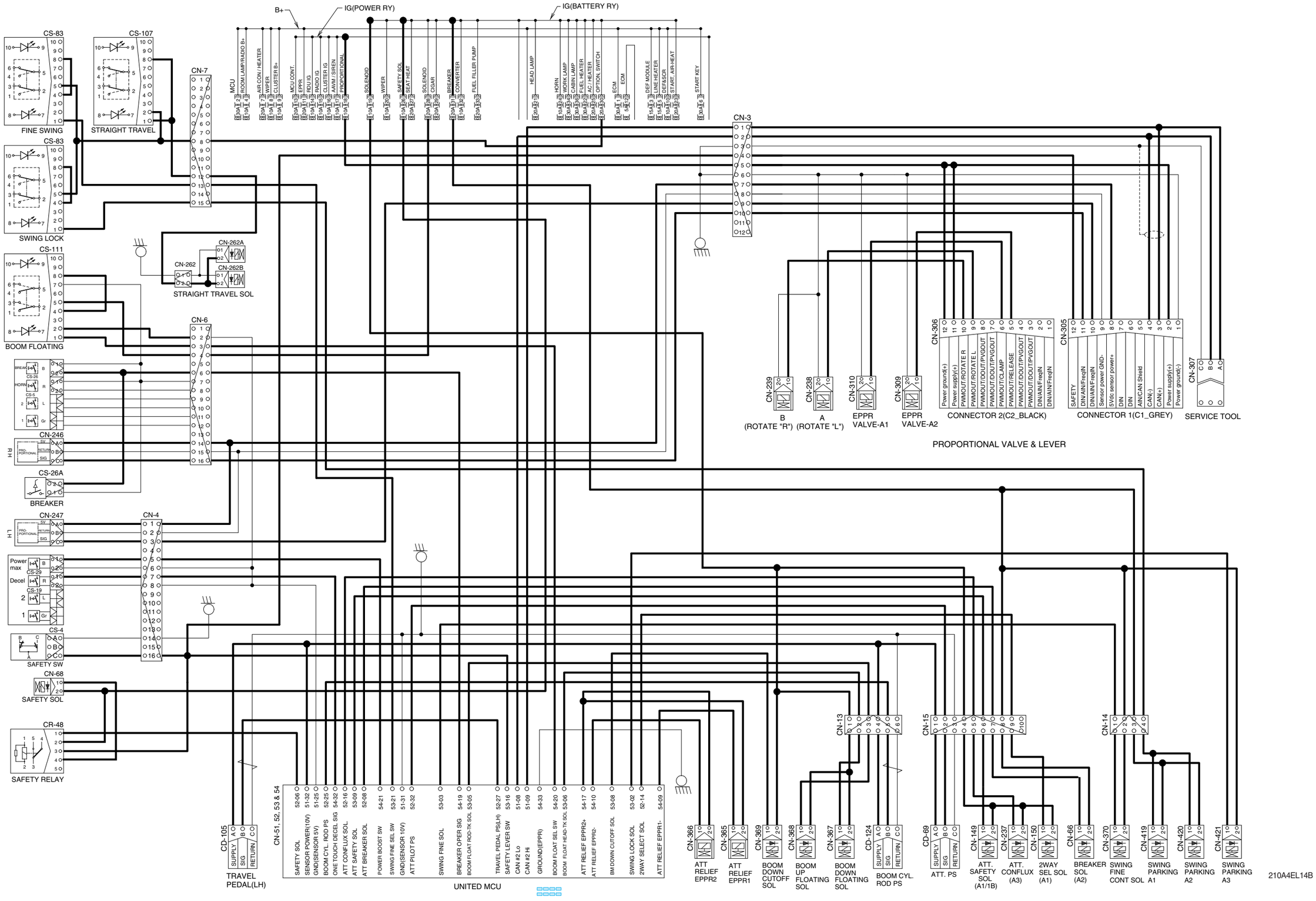
※ The circuit diagram may differ from the equipment, so please check before a repair.

10. ELECTRIC CIRCUIT FOR HYDRAULIC (2/2, MACHINE SERIAL NO. : -#0002)



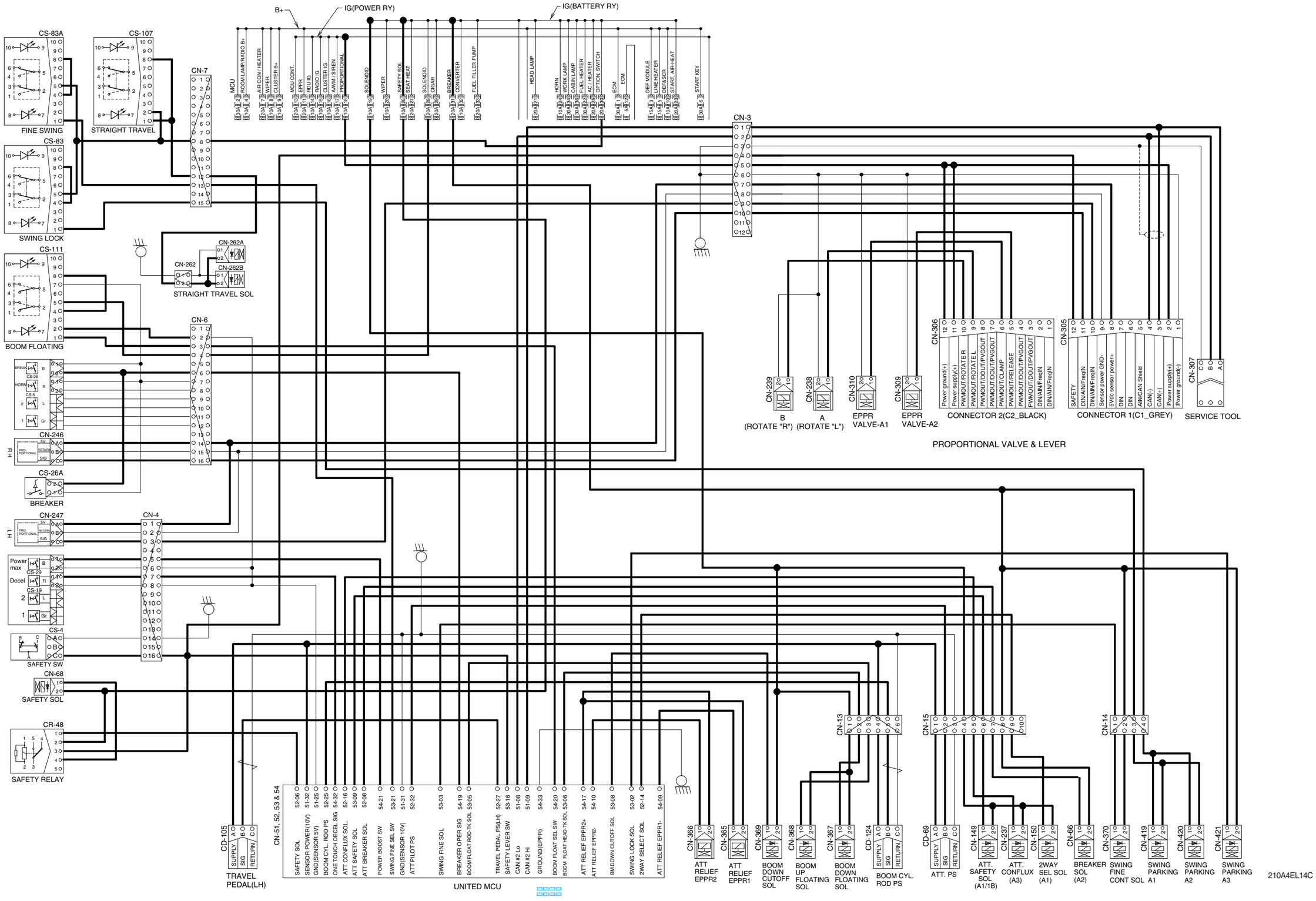
※ The circuit diagram may differ from the equipment, so please check before a repair.

ELECTRIC CIRCUIT FOR HYDRAULIC (2/2, MACHINE SERIAL NO. : #0003-0176)



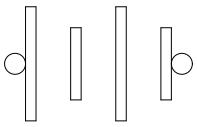
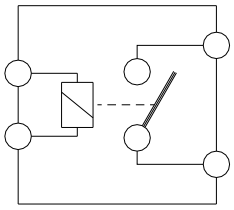
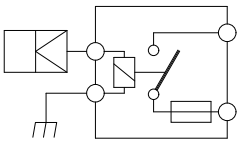
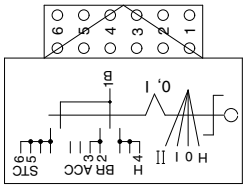
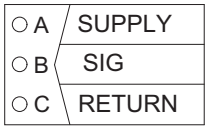
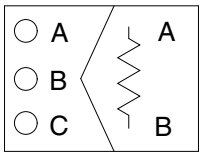
※ The circuit diagram may differ from the equipment, so please check before a repair.

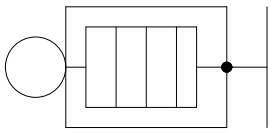
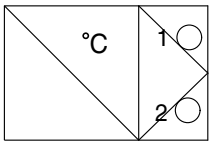
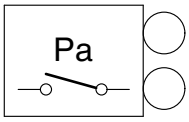
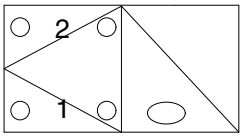
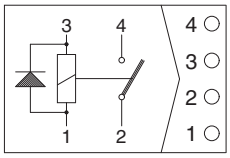
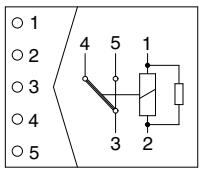
ELECTRIC CIRCUIT FOR HYDRAULIC (2/2, MACHINE SERIAL NO. : #0177-)

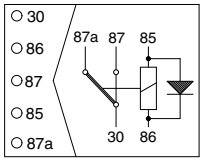
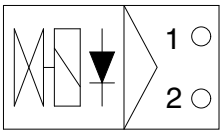
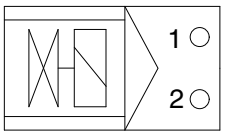
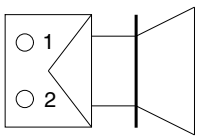
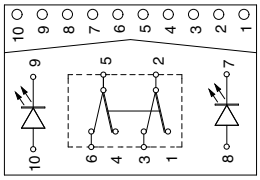
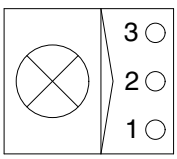


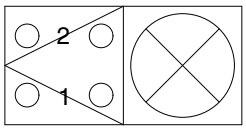
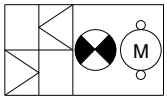
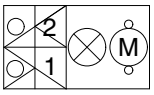
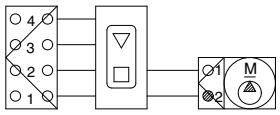
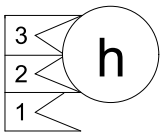
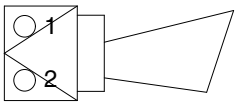
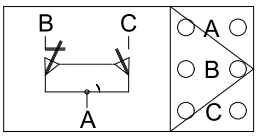
※ The circuit diagram may differ from the equipment, so please check before a repair.

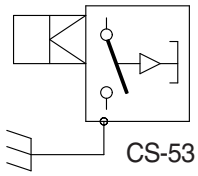
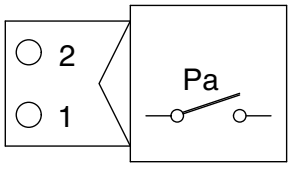
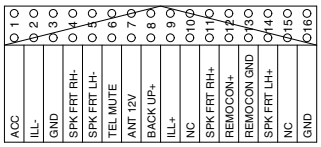
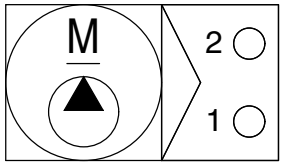
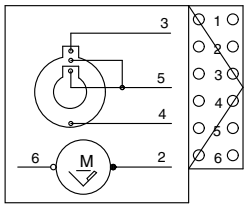
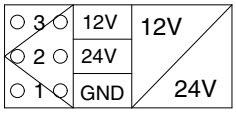
GROUP 3 ELECTRICAL COMPONENT SPECIFICATION

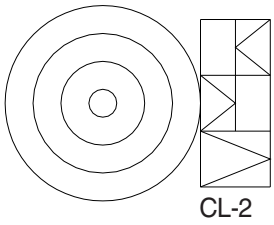
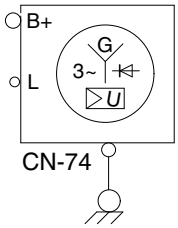
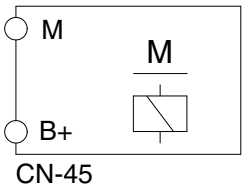
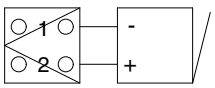
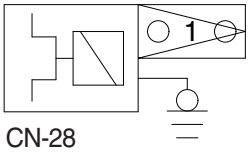
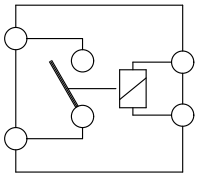
Part name	Symbol	Specifications	Check
Battery		12V × 100Ah (2EA)	※ Check specific gravity 1.280 over : Over charged 1.280 ~ 1.250 : Normal 1.250 below : Recharging
Battery relay	 CR-1	Rated load : 24V 100A (continuity) 1000A (30seconds)	※ Check coil resistance(M4 to M4) Normal : About 50Ω ※ Check contact Normal : ∞Ω
Glow plug relay	 CR-24	24V 200A	※ Check contact Normal : 0.942Ω (for terminal 1-GND)
Start key	 CS-2A	B-BR : 24V 1A B-ACC : 24V 10A B-ST : 24V 40A	※ Check contact OFF : ∞Ω (for each terminal) ON : 0Ω (for terminal 1-3 and 1-2) START : 0Ω (for terminal 1-6)
Pressure sensor	 CD-16 CD-24 CD-31 CD-32 CD-37 CD-42 CD-43 CD-69 CD-70 CD-71 CD-85 CD-86 CD-87 CD-90 CD-104 CD-105 CD-124 CD-130	8~30V	※ Check contact Normal : 0.1Ω
Resistor	 CN-173 CN-174	3W	※ Check resistance A-B : 120Ω

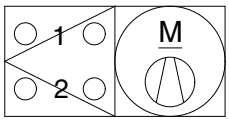
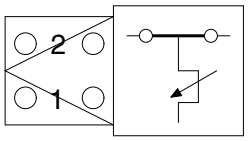
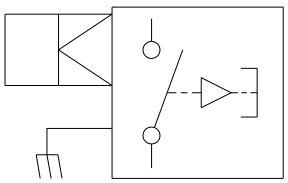
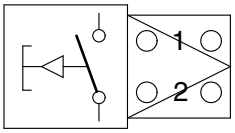
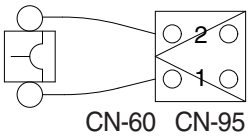
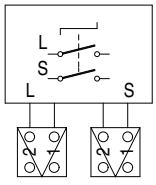
Part name	Symbol	Specifications	Check
Glow plug	 CN-80	24V 200A	※ Check resistance 0.25~0.12Ω
Temperature sensor (hydraulic)	 CD-1	-	※ Check resistance 50˚C : 804Ω 80˚C : 310Ω 100˚C : 180Ω
Air cleaner pressure switch	 CD-10A	N.O TYPE	※ Check contact High level : ∞Ω Low level : 0Ω
Fuel level sender	 CD-2	-	※ Check resistance Full : 50Ω 6/12 : 350Ω 11/12 : 100Ω 5/12 : 400Ω 10/12 : 150Ω 4/12 : 450Ω 9/12 : 200Ω 3/12 : 500Ω 8/12 : 250Ω 2/12 : 550Ω 7/12 : 300Ω 1/12 : 600Ω Empty warning : 700Ω
Relay (air con blower)		24V 20A	※ Check resistance Normal : About 200Ω (for terminal 1-3) ∞Ω (for terminal 2-4)
Relay	 CR-2 CR-5 CR-36 CR-39 CR-48 CR-50 CR-51 CR-85	24V 16A	※ Check resistance Normal : About 160 Ω (for terminal 1-2) 0Ω (for terminal 3-4) ∞Ω (for terminal 3-5)

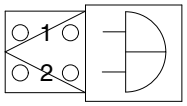
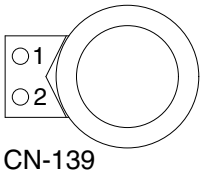
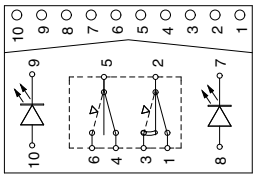
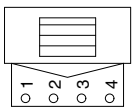
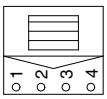
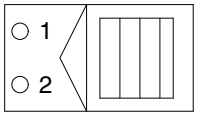
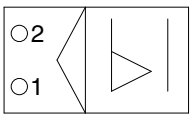
Part name	Symbol	Specifications	Check
Relay	 CR-4 CR-7 CR-9 CR-13 CR-35 CR-46 CR-52	24V 16A	※ Check resistance Normal : About 160 Ω (for terminal 85-86) 0 Ω (for terminal 30-87a) ∞ Ω (for terminal 30-87)
Solenoid valve	 CN-66 CN-68 CN-70 CN-88 CN-135 CN-140 CN-149 CN-150 CN-237 CN-262A CN-262B CN-367 CN-368 CN-369 CN-370 CN-419 CN-420 CN-421	24V 1A	※ Check resistance Normal : 15~25 Ω (for terminal 1-2)
EPPR valve	 CN-238 (#0003-) CN-239 (#0003-) CN-241 CN-242 CN-243 CN-309 CN-310 CN-342 CN-343 CN-365 CN-366	700mA	※ Check resistance Normal : 15~25 Ω (for terminal 1-2)
Speaker	 CN-23(LH) CN-260 CN-24(RH)	20W	※ Check resistance Normal : A few Ω
Switch (locking type)	 CS-52 CS-67 CS-83 CS-99 CS-107 CS-108 CS-111	24V 1.5A	※ Check contact Normal ON : 0 Ω (for terminal 2-3, 5-6) ∞ Ω (for terminal 2-1, 5-4) OFF : ∞ Ω (for terminal 2-3, 5-6) 0 Ω (for terminal 2-1, 5-4)
Room lamp	 CL-1	24V 10W	※ Check disconnection Normal : 1.0 Ω ON : 0 Ω (For terminal 1-2) ∞ Ω (For terminal 1-3) OFF : ∞ Ω (For terminal 1-2) 0 Ω (For terminal 1-3)

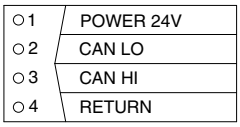
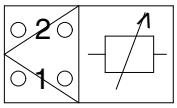
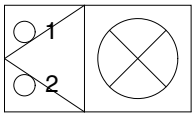
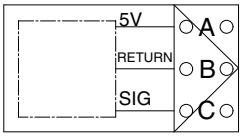
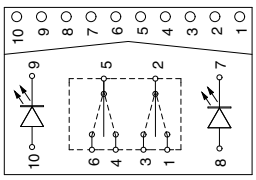
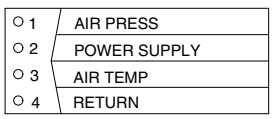
Part name	Symbol	Specifications	Check
Head lamp, Work lamp, Cab lamp	 CL-3 CL-4 CL-5 CL-6 CL-8 CL-9 CL-10 CL-24	24V 65W (H3 Type)	※ Check disconnection Normal : 1.2Ω
Beacon lamp	-#0176  #0177-  CL-7	21V 70W (H1 Type)	※ Check disconnection Normal : A few Ω
Fuel filler pump	 CN-61	24V 10A 35 ℓ /min	※ Check resistance Normal : 1.0Ω
Hour meter	 CN-48	16~32V	※ Check operation Supply power(24V) to terminal No.1 and connect terminal No.2 and ground
Horn	 CN-20 CN-25	DC22~28V 2A	※ Check operation Supply power(24V) to each terminal and connect ground.
Safety switch	 CS-4	24V 15A (N.C TYPE)	※ Check contact Normal : 0Ω (for terminal A-B) ∞Ω (for terminal A-C) Operating : ∞Ω (for terminal A-B) 0Ω (for terminal A-C)

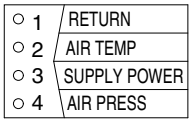
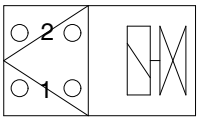
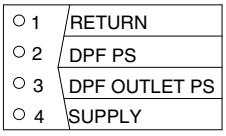
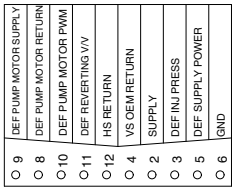
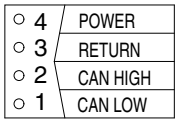
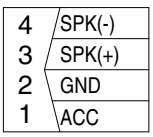
Part name	Symbol	Specifications	Check
Wiper cut switch		24V (N.O TYPE)	※ Check contact Normal : 0Ω(one pin to ground)
Receiver dryer	 CN-29	24V 2.5A	※ Check contact Normal : ∞Ω
Radio & USB player	 CN-27A	24V 2A	※ Check voltage 20~25V (for terminal 1-3, 3-8)
Washer pump	 CN-22 CN-407	24V 3.8A	※ Check contact Normal : 10.7Ω(for terminal 1-2)
Wiper motor	 CN-21	24V 2A	※ Check disconnection Normal : 7Ω(for terminal 2-6)
DC/DC Converter	 CN-138	12V 3A	※ Check voltage 24V (for terminal 1-2) 12V (for terminal 1-3)

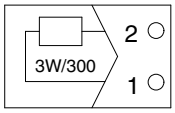
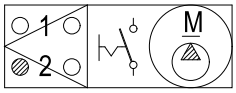
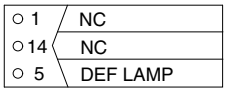
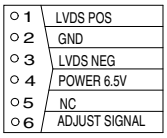
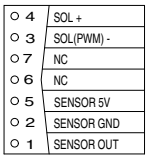
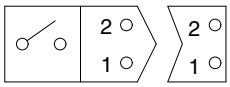
Part name	Symbol	Specifications	Check
Cigar lighter		24V 5A 1.4W	※ Check coil resistance Normal : About 1MΩ ※ Check contact Normal : ∞Ω Operating time : 5~15sec
Alternator		Denso 24V 95A	※ Check contact Normal : 0Ω (for terminal B^+-L) Normal : 24~27.5V
Starter		Denso 24V 4.8kW	※ Check contact Normal : 0.1Ω
Travel alarm		24V 0.5A	※ Check contact Normal : 5.2Ω
Air conditioner compressor		24V 79W	※ Check contact Normal : 13.4Ω
Start relay		24V 300A	※ Check contact Normal : 0.94Ω (for terminal 1-2)

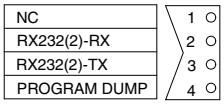
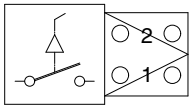
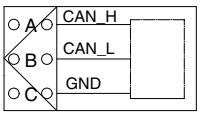
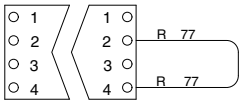
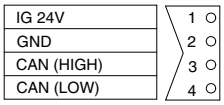
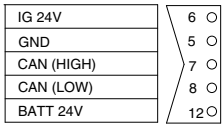
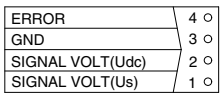
Part name	Symbol	Specifications	Check
Blower motor		24V 9.5A	※ Check resistance Normal : 2.5Ω (for terminal 1-2)
Thermistor (switch)		1˚C OFF 4˚C ON	※ Check resistance Normal : 0Ω (for terminal 1-2), the atmosphere temp : Over 4˚C
Door switch	 CS-1	24V 2W	※ Check resistance Normal : About 5MΩ
Switch (power max, one touch decel, horn, breaker)	 CS-5 CS-19 CS-26 CS-29	24V 6A	※ Check resistance Normal : ∞Ω
Circuit breaker	 CN-60 CN-95	CN-60 : 60A CN-95 : 90A	※ Check disconnection Normal : 0Ω (connect ring terminal and check resist between terminal 1 and 2)
Master switch	 CN-74 CN-74B	6-36V	※ Check disconnection Normal : 0.1Ω

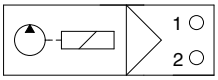
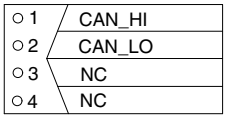
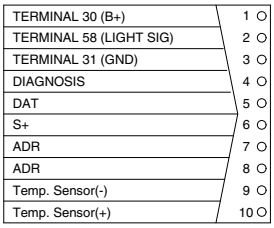
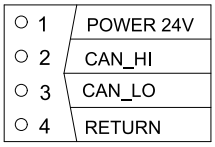
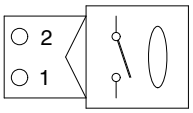
Part name	Symbol	Specifications	Check
Quick coupler buzzer	 CN-113	24V 200mA 107±4dB	-
Socket	 CN-139	12V 10A	-
Switch	 CS-100	24V 8A	※ Check contact Normal ON : 0Ω(for terminal 2-3, 5-6) ∞Ω(for terminal 2-1, 5-4) OFF : ∞Ω(for terminal 2-3, 5-6) 0Ω(for terminal 2-1, 5-4)
Fuel heater	-#0035  #0036-  CN-96	-	-
DEF/AdBlue® line heater	 CN-381 CN-382 CN-383	-	-
WIF sensor	 CD-45	-	-

Part name	Symbol	Specifications	Check
Nox sensor	 AT1E AT2A	-	-
Temperature sensor (A/C)		-	-
DEF/AdBlue® lamp (LED)	 CL-40	-	-
Proportional valve sensor	 CN-246 CN-247	-	-
Lower wiper sw	 CS-79	24V 8A	※Check contact Normal OFF : ∞Ω (for terminal 1-2, 4-5)
TBAP	 EX2B	-	-

Part name	Symbol	Specifications	Check
Pressure temp sensor	 CD-10	-	
Coolant valve	 AT6	-	
DPF pressure sensor	 AT11A	-	
SCR and DEF supply module	 AT5	-	
Tank level sensor	 AT10A	-	
Siren AMP	 CN-261	-	

Part name	Symbol	Specifications	Check
Resistor	 RS-1	3W	※ Check resistance Normal : 300Ω
Fuel filler pump	 CN-61	-	
DEF lamp connector	 CC1D	-	
Camera (front, rear, side)	 CN-249 CN-402 CN-403 CN-404 CN-405	-	
Fan clutch	 CN-385	-	
Seat belt sw	 CS-250	-	

Part name	Symbol	Specifications	Check
RMS service tool	 CN-126A	-	
Breaker switch	 CS-26A	-	
Start button	 CS-2B	-	
GPS connector	 CN-125	-	
Reader	-#0176  #0177-  CN-427	-	
Proportional valve	-#0002  CN-307	-	

Part name	Symbol	Specifications	Check
Dosing pump	 CN-269	-	
Engine side cross over connector	 CC8D	-	
Easystart timer	 CN-267	-	
Exhaust gas temp sensor	 AT9A	-	
Float switch	 CS-61	-	

GROUP 4 CONNECTORS

1. CONNECTOR DESTINATION

Connector number	Type	No. of pin	Destination	Connector part No.	
				Female	Male
CN-1	AMP	10	I/conn (Frame harness-Pump PS harness)	S816-010002	S816-110002
CN-2	AMP	15	I/conn (Frame harness-Engine harness)	2-85262-1	368301-1
CN-3	TYCO	12	I/conn (Frame harness-Pro vlv harness)	174661-2	368537-1
CN-4	AMP	16	I/conn (Console harness LH-Frame harness)	368047-1	368050-1
CN-5	DEUTSCH	60	I/conn (Side harness RH-Frame harness)	DRB16-60SAE-L018	DRB14-60PAE-L018
CN-6	AMP	16	I/conn (Console harness RH-Frame harness)	368047-1	368050-1
CN-7	AMP	15	I/conn (Console harness RH-Frame harness)	2-85262-1	368301-1
CN-8	AMP	10	I/conn (Console harness RH-Frame harness)	S816-010002	174657-2
CN-9	DEUTSCH	12	I/conn (Frame harness- AAVM harness)	DT06-12SA-P021	DT04-12PA-P021
CN-10	DEUTSCH	12	I/conn (Cab harness-Side harness RH)	DT06-12S-EP06	DT04-12PA-P021
CN-11	DEUTSCH	8	I/conn (Frame harness-Aircon harness)	DT06-8S-EP06	-
CN-12	DEUTSCH	2	I/conn (Frame harness-Boom wire harness)	DT06-2S-EP06	DT04-2P-E004
CN-13	AMP	6	I/conn (Frame harness-Boom floating harness)	174262-2	174264-2
CN-14	AMP	4	I/conn (Frame harness-S/f & parking harness)	174257-2	174259-2
CN-15	AMP	10	I/conn (Frame harness-2-way harness)	174655-2	174657-2
CN-16	AMP	6	Emergency engine start & speed control	S816-006002	S816-106002
CN-17	AMP	8	I/conn (Side harness RH-Wiper harness)	S816-008002	S816-108002
CN-18	AMP	2	Washer tank 2	174352-2	174354-2
CN-20	DEUTSCH	2	Horn	DT06-2S-EP06	-
CN-21	AMP	6	Wiper motor	S810-006202	-
CN-22	KET	2	Washer tank 1	MG640605	-
CN-23	KET	2	Speaker-LH	MG610070	-
CN-24	KET	2	Speaker-RH	MG610070	-
CN-25	DEUTSCH	2	Horn	DT06-2S-EP06	-
CN-27A	KUM	16	Radio & USB player	PK145-16017	-
CN-27B	AMP	8	Radio & USB player	-	174984-2
CN-28	KUM	2	Aircon compressor	MG610320	-
CN-29	KET	2	Receiver dryer	MG640795	-
CN-36	-	-	Fuse & relay box	21Q7-10910	-
CN-45	RING-TERM	-	Starter motor B^+	S820-108000	-
CN-48	KET	1	Hour meter	2-520193-2	-
CN-51	TE	34	United MCU	2-1473285-3	-
CN-52	TE	34	United MCU	4-1437290-1	-
CN-53	TE	26	United MCU	1473416-1	-
CN-54	TE	34	United MCU	4-1437290-0	-
CN-56A	AMP	12	Cluster	-	174663-2
CN-56B	AMP	8	Cluster	-	174984-2

Connector number	Type	No. of pin	Destination	Connector part No.	
				Female	Male
CN-60	YAZAKI	2	Circuit breaker	-	7222-4220-30
CN-61	DEUTSCH	4	Fuel filler pump	DT06-4S-EP06	DT04-4P-E005
CN-66	DEUTSCH	2	Breaker (A2)	DT06-2S-EP06	-
CN-68	DEUTSCH	2	Safety solenoid (A1)	DT06-2S-EP06	-
CN-70	DEUTSCH	2	Travel high solenoid (A3)	DT06-2S-EP06	-
CN-74	RING-TERM	1	Alternator "B+" terminal	S820-108000	-
CN-74	RING-TERM	1	Alternator "L" terminal	S820-105000	-
CN-80	RING-TERM	-	Glow plug	S820-306000	-
CN-81	DEUTSCH	2	Travel buzzer solenoid	DT06-2S-EP06	-
CN-88	DEUTSCH	2	Power max solenoid (A2)	DT06-2S-EP06	-
CN-93	DELPHI	-	ECM	13964577	-
CN-95	YAZAKI	2	Circuit breaker	-	7222-4220-30
CN-96	AMP	4	I/conn (Frame harness - Fuel warmer harness)	15300027	2-967402-2
CN-100	KET	1	ECM ground	MG640944-5	-
CN-113	KET	2	Buzzer	MG651205-5	-
CN-125	Econoseal J	4	RMS connector	S816-004002	S816-104002
CN-125A	DEUTSCH	12	RMS	DT06-12S-P021	DT04-12PA-P021
CN-125B	DEUTSCH	8	RMS	DT06-8S	DT04-8P
CN-126	TE/AMP	10	Service tool	1473416-1	S816-110002
CN-126A	DEUTSCH	4	RMS Service tool	DT06-4S	DT06-4P
CN-135	DEUTSCH	2	Arm regeneration solenoid (A4)	DT06-2S-EP06	-
CN-138	FASTEN	3	DC/DC Converter	S810-003202	-
CN-139	FASTEN	2	12V socket	172434-2	-
CN-140	DEUTSCH	2	Quick coupler solenoid	DT06-2S-EP06	DT04-2P-E005
CN-141	AMP	13	Wiper motor controller	172498-1	-
CN-149	DEUTSCH	2	Attachment safety (A1)	DT06-2S-EP06	-
CN-150	DEUTSCH	2	Satety EPPR (A1)	DT06-2S-EP06	-
CN-156	DEUTSCH	2	Air seat	DT06-2S	DT04-2P
CN-157	AMP	1	Antena power	S822-014002	-
CN-173	DEUTSCH	3	Resistor	DT06-3S-EP06	DT04-3P-EP10
CN-174	DEUTSCH	3	Resistor	DT06-3S-EP06	DT04-3P-EP10
CN-237	DEUTSCH	2	Attachment conflux (A3)	DT06-2S-EP06	-
CN-241	DEUTSCH	2	Travel straight solenoid (A3)	DT06-2S-EP06	-
CN-242	DEUTSCH	2	Boom swing solenoid (A2)	DT06-2S-EP06	-
CN-243	DEUTSCH	2	Boom arm solenoid (A1)	DT06-2S-EP06	-
CN-246	DEUTSCH	3	Proportional valve-RH	DT06-3S	DT04-3P
CN-246A	DEUTSCH	4	Preheater harness-timer	DT06-4S-EP06	-
CN-246B	DEUTSCH	4	Preheater harness-timer	-	DT04-4P-EP06
CN-247	DEUTSCH	3	Proportional valve-LH	DT06-3S	DT04-3P

Connector number	Type	No. of pin	Destination	Connector part No.	
				Female	Male
CN-249	DEUTSCH	6	Rear view camera	DT06-6S-EP06	DT04-6P-E005
CN-258	KET	1	Air compressor power	MG640944-5	MG650943-5
CN-260	MTA	2	Preheater harness-fuse 15A	03 01315	-
CN-261	MTA	2	Preheater harness-fuse 5A	03 01305	-
CN-262	DEUTSCH	2	I/conn (Frame harness - S/travel harness)	DT06-2S-EP06	DT04-2P-E005
CN-262A	DEUTSCH	2	Straight travel solenoid 1	DT06-2S-EP06	-
CN-262B	DEUTSCH	2	Straight travel solenoid 2	DT06-2S-EP06	-
CN-263	DEUTSCH	2	Air compressor relay	DT06-2S-EP06	DT04-2P-E005
CN-265	VW	8	Controller	3A0973734	-
CN-267	MOLEX	10	Preheater timer	15-97-5101	-
CN-267A	MOLEX	5	Web controller	172646-0513	-
CN-269	TE	2	Dosing pump	282189-1	-
CN-305	DEUTSCH	12	Proportional-connector-1	DTM06-12SA	-
CN-306	DEUTSCH	12	Proportional-connector-2	DTM06-12SB	-
CN-307	DEUTSCH	3	Proportional-service tool	DT06-3S-EP06	DT06-3P-E005
CN-308	AMP	4	Proportional-PVG32	2-967059-1	-
CN-309	DEUTSCH	2	Proportional-EPPR valve-A2	DT06-2S-EP06	-
CN-310	DEUTSCH	2	Proportional-EPPR valve-A1	DT06-2S-EP06	-
CN-342	AMP	2	A1 pump regulator solenoid	S816-002002	-
CN-343	AMP	2	A2 pump regulator solenoid	S816-002002	-
CN-363	AMP	12	Jog dial module	174045-2	-
CN-365	DEUTSCH	2	Attach EPPR valve-LH	DT06-2S-EP06	DT04-2P-E005
CN-366	DEUTSCH	2	Attach EPPR valve-RH	DT06-2S-EP06	DT04-2P-E005
CN-367	AMP	2	Boom down floating solenoid	85202-1	DT04-2P-E005
CN-368	DEUTSCH	2	Boom up floating solenoid	DT06-2S-EP06	DT04-2P-E005
CN-369	DEUTSCH	2	Boom down cut off solenoid	DT06-2S-EP06	DT04-2P-E005
CN-370	DEUTSCH	2	Swing fine control solenoid	DT06-2S-EP06	DT04-2P-E005
CN-376	TYCO	23	Membrane controller	7706087-2	-
CN-381	DEUTSCH	2	DEF line heater 1	DT06-2S-EP06	-
CN-382	DEUTSCH	2	DEF line heater 2	DT06-2S-EP06	-
CN-383	DEUTSCH	2	DEF line heater 3	DT06-2S-EP06	-
CN-385	-	7	Fan clutch	965570	-
CN-401	TE	35	AAVM controller	776164-1	-
CN-402	DEUTSCH	6	Front view camera	DT06-6S-P021	DT04-6P-P021
CN-403	DEUTSCH	6	Rear view camera	DT06-6S-EP06	DT04-6P-EP14
CN-404	DEUTSCH	6	LH view camera	DT06-6S-EP06	DT04-6P-EP14
CN-405	DEUTSCH	6	RH view camera	DT06-6S-EP06	DT04-6P-EP14
CN-406	DEUTSCH	3	Service tool	DT06-3S-EP05	DT04-3P-E005
CN-407	DEUTSCH	4	Low wiper motor	DT06-4S-EP06	DT04-4P-E005

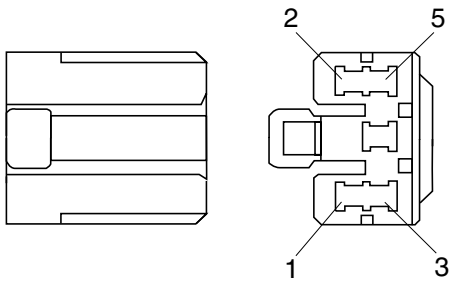
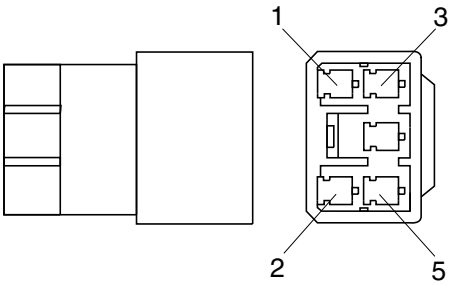
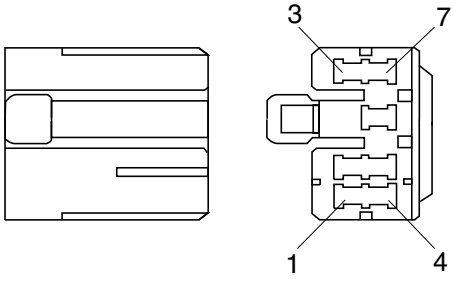
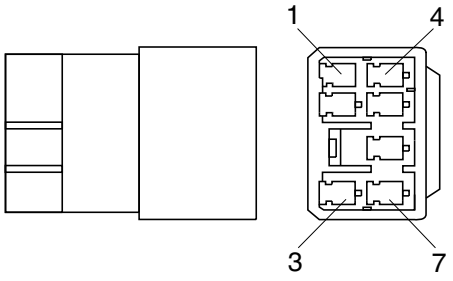
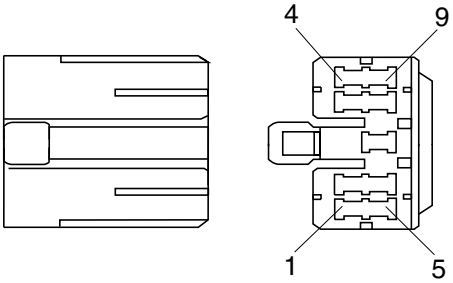
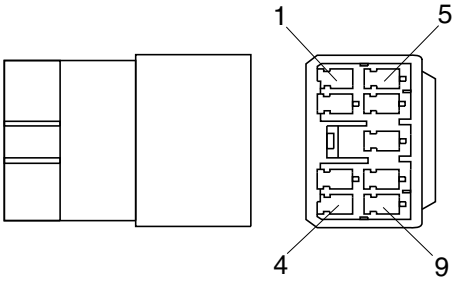
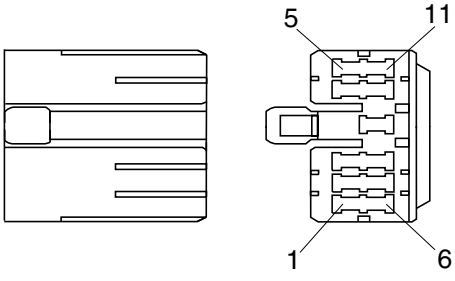
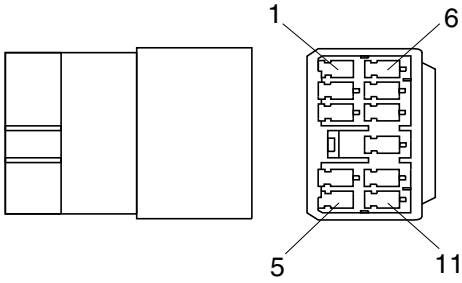
Connector number	Type	No. of pin	Destination	Connector part No.	
				Female	Male
CN-419	DEUTSCH	2	Swing parking-A1	DT06-2S-EP06	-
CN-420	DEUTSCH	2	Swing parking-A2	DT06-2S-EP06	-
CN-421	DEUTSCH	2	Swing parking-A3	DT06-2S-EP06	-
CN-427	MOLEX	4	Reader-RMS	039012040	026013096
		12		5557-12R	5559-12P
CN-430	AMP/Econoseal J	12	I/conn (Frame harness - DEF harness)	174661	S816-112002
AT1E	TYCO	4	DOC NOx sensor (inlet)	2-1418390-1	-
AT2A	TYCO	4	SCR NOx sensor (outlet)	1-1418390-1	-
AT5	TYCO	12	SCR supply module	2-1703639-1	-
AT6	TE	2	Coolant valve	1-967325-3	-
AT9A	TYCO	4	DCO thermister	4-1418390-1	-
AT10A	DEUTSCH	4	Ureatank level sensor	DT06-4S-EP06	-
AT11A	DELPHI	4	DEF dif pressure sensor	F715600	-
AT32A	TYCO	2	DEF dosing valve	1-928405-522	-
CCID	DELPHI	14	Cross over connector	-	13533441
CC8D	DELPHI	4	Engine sensor	DT06-4S-CE04	-
EX2B	FCI	4	TBAP	-	54200419
· Relay					
CR-1	RING-TERM	-	Battery relay	ST710289-2	-
CR-2	-	5	Horn relay	-	-
CR-4	-	5	Working lamp relay	-	-
CR-5	-	5	Anti restart relay	-	-
CR-7	-	5	Aircon compressor relay	-	-
CR-9	-	5	Cabin lamp relay	-	-
CR-13	-	5	Head lamp relay	-	-
CR-23	KET	2	Start relay	S814-002001	S814-102001
CR-24	RING TERM	1	Preheat relay	S822-014000	-
CR-35	-	5	Power relay	-	-
CR-36	-	5	Preheat relay	-	-
CR-39	-	5	Starter lock out relay	-	-
CR-46	-	5	Fuel warmer relay	-	-
CR-48	-	5	Satety ralay	-	-
CR-50	-	5	NOx sensor relay	-	-
CR-51	-	5	DEF module relay	-	-
CR-52	-	5	Line heater relay	-	-
CR-85	-	5	Beacon lamp relay	-	-
· Switch					
CS-1	SHUR	1	Door switch	S822-014002	S822-114002
CS-2A	WP	6	Start switch	S814-006100	-

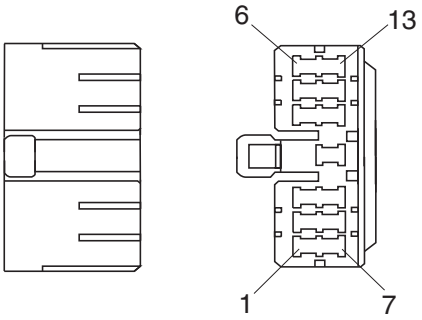
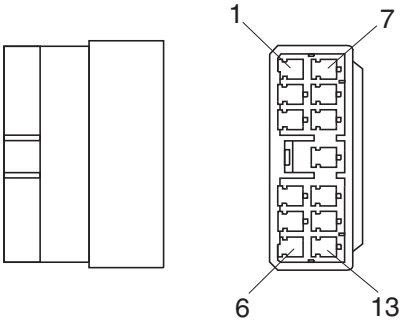
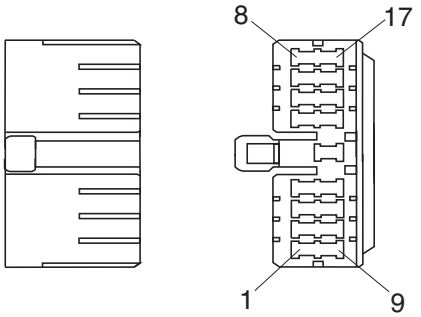
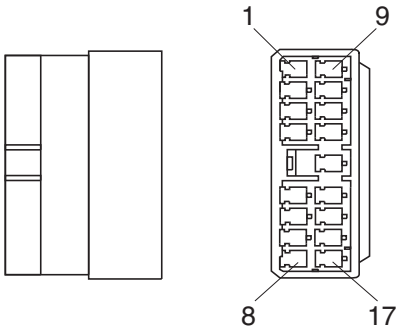
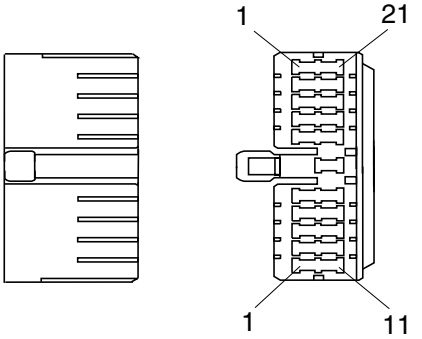
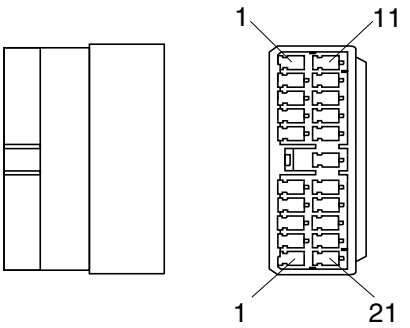
Connector number	Type	No. of pin	Destination	Connector part No.	
				Female	Male
CS-2B	DEUTSCH	3	Start button	DT06-3S-EP06	DT04-3P-E005
CS-2C	KET	3	BKCU	MG651032	-
CS-2D	KET	3	Button key	-	MG641035
CS-4	DEUTSCH	3	Safety switch	DT06-3S	-
CS-5	DEUTSCH	2	Horn switch	-	DT04-2P
CS-19	DEUTSCH	2	One touch decel switch	-	DT04-2P
CS-26	DEUTSCH	2	Breaker switch	DT06-2S	-
CS-26A	AMP	2	Breaker pedal switch	S816-002002	S816-102002
CS-29	DEUTSCH	2	Power max switch	DT06-2S	-
CS-33	AMP	5	Emergency engine stop switch	S816-005002	S816-105002
CS-52	CARLING	10	Adjust & dozer switch	VC2-01	-
CS-53	AMP	1	Wiper cut switch	S822-014002	-
CS-61	AMP	2	Floating switch	174352-2	174354-2
CS-67	CARLING	10	Quick coupler switch	VC2-01	-
CS-73	CARLING	10	Swing lock switch	VC2-01	-
CS-73A	CARLING	10	Fine swing switch	VC2-01	-
CS-74	DEUTSCH	2	Master switch	DT06-2S-EP06	-
CS-74A	KET	2	Power connector	MG610558	MG610557
CS-74B	DEUTSCH	2	Master switch	DT06-2S-EP06	-
CS-79	CARLING	10	Lower wiper switch	VC2-01	-
CS-99	CARLING	10	Air compressor switch	VC2-01	-
CS-100	CARLING	10	Exhaust system cleaning switch	VC2-01	-
CS-107	CARLING	10	Travel straight switch	VC2-01	-
CS-108	CARLING	10	Auto grease switch	VC2-01	-
CS-111	CARLING	10	Boom floating switch	VC2-01	-
CS-250	DEUTSCH	2	Seat switch	DT06-2S	-
· Light					
CL-1	KET	3	Room lamp	MG651032	-
CL-2	AMP	1	Cigar lighter	S822-014002	S822-114002
CL-3	DEUTSCH	2	Head lamp-LH	DT06-2S-EP06	DT04-2P
CL-4	DEUTSCH	2	Head lamp-RH	DT06-2S-EP06	DT04-2P
CL-5	DEUTSCH	2	Work lamp-LH	DT06-2S-EP06	DT04-2P
CL-6	DEUTSCH	2	Work lamp-RH	DT06-2S-EP06	DT04-2P
CL-7	SHUR	1	Beacon lamp	S822-014002	S822-114002
CL-8	DEUTSCH	2	Cab light-LH	DT06-2S-EP06	DT04-2P
CL-9	DEUTSCH	2	Cab light-RH	DT06-2S-EP06	DT04-2P
CL-10	DEUTSCH	2	Cab light-RH	DT06-2S-EP06	DT04-2P
CL-24	DEUTSCH	2	Head lamp	DT06-2S-EP06	DT04-2P-E005

Connector number	Type	No. of pin	Destination	Connector part No.	
				Female	Male
CL-40	DEUTSCH	2	DEF/AdBlue® purging lamp	DT06-2S-EP06	DT04-2P
· Sensor, sendor					
CD-1	AMP	2	Hydraulic oil temp sender	85202-1	-
CD-2	DEUTSCH	2	Fuel sender	DT06-2S-EP06	-
CD-6	DEUTSCH	3	Travel pilot pressure sw (Py)	DT06-3S-EP06	-
CD-7	DEUTSCH	3	Travel pilot pressure sw (Px)	DT06-3S-EP06	-
CD-10	SUMITOMO	4	Pressure temperature sensor	6908-0144	-
CD-10A	AMP	2	Air cleaner switch	85202-1	-
CD-16	AMP	3	Water level sensor	1211 0293	-
CD-24	DEUTSCH	3	Swing pilot pressure sw	DT06-3S-EP06	-
CD-31	DEUTSCH	3	Overload pressure sensor	DT06-3S-EP06	DT04-3P-E005
CD-32	DEUTSCH	3	Boom up pilot pressure sw	DT06-3S-EP06	-
CD-37	DEUTSCH	3	2 pcs boom perssure switch	DT06-3S-EP06	DT04-3P-E005
CD-42	DEUTSCH	3	A1 pump delivery pressure sw	DT06-3S-EP06	-
CD-43	DEUTSCH	3	A2 pump delivery pressure sw	DT06-3S-EP06	-
CD-45	DEUTSCH	2	WIF sensor	DT06-2S-EP06	-
CD-69	DEUTSCH	3	Attach pressure sensor	DT06-3S-EP06	-
CD-70	DEUTSCH	3	N1 pressure sensor (A4)	DT06-3S-EP06	-
CD-71	DEUTSCH	3	N2 pressure sensor (A5)	DT06-3S-EP06	-
CD-85	DEUTSCH	3	Boom down pilot pressure sw	DT06-3S-EP06	-
CD-86	DEUTSCH	3	Arm out pilot pressure sw	DT06-3S-EP06	-
CD-87	DEUTSCH	3	Bucket out pilot pressure sw	DT06-3S-EP06	-
CD-90	DEUTSCH	3	Arm in pilot pressure sw	DT06-3S-EP06	-
CD-104	DEUTSCH	3	RH travel pilot pressure sw	DT06-3S-EP06	-
CD-105	DEUTSCH	3	LH travel pilot pressure sw	DT06-3S-EP06	-
CD-124	DEUTSCH	3	Boom cylinder rod pressure snensor	DT06-3S-EP06	-
CD-130	DEUTSCH	3	Bucket in pilot pressure sw	DT06-3S-EP06	-

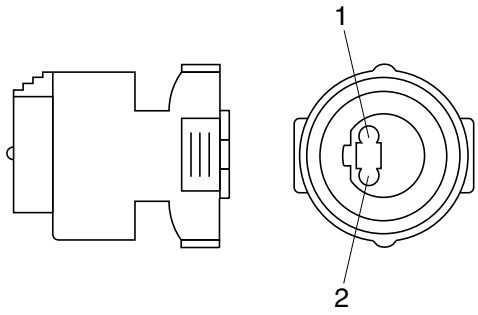
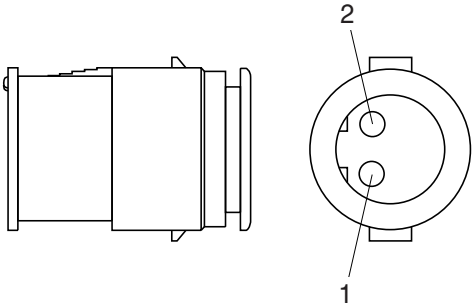
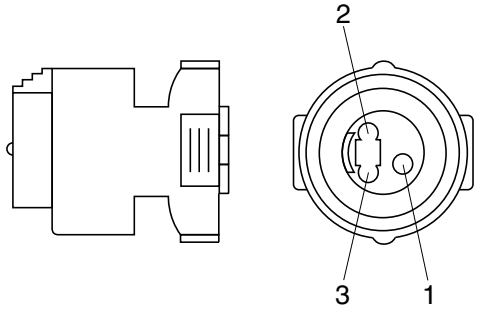
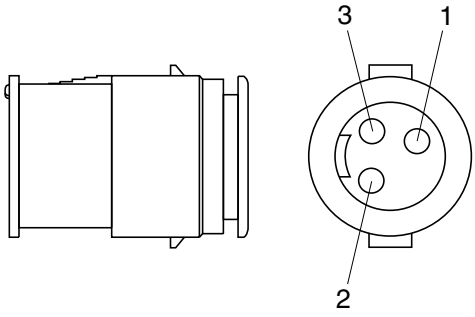
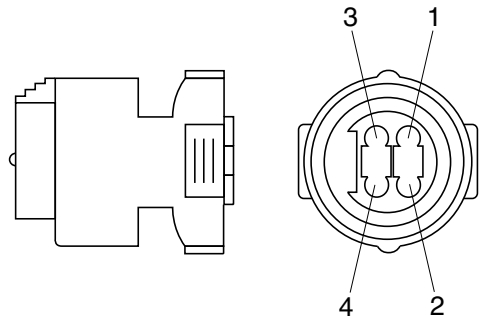
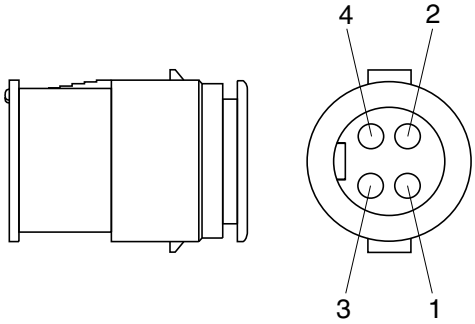
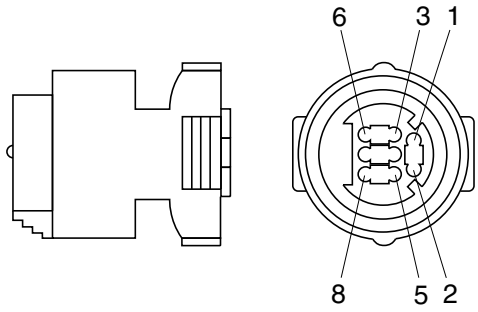
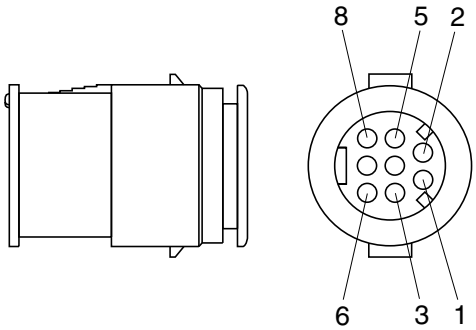
2. CONNECTION TABLE FOR CONNECTORS

1) PA TYPE CONNECTOR

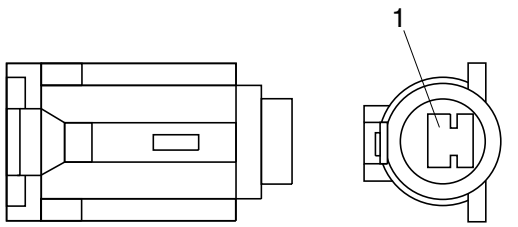
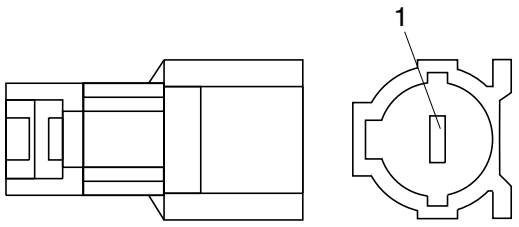
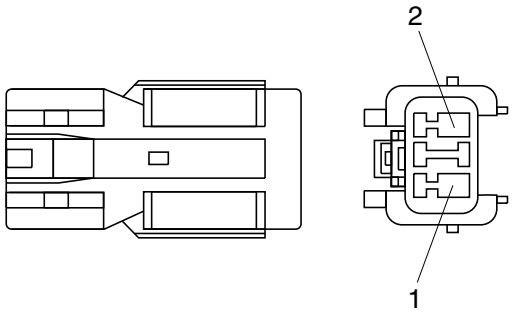
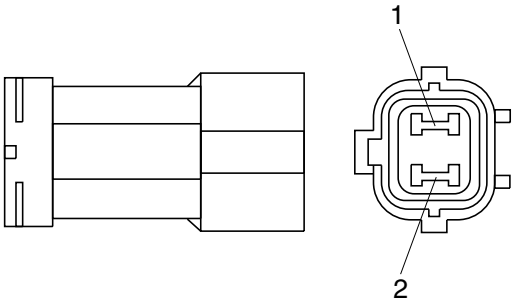
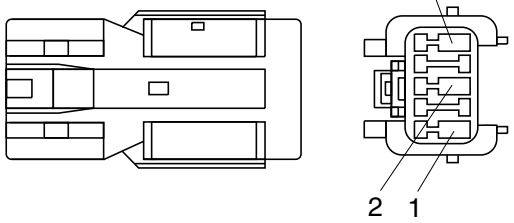
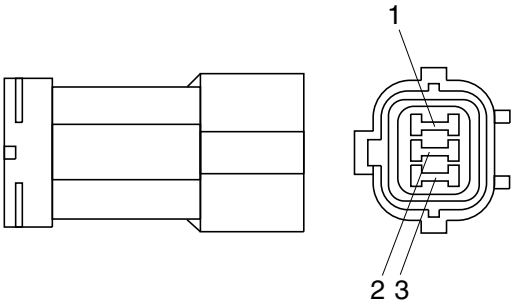
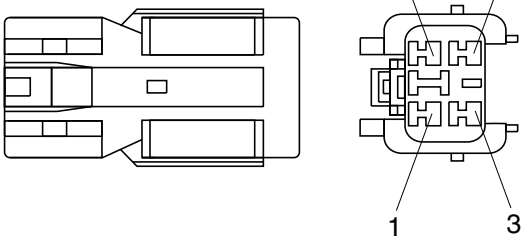
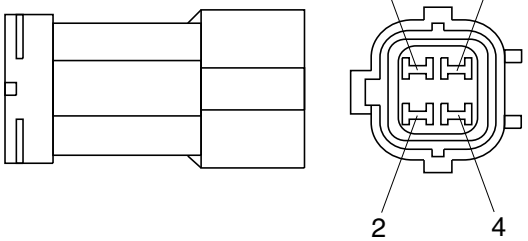
No. of pin	Receptacle connector (female)	Plug connector (male)
5	 S811-005002	 S811-105002
7	 S811-007002	 S811-107002
9	 S811-009002	 3S811-109002
11	 S811-011002	 S811-111002

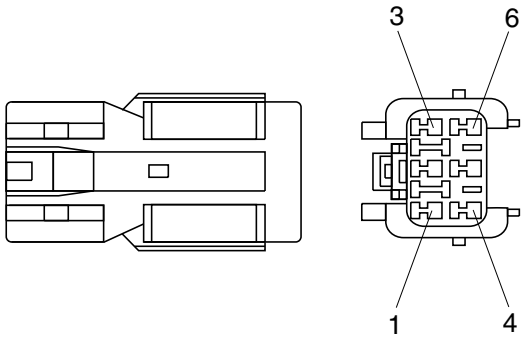
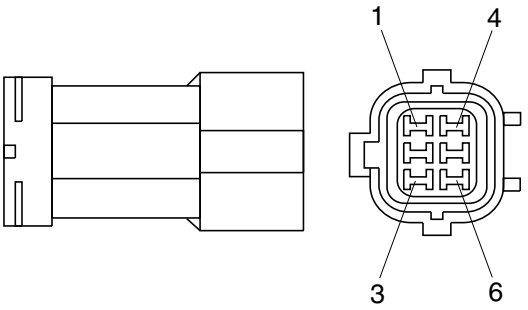
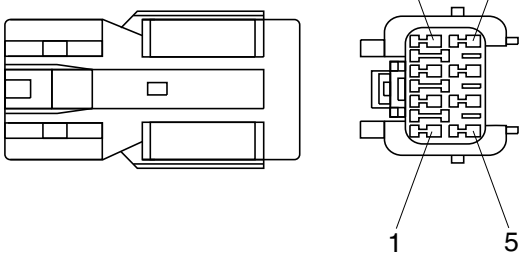
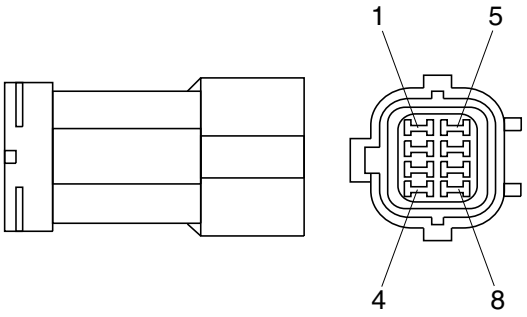
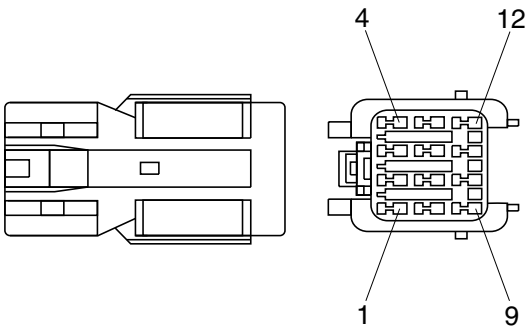
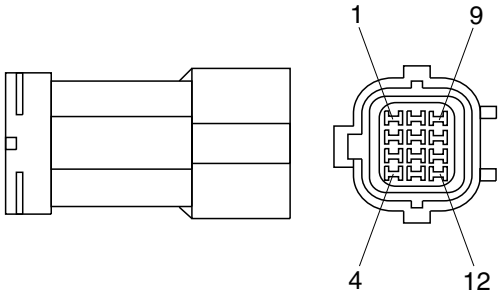
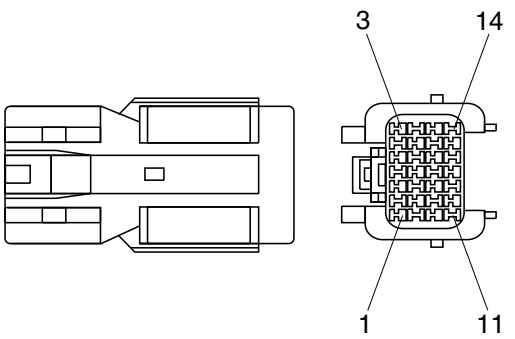
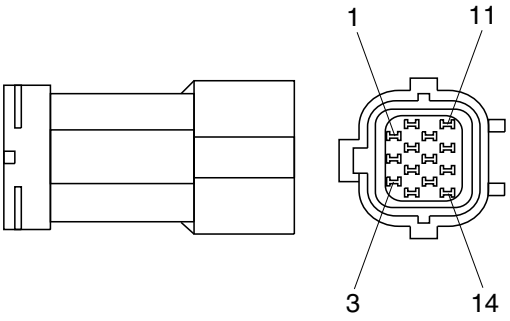
No. of pin	Receptacle connector (female)	Plug connector (male)
13	 S811-013002	 S811-113002
17	 S811-017002	 S811-117002
21	 S811-021002	 S811-121002

2) J TYPE CONNECTOR

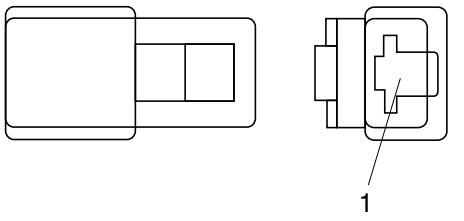
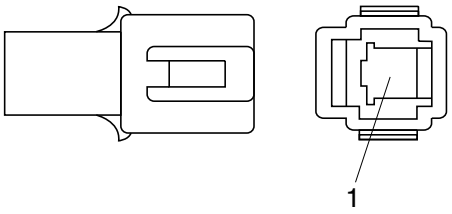
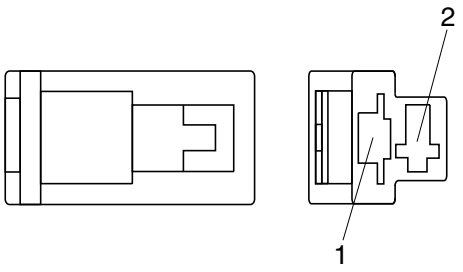
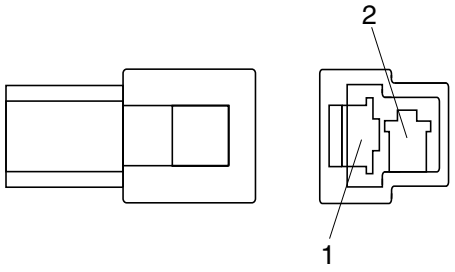
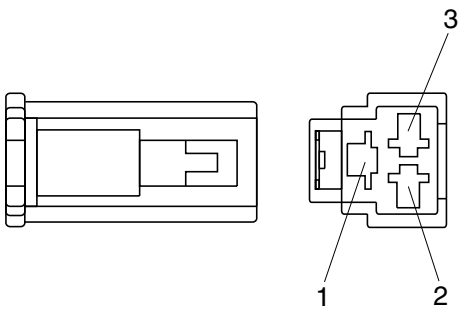
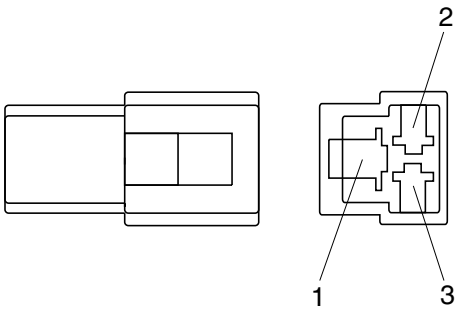
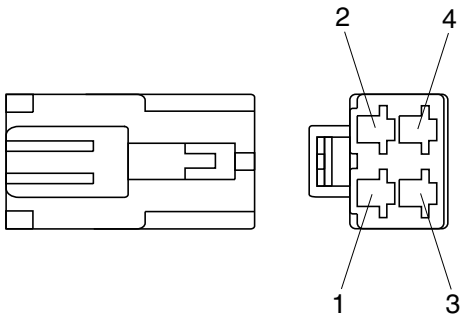
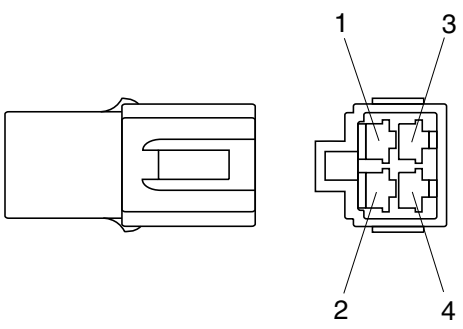
No. of pin	Receptacle connector (female)	Plug connector (male)
2	 S816-002001	 S816-102001
3	 S816-003001	 S816-103001
4	 S816-004001	 S816-104001
8	 S816-008001	 S816-108001

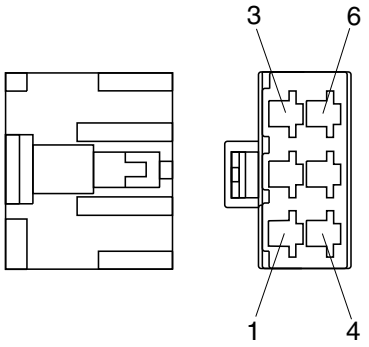
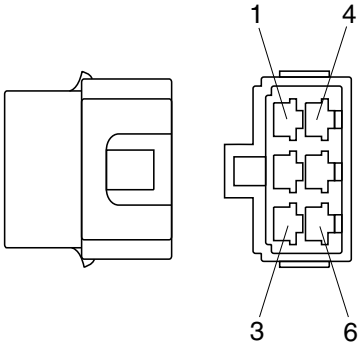
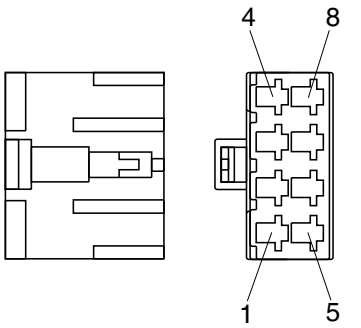
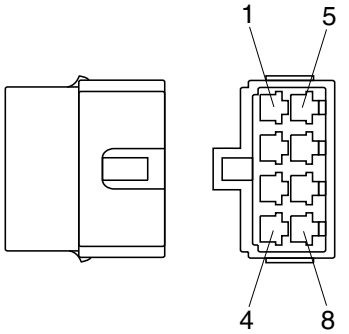
3) SWP TYPE CONNECTOR

No. of pin	Receptacle connector (female)	Plug connector (male)
1	 S814-001000	 S814-101000
2	 S814-002000	 S814-102000
3	 S814-003000	 S814-103000
4	 S814-004000	 S814-104000

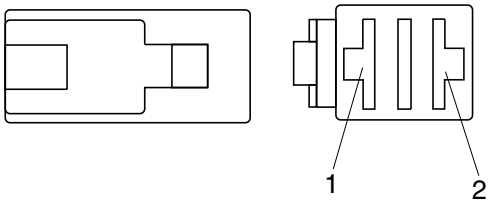
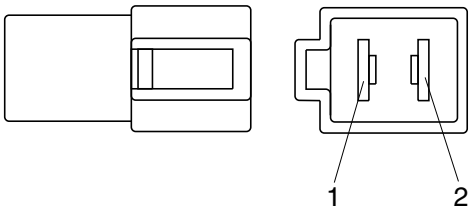
No. of pin	Receptacle connector (female)	Plug connector (male)
6	 S814-006000	 S814-106000
8	 S814-008000	 S814-108000
12	 S814-012000	 S814-112000
14	 S814-014000	 S814-114000

4) CN TYPE CONNECTOR

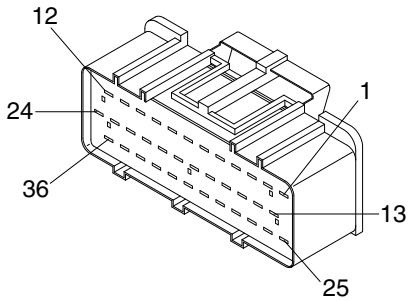
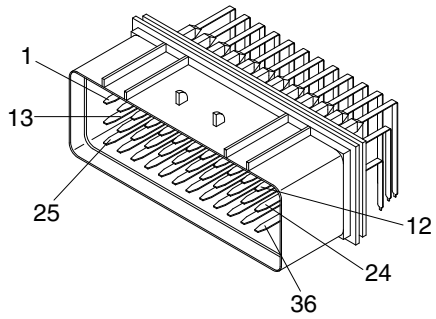
No. of pin	Receptacle connector (female)	Plug connector (male)
1	 S810-001202	 S810-101202
2	 S810-002202	 S810-102202
3	 S810-003202	 S810-103202
4	 S810-004202	 S810-104202

No. of pin	Receptacle connector (female)	Plug connector (male)
6	 S810-006202	 S810-106202
8	 S810-008202	 S810-108202

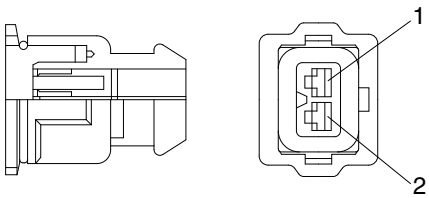
5) 375 FASTEN TYPE CONNECTOR

No. of pin	Receptacle connector (female)	Plug connector (male)
2	 S810-002402	 S810-102402

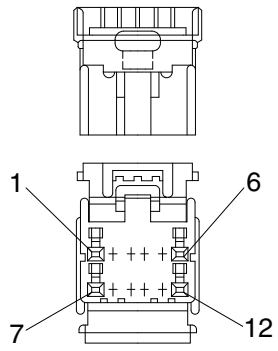
6) AMP ECONOSEAL CONNECTOR

No. of pin	Receptacle connector (female)	Plug connector (male)
36	 344111-1	 344108-1

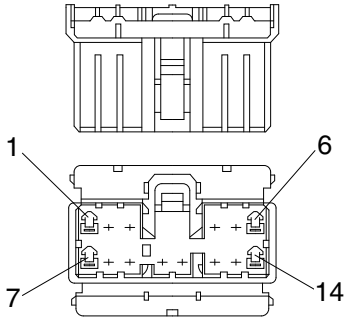
7) AMP TIMER CONNECTOR

No. of pin	Receptacle connector (female)	Plug connector (male)
2	 85202-1	

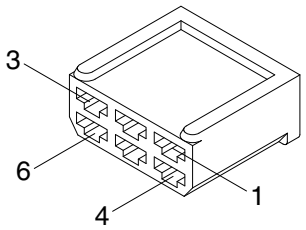
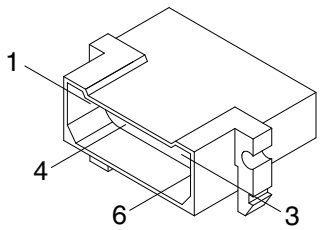
8) AMP 040 MULTILOCK CONNECTOR

No. of pin	Receptacle connector (female)	Plug connector (male)
12	 174045-2	

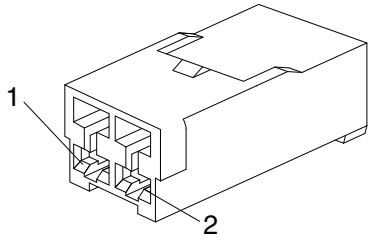
9) AMP 070 MULTILOCK CONNECTOR

No. of pin	Receptacle connector (female)	Plug connector (male)
14	 173852	

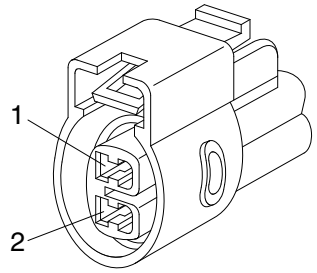
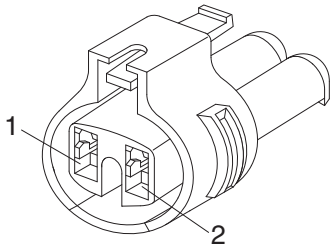
10) AMP FASTIN - FASTON CONNECTOR

No. of pin	Receptacle connector (female)	Plug connector (male)
6	 925276-0	 480003-9

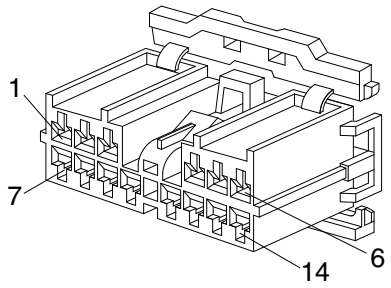
11) KET 090 CONNECTOR

No. of pin	Receptacle connector (female)	Plug connector (male)
2	 MG610070	

12) KET 090 WP CONNECTORS

No. of pin	Receptacle connector (female)	Plug connector (male)
2	 MG640605	
2	 MG640795	

13) KET SDL CONNECTOR

No. of pin	Receptacle connector (female)	Plug connector (male)
14	 MG610406	

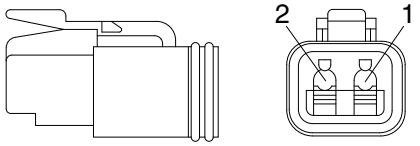
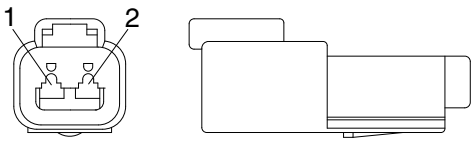
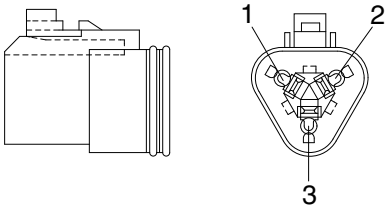
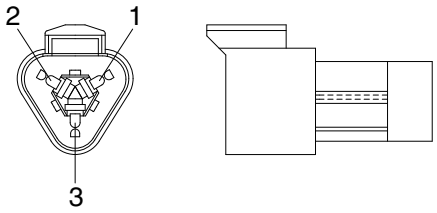
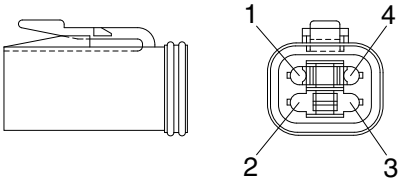
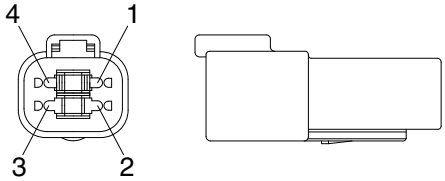
14) DEUTSCH DT CONNECTORS

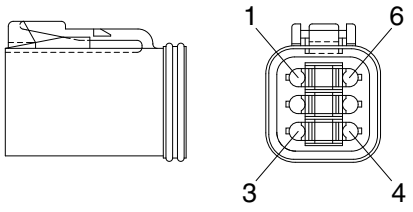
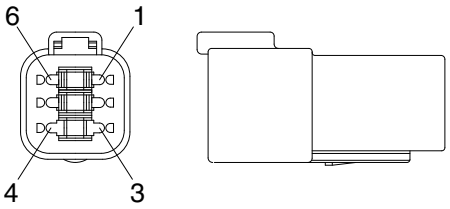
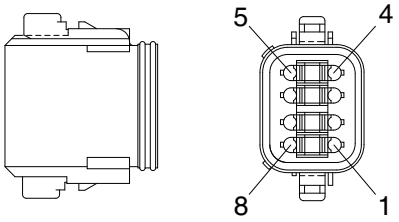
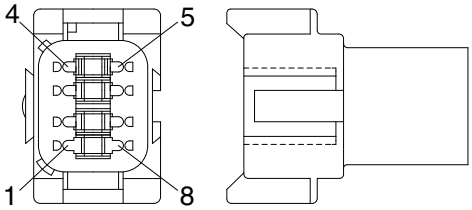
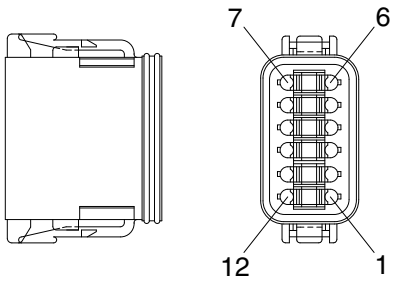
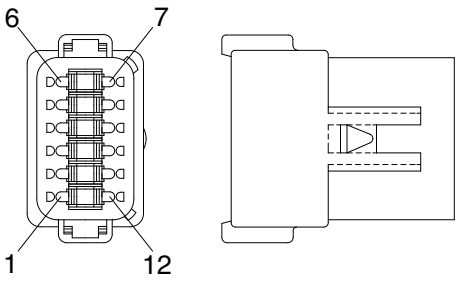
DT 06 - 3S - ★★★★

- ★★★★ : Modifications (see below)
- 3S : Number of contacts (P : Pin, S : Socket)
- 06 : Receptacle, 04 : Plug
- DT : Deutsch connectors

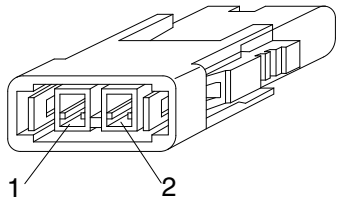
※ Modification

E003 : Standard end cap - gray
E004 : Color of connector to be black
E005 : Combination - E004 & E003
EP04 : End cap
EP06 : Combination P012 & EP04
P012 : Front seal enhancement - connectors color to black for 2, 3, 4 & 6pin

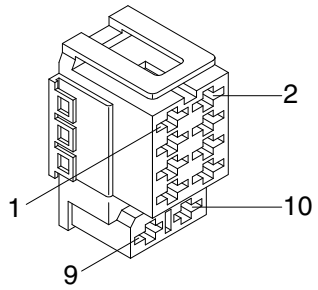
No. of pin	Receptacle connector (female)	Plug connector (male)
2	 DT06-2S	 DT04-2P
3	 DT06-3S	 DT04-3P
4	 DT06-4S	 DT04-4P

No. of pin	Receptacle connector (female)	Plug connector (male)
6	 DT06-6S	 DT04-6P
8	 DT06-8S	 DT04-8P
12	 DT06-12S	 DT04-12P

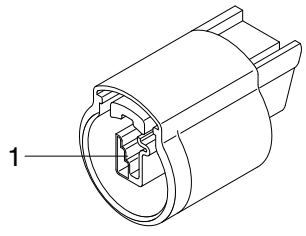
15) MOLEX 2CKTS CONNECTOR

No. of pin	Receptacle connector (female)	Plug connector (male)
2	 35215-0200	

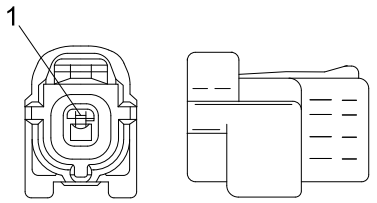
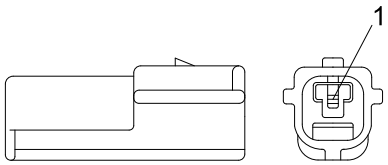
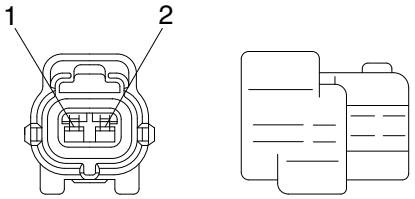
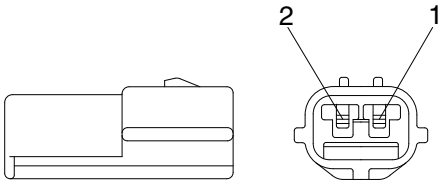
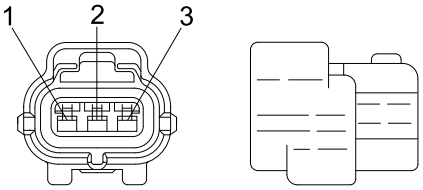
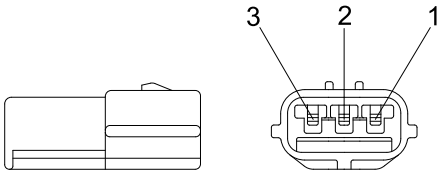
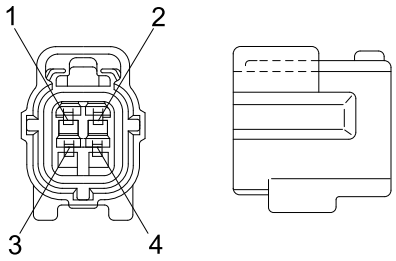
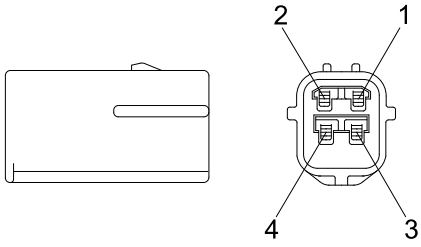
16) ITT SWF CONNECTOR

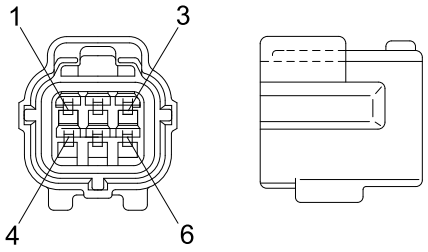
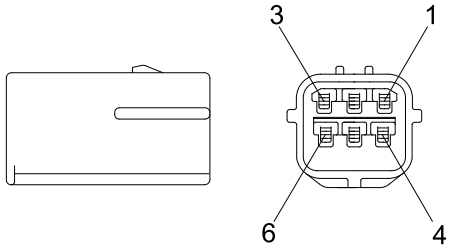
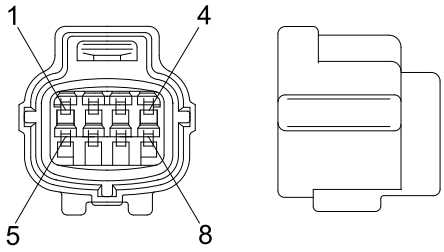
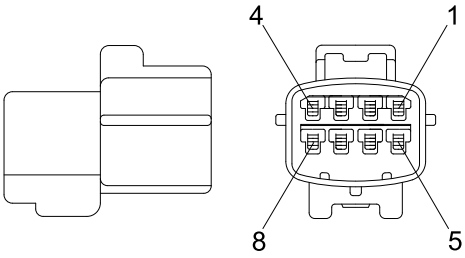
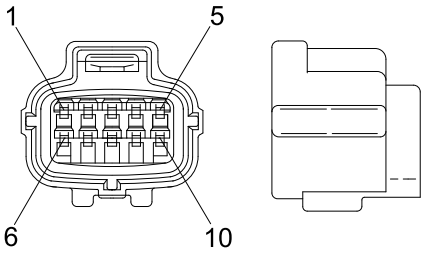
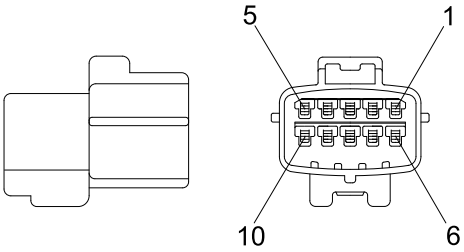
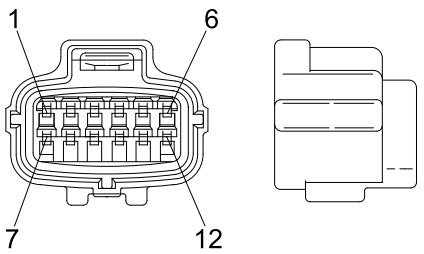
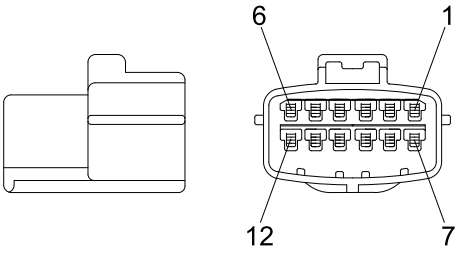
No. of pin	Receptacle connector (female)	Plug connector (male)
10	 SWF593757	

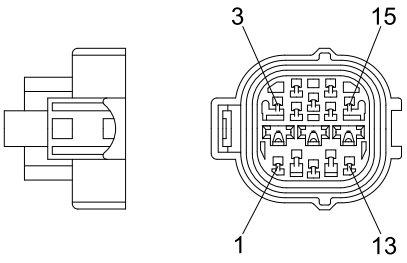
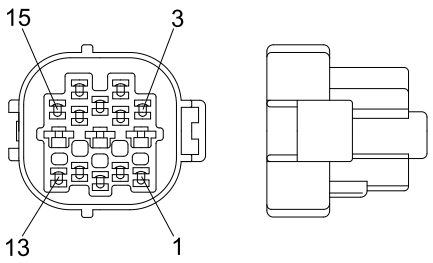
17) MWP NMWP CONNECTOR

No. of pin	Receptacle connector (female)	Plug connector (male)
1	 NMWP01F-B	

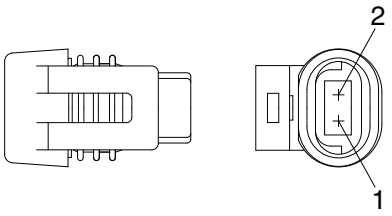
18) ECONOSEAL J TYPE CONNECTORS

No. of pin	Receptacle connector (female)	Plug connector (male)
1	 S816-001002	 S816-101002
2	 S816-002002	 S816-102002
3	 S816-003002	 S816-103002
4	 S816-004002	 S816-104002

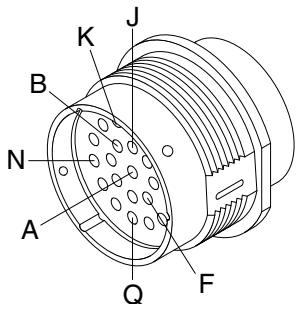
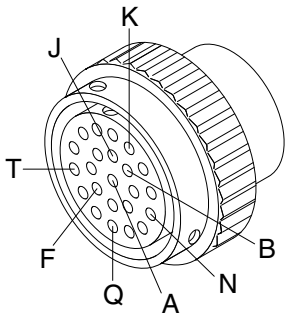
No. of pin	Receptacle connector (female)	Plug connector (male)
6	 S816-006002	 S816-106002
8	 S816-008002	 S816-108002
10	 S816-010002	 S816-110002
12	 S816-012002	 S816-112002

No. of pin	Receptacle connector (female)	Plug connector (male)
15	 368301-1	 2-85262-1

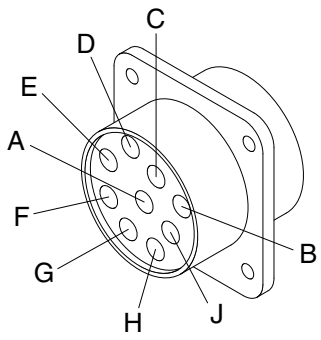
19) METRI-PACK TYPE CONNECTOR

No. of pin	Receptacle connector (female)	Plug connector (male)
2	 12040753	

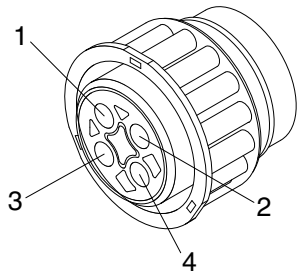
20) DEUTSCH HD30 CONNECTOR

No. of pin	Receptacle connector (female)	Plug connector (male)
23	 HD36-24-23SN	 HD34-24-23PN

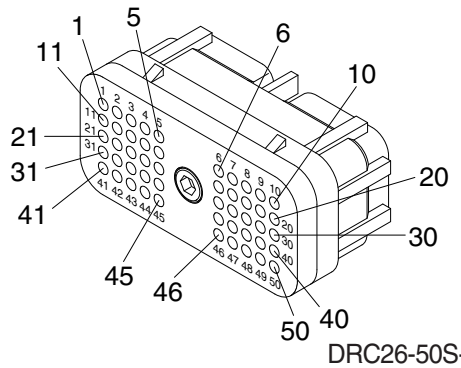
21) DEUTSCH SERVICE TOOL CONNECTOR

No. of pin	Receptacle connector (Female)	Plug connector (Male)
9	 HD10-9-96P	

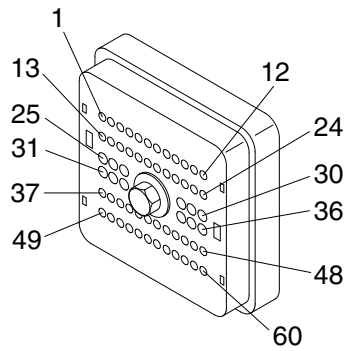
22) AMP FUEL WARMER CONNECTOR

No. of pin	Receptacle connector (Female)	Plug connector (Male)
4	 2-967325-3	

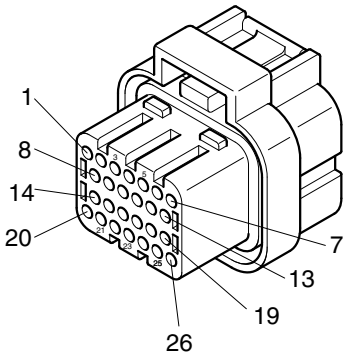
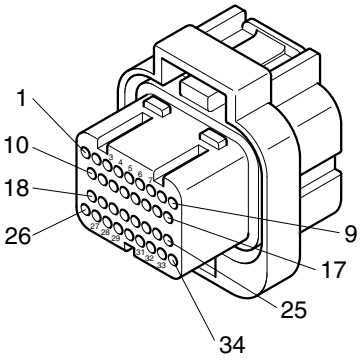
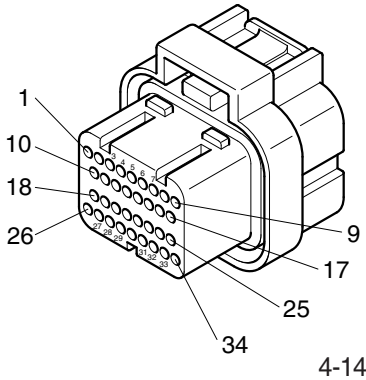
23) DEUTSCH ENGINE ECM CONNECTOR

No. of pin	Receptacle connector (Female)	Plug connector (Male)
50	 DRC26-50S-04	

24) DEUTSCH INTERMEDIATE CONNECTOR

No. of pin	Receptacle connector (Female)	Plug connector (Male)
60	 DRB16-60SAE-L018	

25) TE MCU CONNECTOR

No. of pin	Receptacle connector (female)	Plug connector (male)
26	 1473416-1	
34	 2-1437285-3 4-1437290-0	
34	 4-1437290-1	