

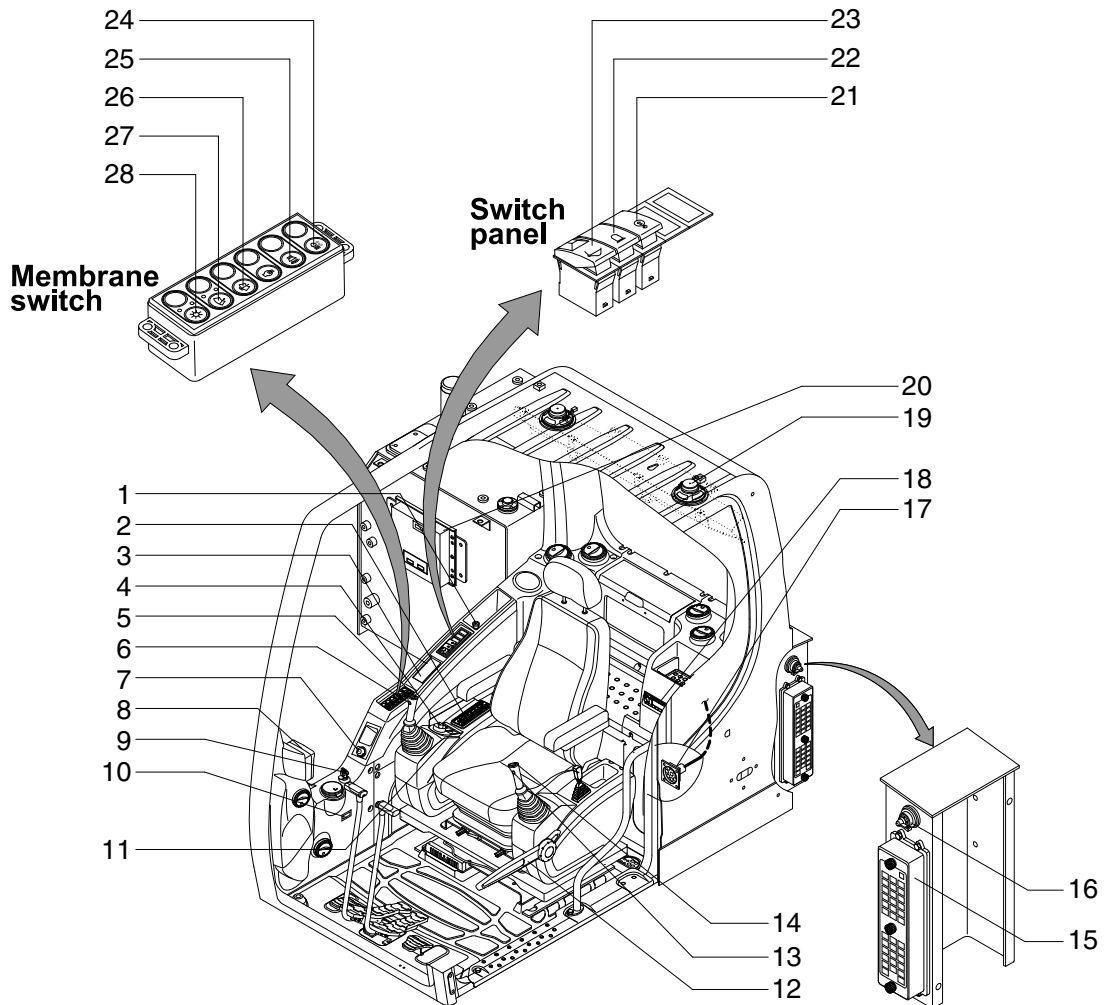
## SECTION 4 ELECTRICAL SYSTEM

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# SECTION 4 ELECTRICAL SYSTEM

## GROUP 1 COMPONENT LOCATION

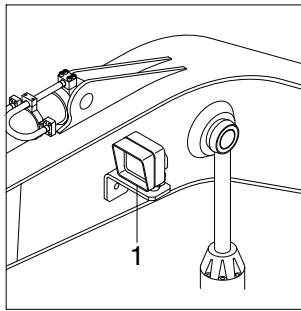
### 1. LOCATION 1



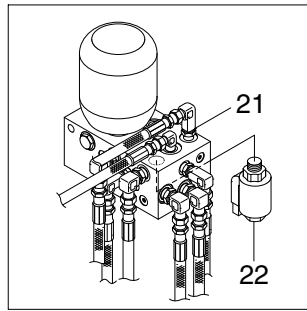
RD22094EL01

- |                                   |                               |                        |
|-----------------------------------|-------------------------------|------------------------|
| 1 Cigar lighter                   | 11 Air compressor switch      | 21 Overload switch     |
| 2 Air conditioner & heater switch | 12 Safety lever               | 22 Beacon switch       |
| 3 Remote controller               | 13 Power max switch           | 23 Quick clamp switch  |
| 4 Accel dial switch               | 14 One touch decel switch     | 24 Cab light switch    |
| 5 Horn switch                     | 15 Fuse & relay box           | 25 Travel alarm switch |
| 6 Breaker operation switch        | 16 Master switch              | 26 Washer switch       |
| 7 12 V socket                     | 17 RS232 service socket       | 27 Wiper switch        |
| 8 Cluster                         | 18 Radio & USB player         | 28 Main light switch   |
| 9 Start switch                    | 19 Speaker                    |                        |
| 10 Hour meter                     | 20 Machine control unit (MCU) |                        |

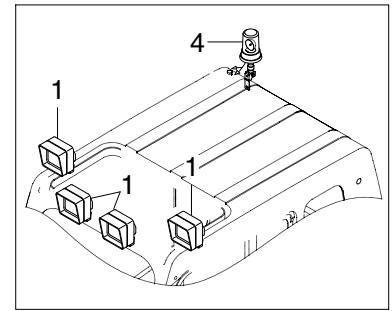
## 2. LOCATION 2



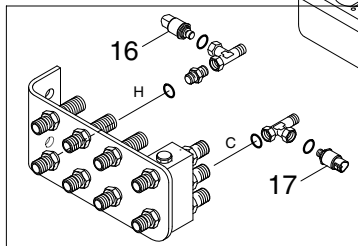
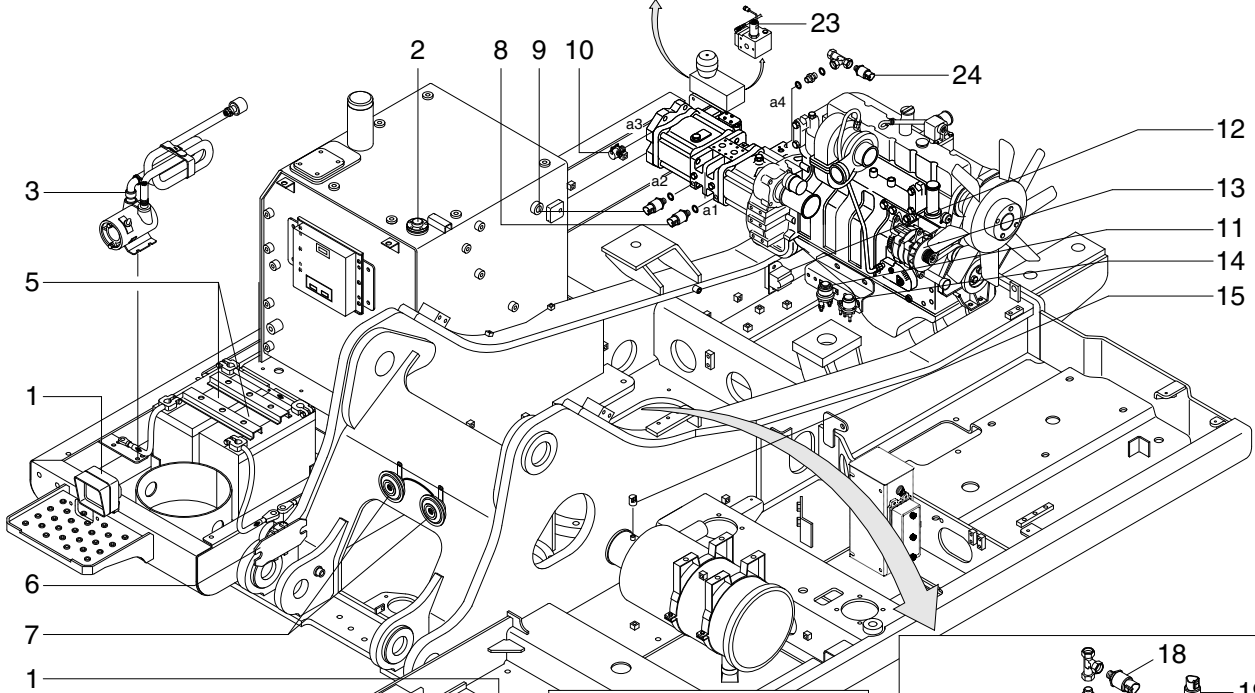
BOOM



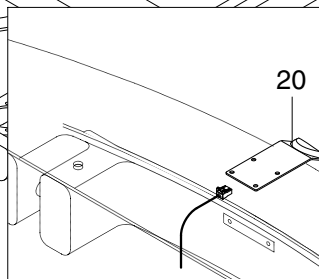
SOLENOID VALVE



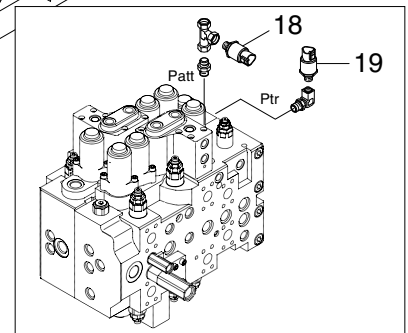
CAB



TERMINAL



COUNTERWEIGHT

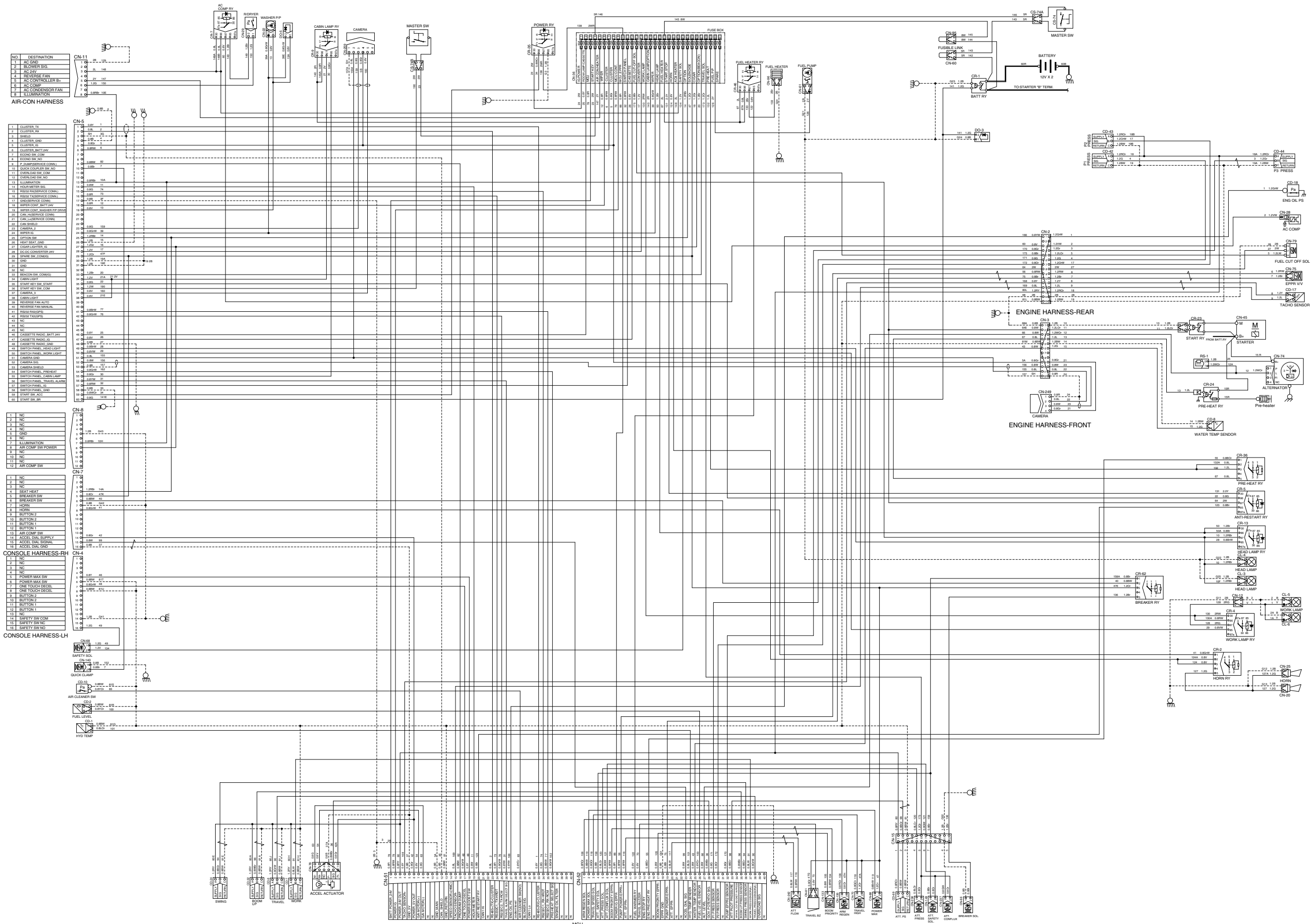


MAIN CONTROL VALVE

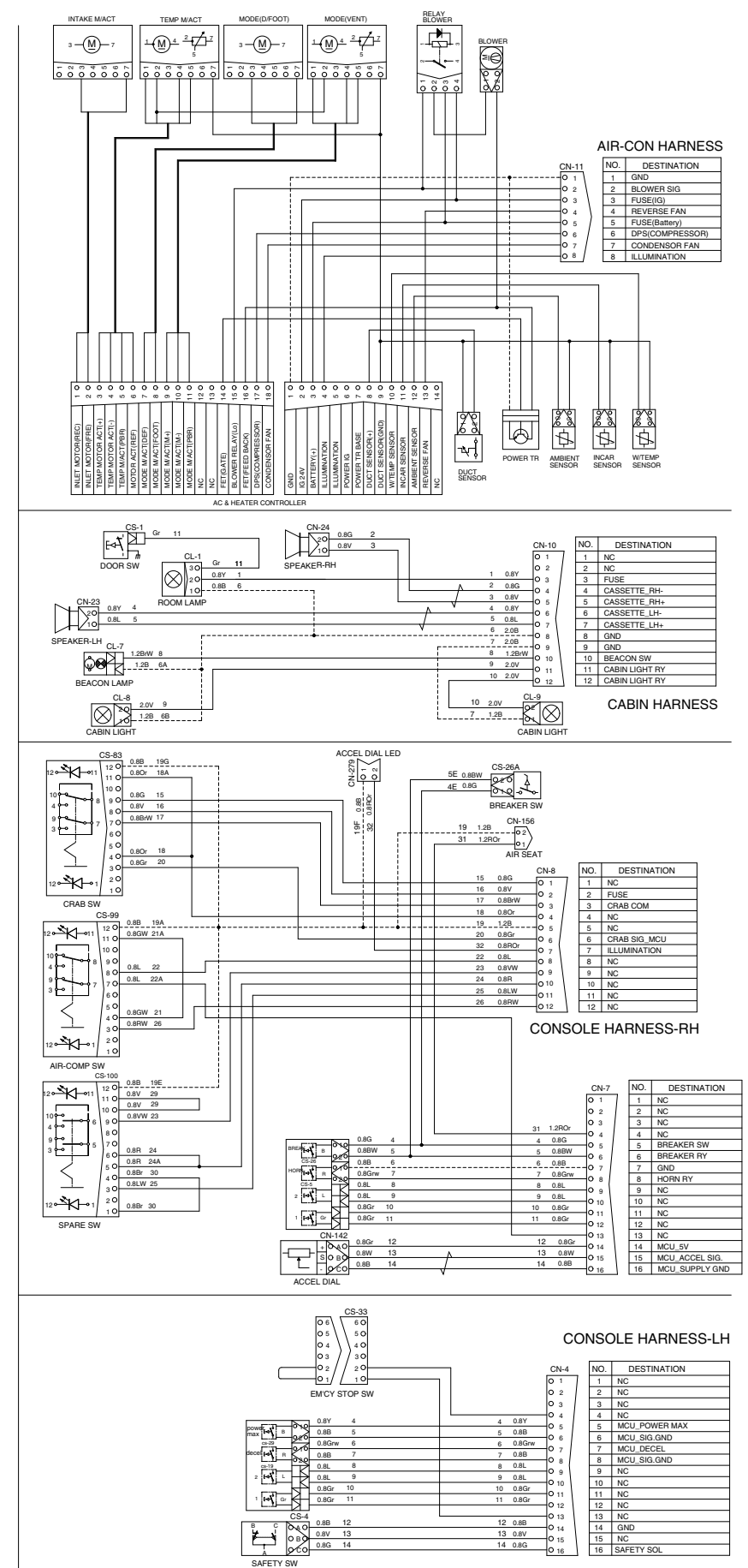
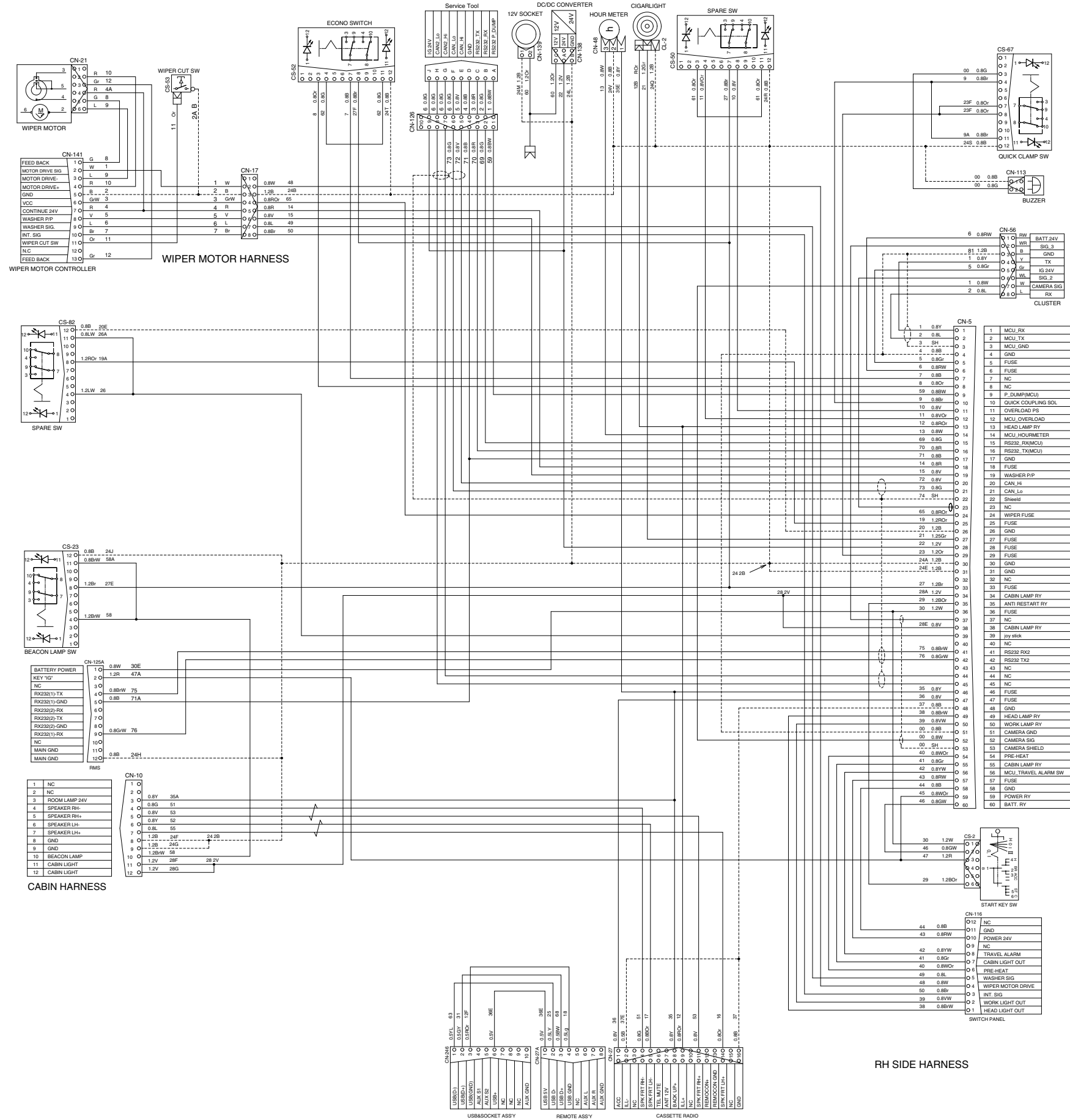
RD22094EL02

- |                      |                            |                             |
|----------------------|----------------------------|-----------------------------|
| 1 Lamp               | 9 P2 pressure sensor       | 17 Swing pressure sensor    |
| 2 Fuel sender        | 10 Screw coupling          | 18 Attach pressure sensor   |
| 3 Fuel filler pump   | 11 Start relay             | 19 Travel pressure sensor   |
| 4 Beacon lamp        | 12 Back buzzer             | 20 Rear view camera         |
| 5 Battery            | 13 Alternator              | 21 Solenoid valve           |
| 6 Battery relay      | 14 Heater relay            | 22 Boom priority EPPR valve |
| 7 Horn               | 15 Air cleaner sensor      | 23 Pump EPPR valve          |
| 8 P1 pressure sensor | 16 Boom up pressure sensor | 24 EPPR pressure sensor     |

GROUP 2 ELECTRICAL CIRCUIT (1/2)



ELECTRICAL CIRCUIT (2/2)



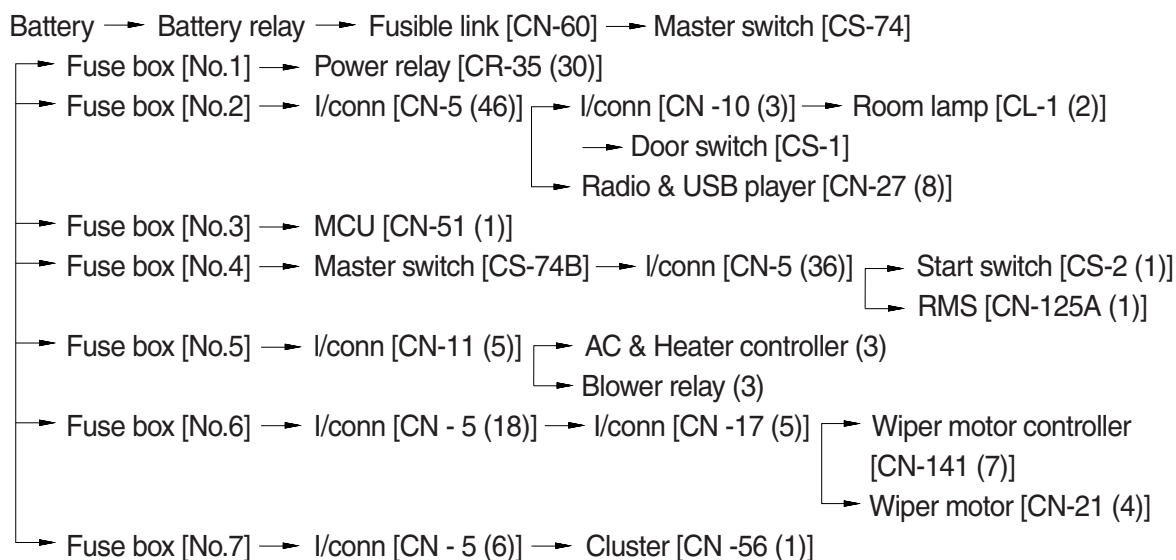
MEMORANDUM

HYUNDAI HEAVY INDUSTRIES CO., LTD  
CONSTRUCTION EQUIPMENT DIV.

## 1. POWER CIRCUIT

The negative terminal of battery is grounded to the machine chassis through master switch.  
When the start switch is in the OFF position, the current flows from the positive battery terminal as shown below.

### 1) OPERATING FLOW



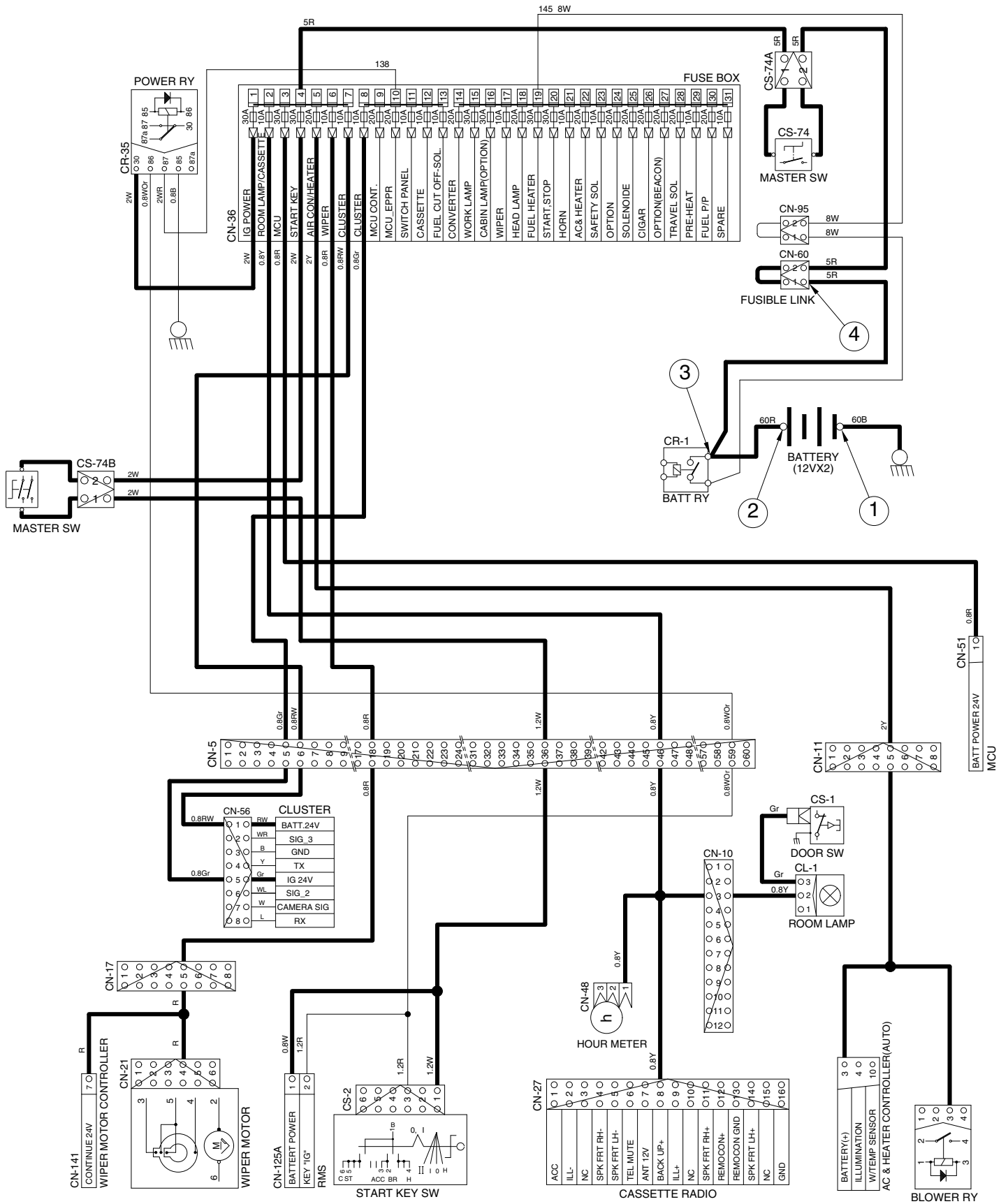
※ I/conn : Intermediate connector

### 2) CHECK POINT

Engine	Start switch	Check point	Voltage
OFF	OFF	① - GND (battery 1EA) ② - GND (battery 2EA) ③ - GND (battery 2EA) ④ - GND (fusible link)	10~12.5V 20~25V 20~25V 20~25V

※ GND : Ground

# POWER CIRCUIT



RD22094EL05



## 2. STARTING CIRCUIT

### 1) OPERATING FLOW

Battery(+) terminal → Battery relay [CR-1] → Fusible link [CN-60] → Master switch [CS-74]  
 → Fuse box [No.4] → Master switch [CS-74B] → I/conn [CN-5(36)] → Start switch [CS-2(1)]

#### (1) When start key switch is in ON position

→ Start switch ON [CS-2 (2)] → I/conn [CN-5 (60)] → Battery relay [CR-1]  
 → Battery relay operating (all power is supplied with the electric component)  
 → Start switch ON [CS-2 (3)] → I/conn [CN-5 (59)] → Power relay [CR-35 (86) → (87)]  
 → Fuse box [No.13] → I/conn [CN-2 (5)] → Fuel cut off solenoid [CN-79 (A)]

#### (2) When start key switch is in START position

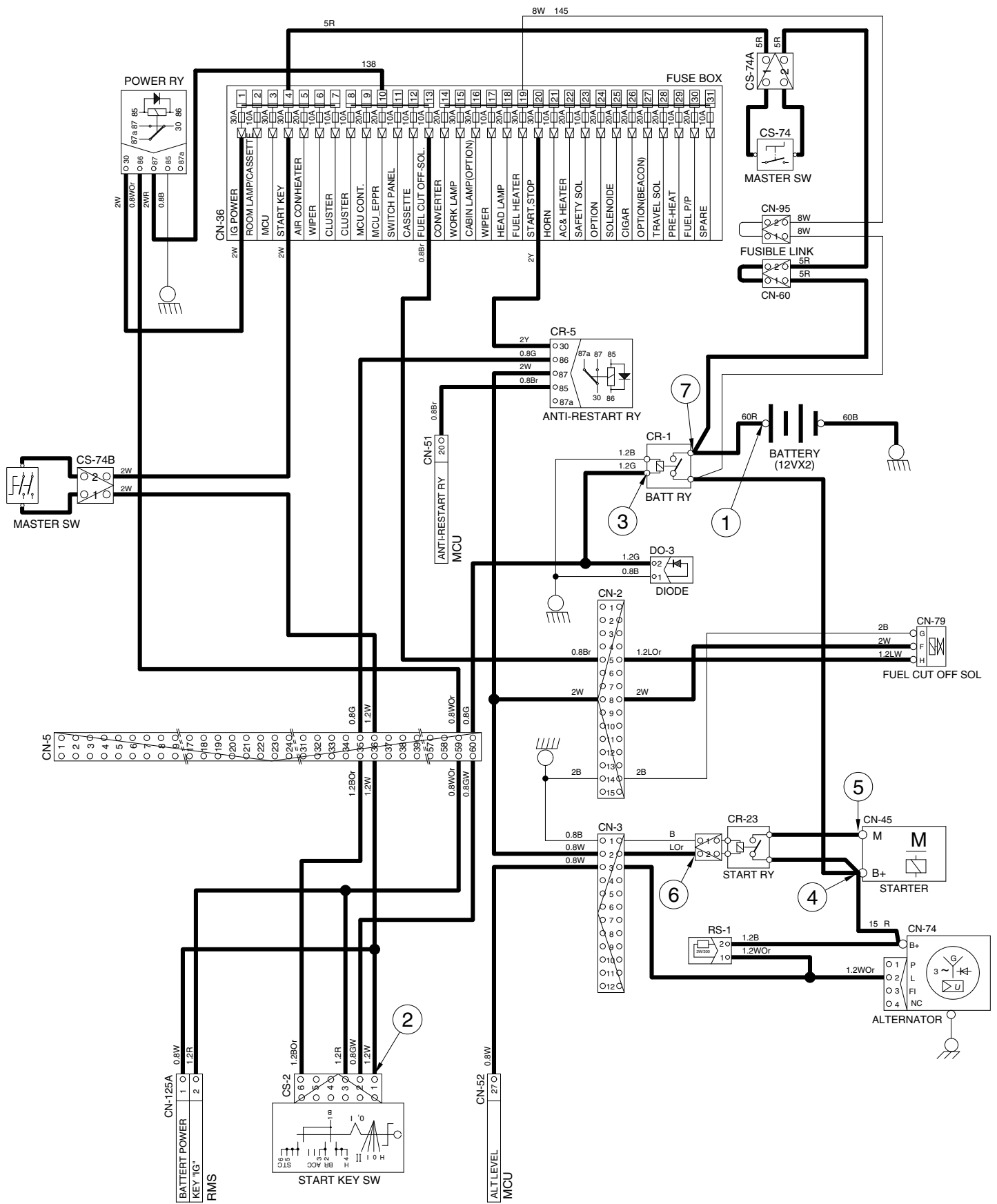
Start switch START [CS-2 (6)] → I/conn [CN-5 (35)] → Anti-restart relay [CR-5 (86) → (87)]  
 → I/conn [CN-3 (2)] → Start relay [CR-23]  
 → I/conn [CN-2 (8)] → Fuel cut off solenoid [CN-79 (B)]

### 2) CHECK POINT

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

※ GND : Ground

# STARTING CIRCUIT



RD22094EL06

### 3. CHARGING CIRCUIT

When the starter is activated and the engine is started, the operator releases the key switch to the ON position.

Charging current generated by operating alternator flows into the battery through the battery relay [CR-1].

The current also flows from alternator to each electrical component and controller through the fuse box.

#### 1) OPERATING FLOW

##### (1) Warning flow

Alternator "L" terminal → I/conn [CN-3 (3)] → MCU alternator level [CN-52 (27)]  
 → Cluster charging warning lamp(Via serial interface)

##### (2) Charging flow

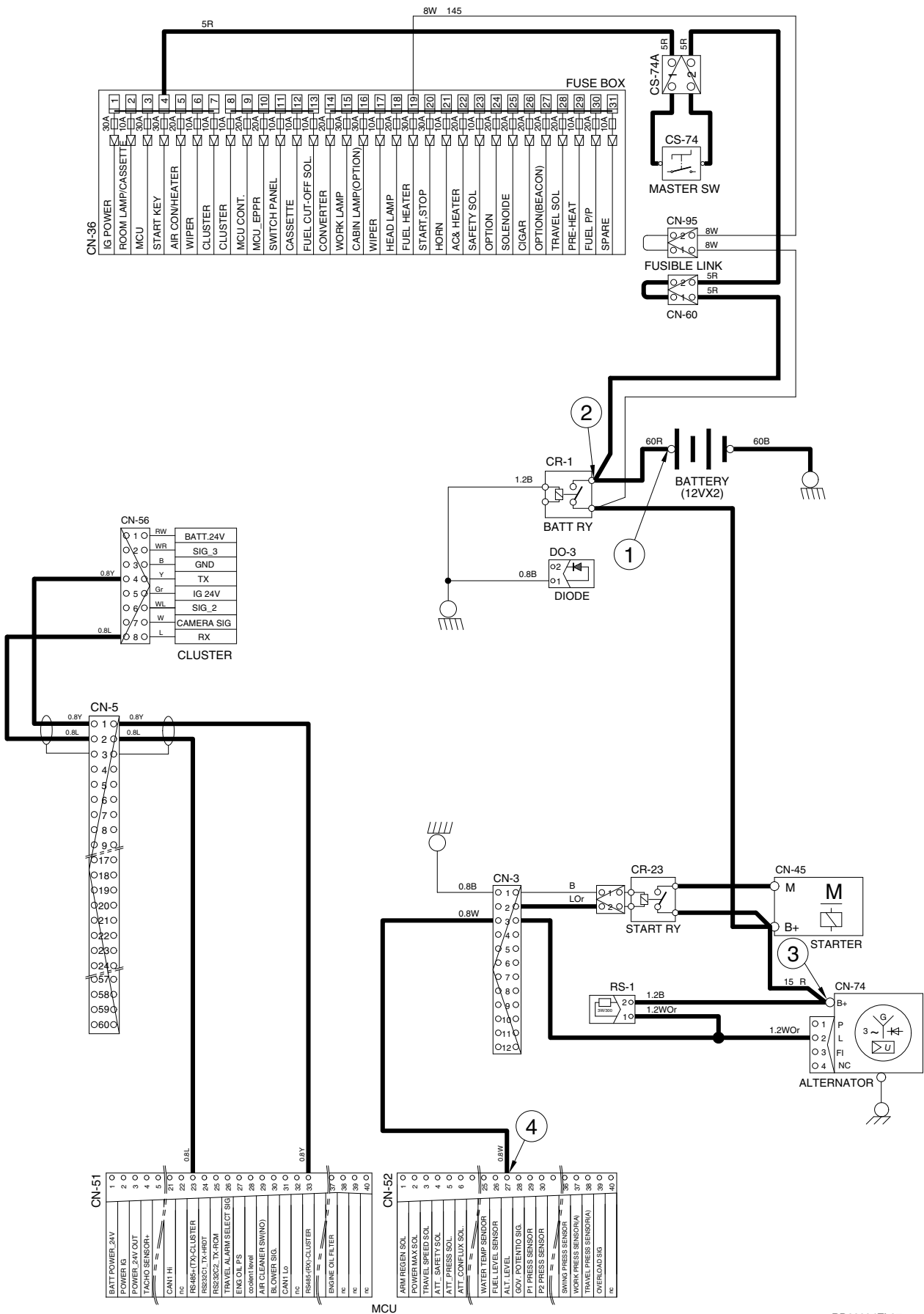
Alternator "B+" terminal → Battery relay(M8) → Battery(+) terminal  
 → Fusible link [CN-60] → Master switch [CS-74]  
 → Fuse box

#### 2) CHECK POINT

Engine	Start switch	Check point	Voltage
Run	ON	① - GND (battery voltage) ② - GND (battery relay) ③ - GND (alternator B <sup>+</sup> terminal) ④ - GND (alternator L terminal) ⑤ - GND (MCU)	20~30V

※ GND : Ground

# CHARGING CIRCUIT



RD22094EL07

## 4. HEAD AND WORK LIGHT CIRCUIT

### 1) OPERATING FLOW

Fuse box (No.18) → Head light relay [CR-13 (30, 86)]

Fuse box (No.15) → Work light relay [CR-4 (30, 86)]

#### (1) Head light switch ON

Head light switch ON [CN-116 (1)] → I/conn [CN-5 (49)] → Head light relay [CR-13 (85) → (87)]

→ Head light ON [CL-3 (1) , [CL-4 (1)]

→ I/conn [CN-11 (8)] → AC & Heater controller illumination ON [4]

→ I/conn [CN-5 (13)] → Cigar light [CL-2]

→ Radio & USB player illumination ON [CN-27 (9)]

#### (2) Work light switch ON

Work light switch ON [CN-116 (2)] → I/conn [CN-5 (50)] → Work light relay [CR-4 (85) → (87)]

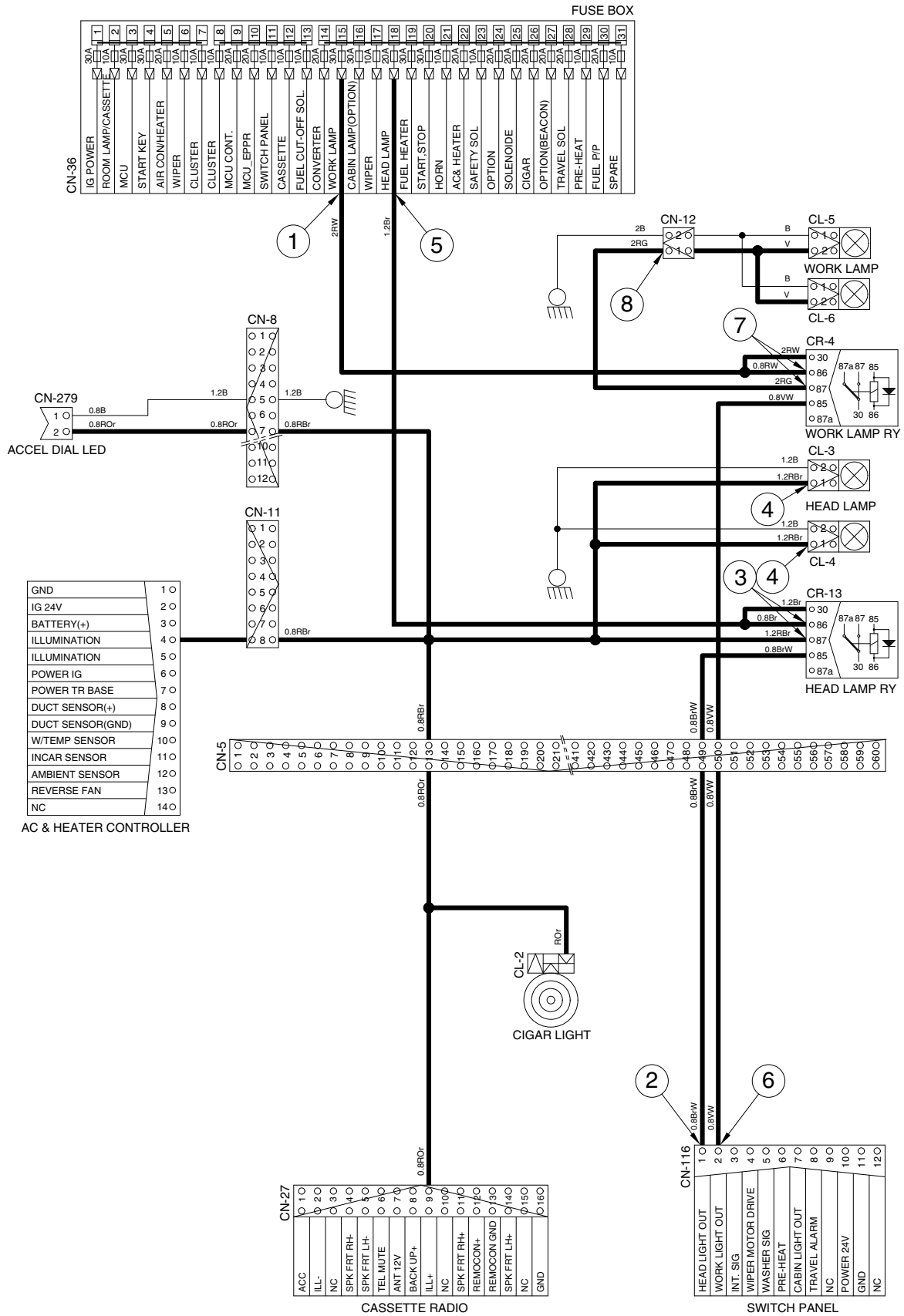
→ I/conn [CN-12 (1)] → Work light ON [CL-5 (2), CL-6 (2)]

### 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 output) ⑦ - GND (work light relay) ⑧ - GND (work light)	20~25V

※ GND : Ground

# HEAD AND WORK LIGHT CIRCUIT



## 5. BEACON LAMP AND CAB LIGHT CIRCUIT

### 1) OPERATING FLOW

Fuse box (No.27) → I/conn [CN-5 (33)] → Beacon lamp switch [CN-23 (8)]

Fuse box (No.16) → Cab light relay [CR-9 (30, 86)]

#### (1) Beacon lamp switch ON

Beacon lamp switch ON [CS-23 (4)] → Switch indicator lamp ON [CS-23 (11)]  
 → I/conn [CN-10 (10)] → Beacon lamp ON [CL-7]

#### (2) Cab light switch ON

Cab light switch ON [CN-116 (7)] → I/conn [CN-5 (55)] → Cabin 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)]

### 2) CHECK POINT

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

※ GND : Ground





## 6. WIPER AND WASHER CIRCUIT

### 1) OPERATING FLOW

#### (1) Key switch ON

Fuse box (No.11) → I/conn [CN-5 (57)] → Switch panel [CN-116 (10)]

Fuse box (No.6) → I/conn [CN-5 (18)] → I/conn [CN-17 (5)] → Wiper motor controller [CN-141(7)]  
 → Wiper motor [CN-21(4)]

Fuse box (No.17) → I/conn [CN-5 (24)] → I/conn [CN-17 (4)] → Wiper motor controller [CN-141 (6)]  
 → Washer pump [CN-22 (2)]

#### (2) Wiper switch ON : 1st step (Intermittent)

Wiper switch ON [CN-116 (3)] → I/conn [CN-17 (8)] → Wiper motor controller [CN-141 (10) → (3)]  
 → Wiper motor intermittently operating [CN-21 (6)]

#### (3) Wiper switch ON : 2nd step (continual)

Wiper switch ON [CN-116(4)] → I/conn[CN-17(2)] → Wiper motor controller [CN-141(2) → (4)]  
 → Wiper motor operating [CN-21(2)]

#### (4) Washer switch ON

Washer switch ON [CN-116 (5)] → 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-116 (4)] → I/conn[CN-17 (2)] → Wiper motor controller [CN-141 (2) → (4)]  
 → Wiper motor operating [CN-21 (2)]

#### (5) Auto parking (when switch OFF)

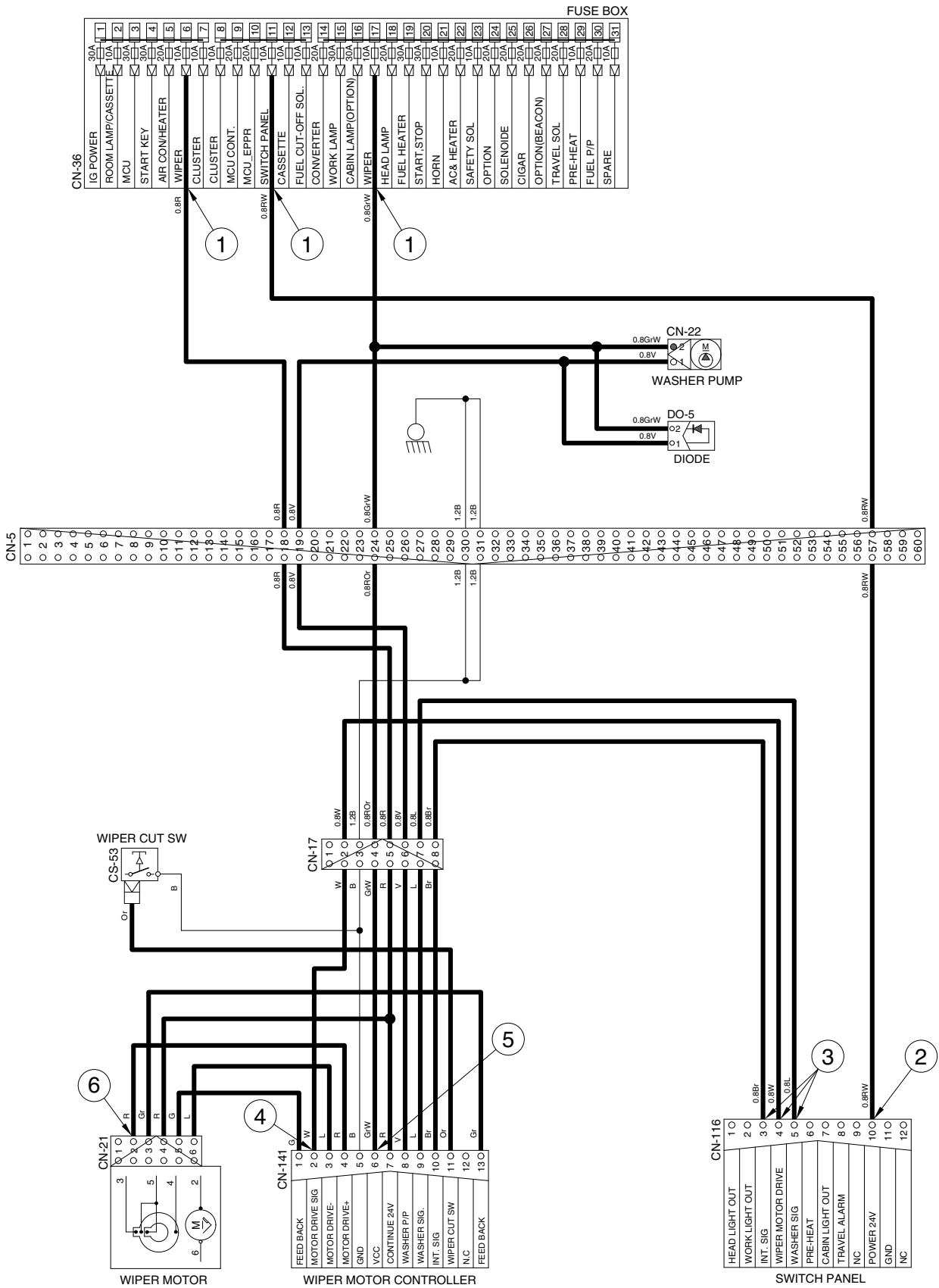
Switch OFF [CN-116 (4)] → Wiper motor parking position by wiper motor controller

### 2) CHECK POINT

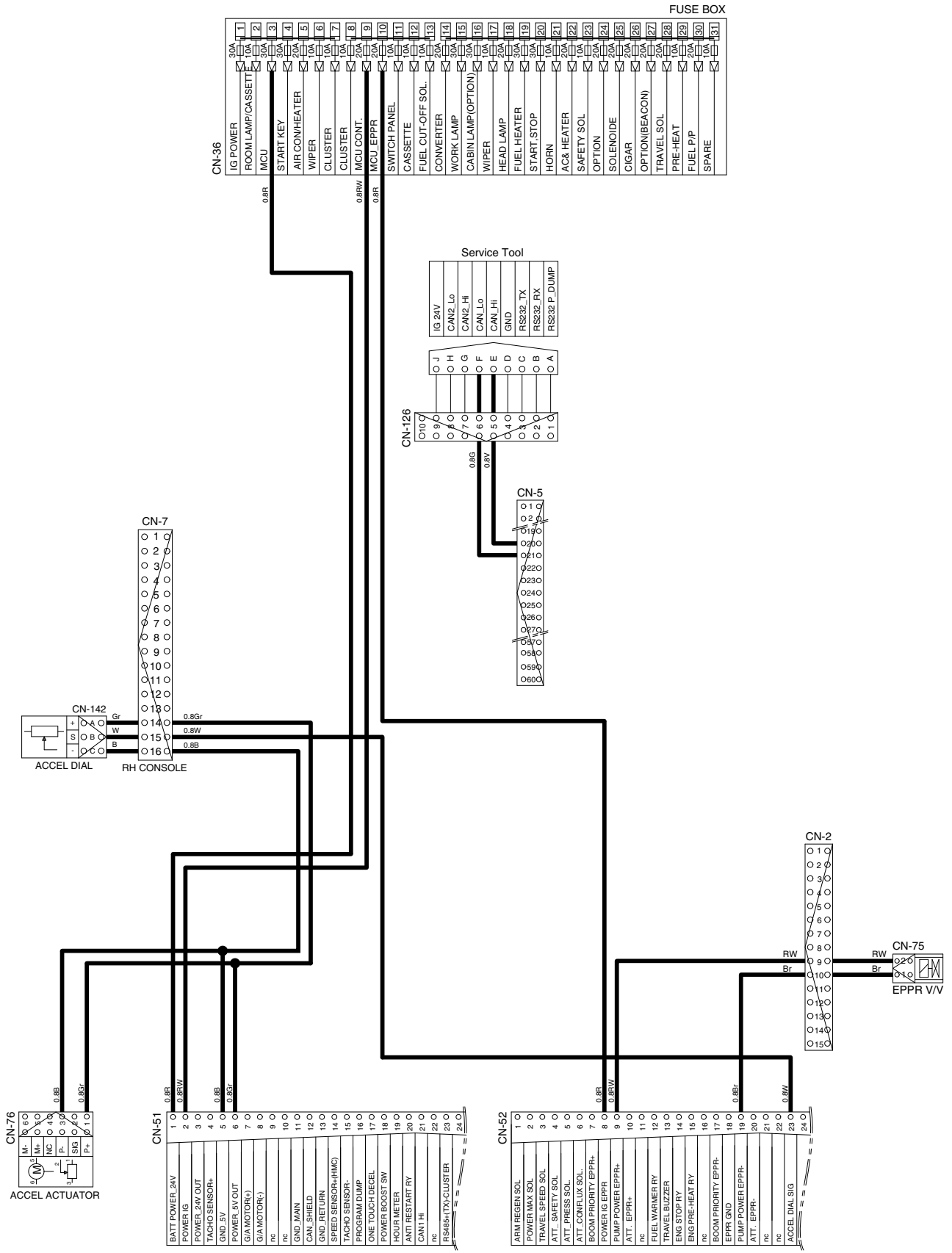
Engine	Start switch	Check point	Voltage
STOP	ON	① - GND (fuse box)	24V
		② - GND (switch power input)	
		③ - GND (switch power output)	0 ~ 5V
		④ - GND (wiper power input)	
		⑤ - GND (wiper power output)	24V
		⑥ - GND (wiper motor)	0 or 24V

※ GND : Ground

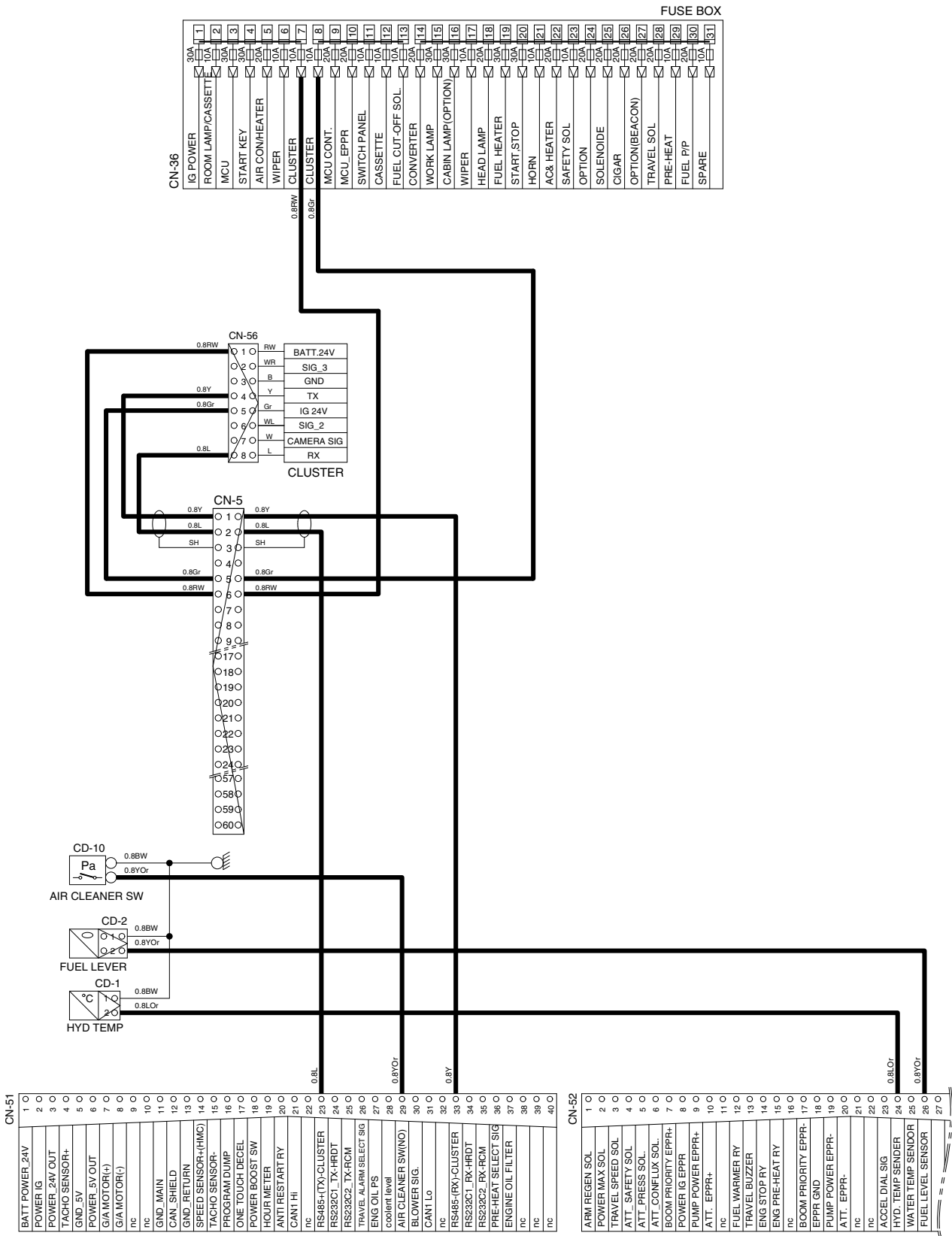
# WIPER AND WASHER CIRCUIT



# CONTROLLER CIRCUIT

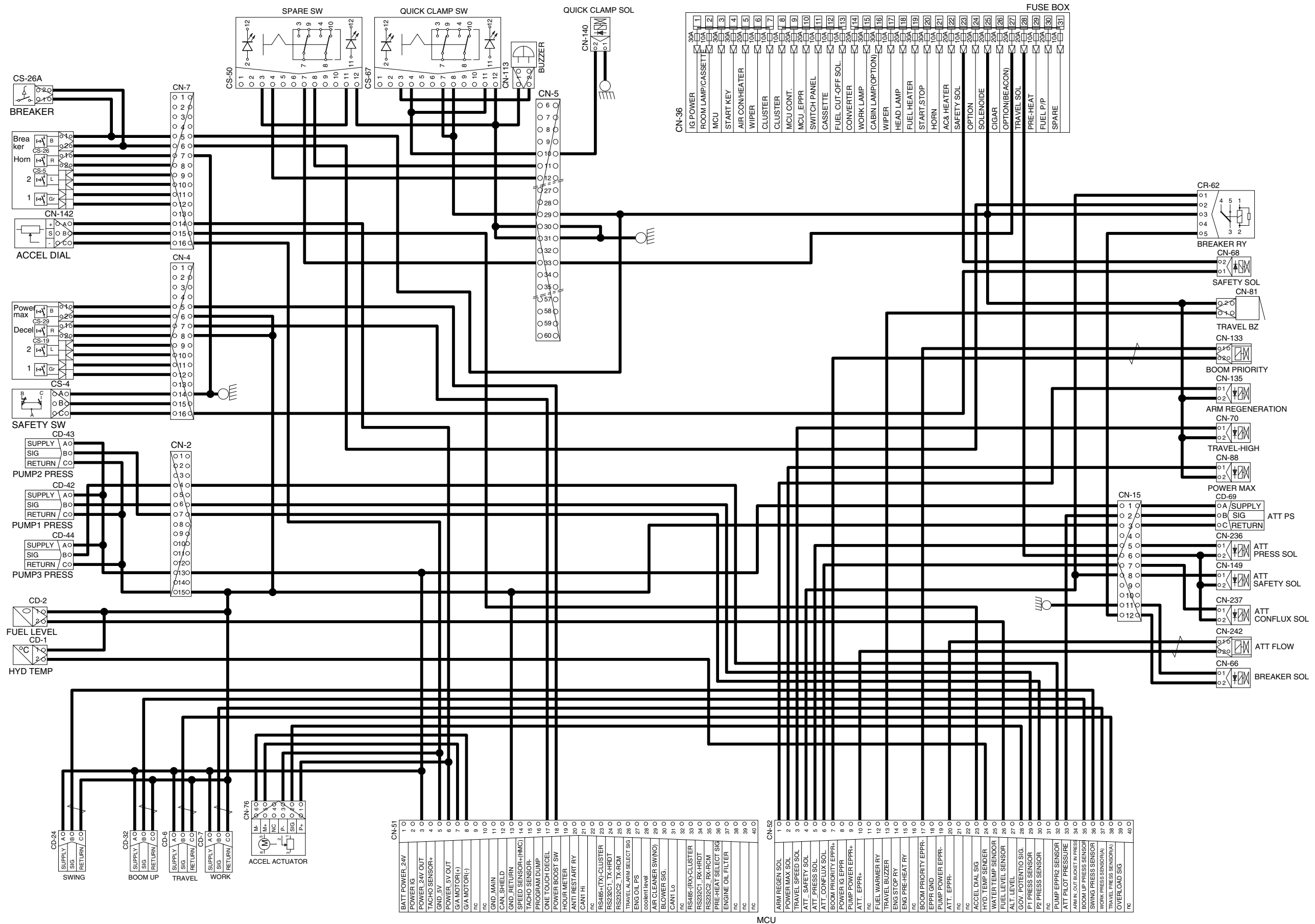


# MONITORING CIRCUIT

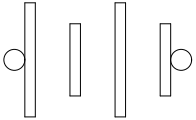
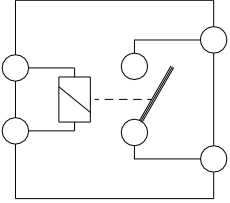
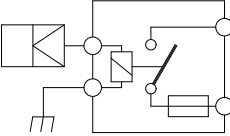
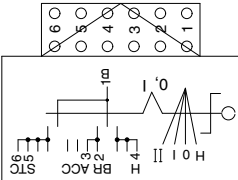
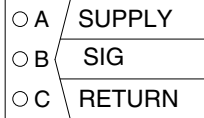
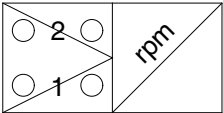


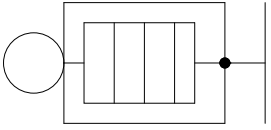
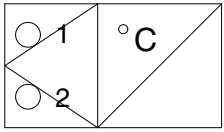
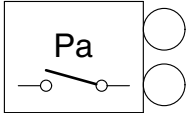
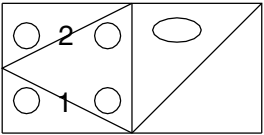
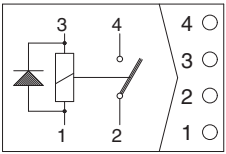
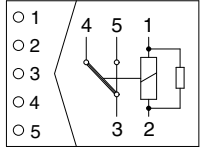
MCU

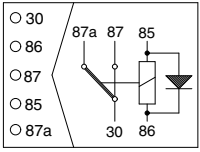
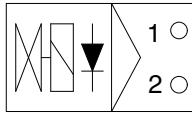

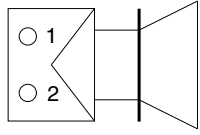
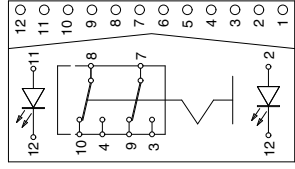
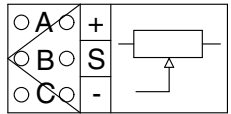
# ELECTRIC CIRCUIT FOR HYDRAULIC



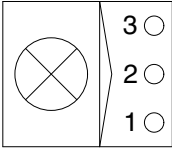
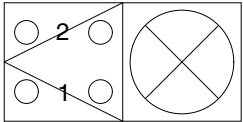
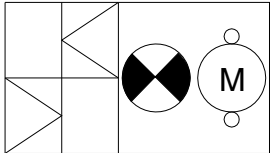
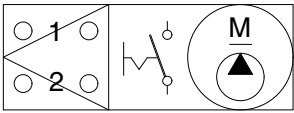
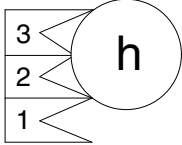
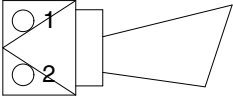
## GROUP 3 ELECTRICAL COMPONENT SPECIFICATION

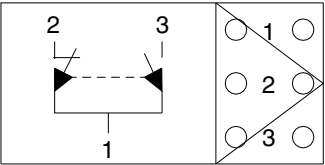
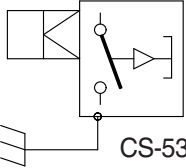
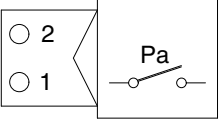
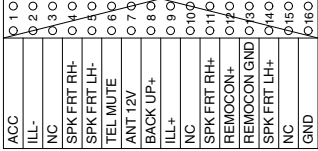
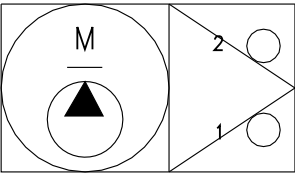
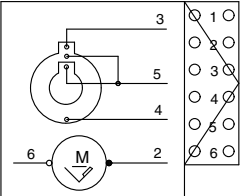
Part name	Symbol	Specifications	Check
Battery		12V × 100Ah (2EA)	※ Check specific gravity 1.280 over : Over charged 1.280 ~ 1.250 : Normal 1.250 below : Recharging
Battery relay	 <p style="text-align: center;">CR-1</p>	Rated load : 24V 100A (continuity) 1000A (30seconds)	※ Check coil resistance(M4 to M4) Normal : About 50 Ω ※ Check contact Normal : ∞ Ω
Glow plug relay	 <p style="text-align: center;">CR-24</p>	24V 200A	※ Check contact Normal : 0.942 Ω (For terminal 1-GND)
Start key	 <p style="text-align: center;">CS-2</p>	B-BR : 24V 1A B-ACC : 24V 10A B-ST : 24V 40A	※ Check contact OFF : ∞ Ω (for each terminal) ON : 0 Ω (for terminal 1-3 and 1-2) START : 0 Ω (for terminal 1-5)
Pressure sensor	 <p style="text-align: center;">                     ○ A SUPPLY                      ○ B SIG                      ○ C RETURN                      CD-6 CD-7 CD-24                      CD-31 CD-32 CD-42                      CD-43 CD-44 CD-69                 </p>	8~30V	※ Check contact Normal : 0.1 Ω
Speed sensor	 <p style="text-align: center;">CD-17</p>	-	※ Check resistance Normal : 300 Ω (For terminal 1, 2)

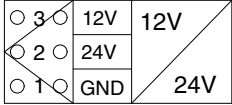
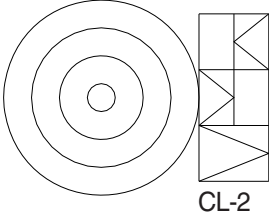
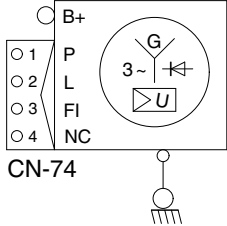
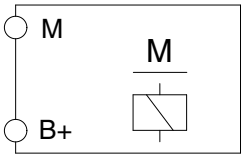
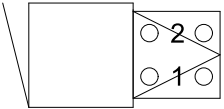
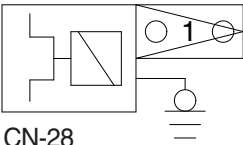
Part name	Symbol	Specifications	Check
Glow plug	 CN-80	24V 200A	※ Check resistance 0.25~0.12 Ω
Temperature sensor (hydraulic, water)	 CD-1 CD-8	-	※ Check resistance 50°C : 804 Ω 80°C : 310 Ω 100°C : 180 Ω
Air cleaner pressure switch	 CD-10	(N.O TYPE)	※ Check contact High level : ∞ Ω Low level : 0 Ω
Fuel sender	 CD-2	-	※ Check resistance Full : 50 Ω    6/12 : 350 Ω 11/12 : 100 Ω    5/12 : 400 Ω 10/12 : 150 Ω    4/12 : 450 Ω 9/12 : 200 Ω    3/12 : 500 Ω 8/12 : 250 Ω    2/12 : 550 Ω 7/12 : 300 Ω    1/12 : 600 Ω Empty warning : 700 Ω
Relay (air con blower)		24V 20A	※ Check resistance Normal : About 200 Ω (for terminal 1-3) 0 Ω (for terminal 2-4)
Relay	 CR-2 CR-36 CR-62	24V 16A	※ Check resistance Normal : About 160 Ω (for terminal 1-2) 0 Ω (for terminal 3-4) ∞ Ω (for terminal 3-5)

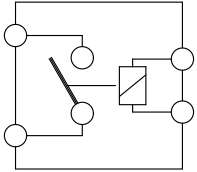
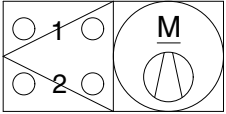
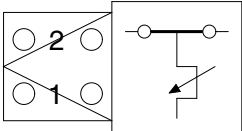
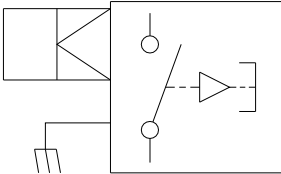
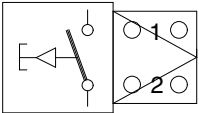
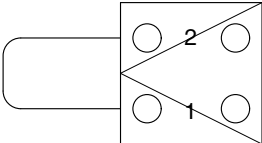
Part name	Symbol	Specifications	Check
Relay	 <p>CR-4 CR-5 CR-7 CR-9 CR-13 CR-35 CR-46</p>	24V 16A	※ Check resistance Normal : About 160 Ω (for terminal 85-86) 0 Ω (for terminal 30-87a) ∞ Ω (for terminal 30-87)
Solenoid valve	 <p>CN-66 CN-68 CN-70 CN-88 CN-135 CN-140 CN-149 CN-236 CN-237</p>	24V 1A	※ Check resistance Normal : 15~25 Ω (for terminal 1-2)
EPPR valve	 <p>CN-75 CN-133 CN-242</p>	700mA	※ Check resistance Normal : 15~25 Ω (for terminal 1-2)
Speaker	 <p>CN-23(LH) CN-24(RH)</p>	20W	※ Check resistance Normal : A few Ω
Switch (locking type)	 <p>CS-23 CS-50 CS-52 CS-67 CS-82 CS-83 CS-99 CS-100</p>	24V 8A	※ Check contact Normal ON : 0 Ω (for terminal 3-7, 4-8) ∞ Ω (for terminal 7-9, 8-10) OFF : ∞ Ω (for terminal 3-7, 4-8) 0 Ω (for terminal 7-9, 8-10)
Accel dial	 <p>CN-142</p>	-	※ Check resist Normal : About 5k Ω (for terminal A-C) ※ Check voltage Normal : About 5V (for terminal A-C) : 2~4.5V (for terminal C-B)

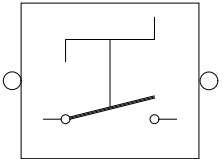
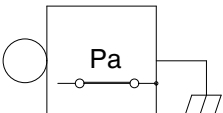
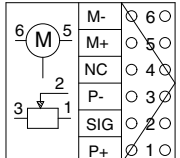
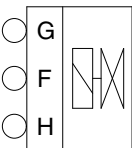


Part name	Symbol	Specifications	Check
Room lamp	 <p>CL-1</p>	24V 10W	※ Check disconnection Normal : 1.0 Ω ON : 0 Ω (For terminal 1-2) ∞ Ω (For terminal 1-3) OFF : ∞ Ω (For terminal 1-2) 0 Ω (For terminal 1-3)
Head lamp, Work lamp, Cab lamp	 <p>CL-3 CL-4 CL-5 CL-6 CL-8 CL-9</p>	24V 65W (H3 Type)	※ Check disconnection Normal : 1.2 Ω
Beacon lamp	 <p>CL-7</p>	21V 70W (H1 Type)	※ Check disconnection Normal : A few Ω
Fuel filler pump	 <p>CN-61</p>	24V 10A 35 l /min	※ Check resistance Normal : 1.0 Ω
Service meter	 <p>CN-48</p>	16~32V	※ Check operation Supply power(24V) to terminal No.2 and connect terminal No.1 and ground
Horn	 <p>CN-20 CN-25</p>	DC22~28V 2A	※ Check operation Supply power(24V) to each terminal and connect ground.

Part name	Symbol	Specifications	Check
Safety switch	 <p>CS-4</p>	24V 15A (N.C TYPE)	※ Check contact Normal : 0 Ω (for terminal 1-2) ∞ Ω (for terminal 1-3) Operating : ∞ Ω (for terminal 1-2) 0 Ω (for terminal 1-3)
Wiper cut switch	 <p>CS-53</p>	24V (N.O TYPE)	※ Check contact Normal : 0 Ω (one pin to ground)
Receiver dryer	 <p>CN-29</p>	24V 2.5A	※ Check contact Normal : ∞ Ω
Radio & USB player	 <p>CN-27</p>	24V 2A	※ Check voltage 20~25V (for terminal 1-3, 3-8)
Washer pump	 <p>CN-22</p>	24V 3.8A	※ Check contact Normal : 10.7 Ω (for terminal 1-2)
Wiper motor	 <p>CN-21</p>	24V 2A	※ Check disconnection Normal : 7 Ω (for terminal 2-6)

Part name	Symbol	Specifications	Check
DC/DC Converter	 <p>CN-138</p>	12V 3A	24V (1-2) 12V (1-3)
Cigar lighter	 <p>CL-2</p>	24V 5A 1.4W	※ Check coil resistance Normal : About 1M Ω ※ Check contact Normal : ∞ Ω Operating time : 5~15sec
Alternator	 <p>CN-74</p>	24V 50A	※ Check contact Normal : 0 Ω (for terminal B <sup>+</sup> -I) Normal : 24~27.5V
Starter	 <p>CN-45</p>	Denso 24V 4.5kW	※ Check contact Normal : 0.1 Ω
Travel alarm	 <p>CN-81</p>	24V 0.5A	※ Check contact Normal : 5.2 Ω
Aircon compressor	 <p>CN-28</p>	24V 79W	※ Check contact Normal : 13.4 Ω

Part name	Symbol	Specifications	Check
Start relay	 <p>CR-23</p>	24V 300A	※ Check contact Normal : 0.94 Ω (for terminal 1-2)
Blower motor		24V 9.5A	※ Check resistance Normal : 2.5 Ω (for terminal 1-2)
Duct sensor (switch)		1°C OFF 4°C ON	※ Check resistance Normal : 0 Ω (for terminal 1-2), the atmosphere temp : Over 4°C
Door switch	 <p>CS-1</p>	24V 2W	※ Check resistance Normal : About 5M Ω
Switch (power max, one touch decal, horn, breaker)	 <p>CS-5 CS-19 CS-26 CS-26A CS-29</p>	24V 6A	※ Check resistance Normal : ∞ Ω
Fusible link	 <p>CN-60 CN-95</p>	60A	※ Check disconnection normal : 0 Ω (connect ring terminal and check resist between terminal 1 and 2)

Part name	Symbol	Specifications	Check
Master switch	 <p>CS-74A CS-74B</p>	6-36V	※ Check disconnection Normal : 0.1 Ω
Pressure switch (for engine oil)	 <p>CD-18</p>	0.5kgf/cm <sup>2</sup> (N.C TYPE)	※ Check resistance Normal : 0 Ω (CLOSE)
Accel actuator	 <p>CN-76</p>	-	※ Check resistance Normal : 10 Ω (for terminal 5-6) 5k Ω (for terminal 1-3)
Fuel cut-off	 <p>CN-79</p>	24V	※ Check resistance Normal : 15-25 Ω

## GROUP 4 CONNECTORS

### 1. CONNECTOR DESTINATION

Connector number	Type	No. of pin	Destination	Connector part No.	
				Female	Male
CN-2	AMP	15	I/conn (Frame harness-Engine harness)	2-85262-1	368301-1
CN-3	AMP	12	I/conn (Frame harness-Engine harness)	S816-012002	S816-112002
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-7	AMP	16	I/conn (Console harness RH-Frame harness)	368047-1	368050-1
CN-8	AMP	12	I/conn (Console harness RH-Frame harness)	S816-012002	S816-112002
CN-10	DEUTSCH	12	I/conn (Cab harness-Side harness RH)	DT06-12S-EP06	DT04-12P-BE02
CN-11	DEUTSCH	8	I/conn (Frame harness-Aircon harness)	DT06-8S	-
CN-12	DEUTSCH	2	I/conn (Frame harness-Boom wire harness)	DT06-2S-EP06	DT04-2P-E005
CN-15	AMP	12	I/conn (Frame harness)	S816-012002	S816-112002
CN-17	AMP	8	I/conn (Wiper harness)	S816-008002	S816-108002
CN-20	MOLEX	2	Horn	36825-0211	-
CN-21	AMP	6	Wiper motor	925276-0	-
CN-22	KET	2	Washer pump	MG640605	-
CN-23	KET	2	Speaker-LH	MG610070	-
CN-24	KET	2	Speaker-RH	MG610070	-
CN-25	MOLEX	2	Horn	36825-0211	-
CN-27	KUM	16	Radio and USB player	PK145-16017	-
CN-27A	AMP	8	Remote assy	S816-008002	S816-108002
CN-28	KUM	1	Aircon compressor	MWP-01F-B	-
CN-29	KET	2	Receiver dryer	MG640795	-
CN-36	-	-	Fuse & relay box	21Q7-10910	-
CN-45	RING-TERM	-	Starter motor B+	S820-308000	DT04-4P-E005
CN-48	KET	1	Service meter	2-520193-2	-
CN-51	DEUTSCH	40	MCU	DRC26-40SA	-
CN-52	DEUTSCH	40	MCU	DRC26-40SB	-
CN-56	AMP	8	Cluster	-	S816-108002
CN-60	AMP	2	Fusible link	-	S813-130201
CN-61	DEUTSCH	2	Fuel filler pump	DT06-2S-EP06	-
CN-66	DEUTSCH	2	Breaker solenoid	DT06-2S-EP06	DT04-2P-EP005
CN-68	DEUTSCH	2	Safety solenoid	DT06-2S-EP06	-
CN-70	DEUTSCH	2	Travel high solenoid	DT06-2S-EP06	-

Connector number	Type	No. of pin	Destination	Connector part No.	
				Female	Male
CN-74	AMP	4	Alternator "L" terminal	12186568	-
CN-75	AMP	2	Pump EPPR	S816-002002	-
CN-76	DEUTSCH	6	Accel actuator	DT06-6S-EP06	-
CN-79	RING-TERM	3	Fuel cut off solenoid	S818-020311	-
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	DT06-2S-EP06	-
CN-95	YAZAKI	2	Fusible link	-	7122-4125-50
CN-96	AMP	4	Fuel warmer	2-967325-3	-
CN-113	KET	2	Travel buzzer	MG651205-5	-
CN-116	AMP	12	Switch panel	176116	-
CN-125A	DEUTSCH	12	RMS	DT06-12S-EP06	DT04-12P
CN-126	AMP	10	Service tool	S816-010002	S816-110002
CN-133	DEUTSCH	2	Boom priority solenoid	DT06-2S-EP06	-
CN-135	DEUTSCH	2	Arm regeneration solenoid	DT06-2S-EP06	-
CN-138	DEUTSCH	3	DC/DC Converter	DT06-3S	-
CN-139	AMP	2	12V socket	172434-2	-
CN-140	DEUTSCH	2	Quick clamp solenoid	DT06-2S-EP06	DT04-2P-E005
CN-141	AMP	13	Wiper motor controller	172498-1	DT04-3P-EP10
CN-142	DEUTSCH	3	Accel dial	DT06-3S-EP06	-
CN-149	DEUTSCH	2	Attach safety solenoid	DT06-2S-EP06	-
CN-156	DEUTSCH	2	Air seat	-	DT04-2P-E005
CN-170	AMP	2	Heated seat	12052641	-
CN-236	DEUTSCH	2	Attach pressure solenoid	DT06-2S-EP06	-
CN-237	DEUTSCH	2	Attach conflus solenoid	DT06-2S-EP06	-
CN-242	DEUTSCH	2	Attach flow solenoid	DT06-2S-EP06	DT04-2P-E005
CN-246	AMP	10	USB & Socket assy	316988-6	-
CN-247	DEUTSCH	8	PWM convert	DT06-08SA-EP06	DT04-8P
CN-249	AMP	4	Rear view camera	S816-004002	S816-104002
CN-279	AMP	2	Accel dial LED	S816-002002	-
· Relay					
CR-1	RING-TERM	-	Battery relay	ST730135-2	-
CR-2	-	5	Horn relay	-	-
CR-4	-	5	Work 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	AMP	2	Start relay	-	S814-102001

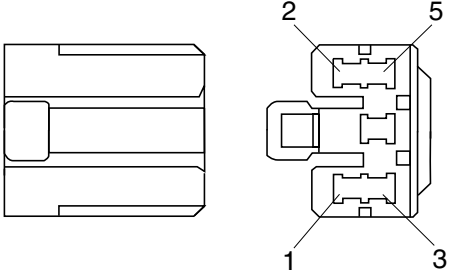
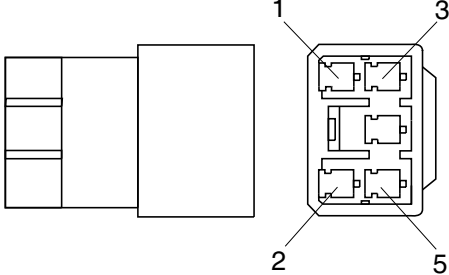
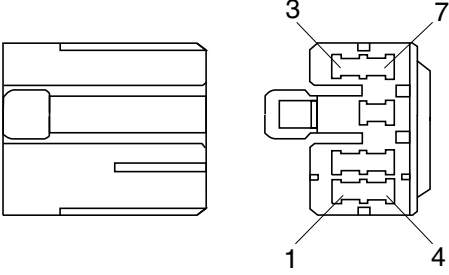
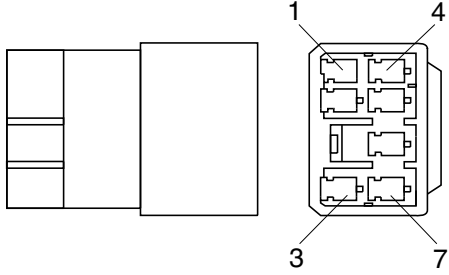
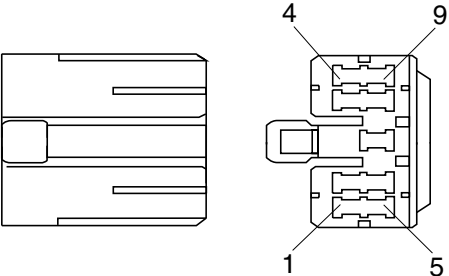
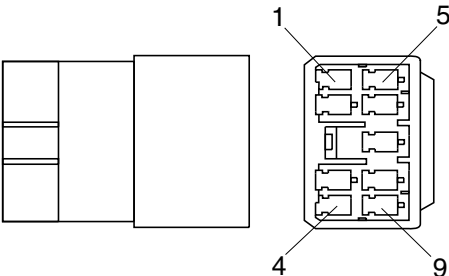
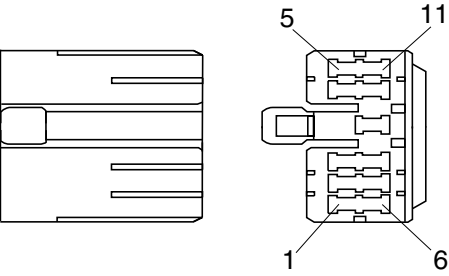
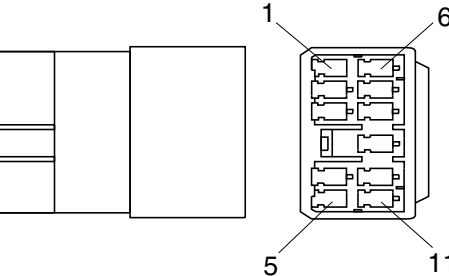
Connector number	Type	No. of pin	Destination	Connector part No.	
				Female	Male
CR-24	AMP	1	Preheat relay	S822-014000	-
CR-35	-	5	Power relay	-	-
CR-36	-	5	Preheat relay	-	-
CR-46	-	5	Fuel warmer relay	-	-
CR-62	-	5	Breaker relay	-	-
· Switch					
CS-1	SHUR	1	Door switch	S822-014002	S822-114002
CS-2	WP	6	Start key switch	S814-006100	-
CS-4	DEUTSCH	3	Safety switch	DT06-3S-EP06	-
CS-5	DEUTSCH	2	Horn switch	-	DT04-2P-E005
CS-19	DEUTSCH	2	One touch decel switch	-	DT04-2P-E005
CS-20	AMP	1	Safety switch	S822-014002	-
CS-23	SWF	12	Beacon lamp switch	SWF589790	-
CS-26	DEUTSCH	2	Breaker switch	DT06-2S-EP06	-
CS-26A	AMP	2	Breaker pedal switch	S816-002002	S816-102002
CS-27	SWF	10	Breaker switch	SWF 593757	-
CS-29	DEUTSCH	2	Power max switch	DT06-2S-EP06	-
CS-33	AMP	6	Emergency engine stop switch	S816-006002	S816-106002
CS-50	SWF	12	Overload switch	SWF589790	-
CS-53	AMP	1	Wiper cut switch	S822-014002	-
CS-67	SWF	12	Quick clamp switch	SWF 589790	-
CS-74A	AMP	2	Master switch	S813-030201	-
CS-74B	DEUTSCH	2	Master switch	DT06-2S-EP06	-
CS-82	SWF	12	Heated seat switch	SWF 589790	-
CS-83	SWF	12	Spare switch	SWF589790	-
CS-99	SWF	12	Spare switch	SWF 589790	-
CS-100	SWF	12	Spare switch	SWF 589790	-
· Light					
CL-1	KET	3	Room lamp	MG651032	-
CL-2	AMP	1	Cigar light	S822-014002	S822-114002
CL-3	DEUTSCH	2	Head lamp-LH	DT06-2S-EP06	DT04-2P-E005
CL-4	DEUTSCH	2	Head lamp-RH	DT06-2S-EP06	DT04-2P-E005
CL-5	AMP	2	Work lamp-LH	180923-0	-
CL-6	AMP	2	Work lamp-RH	180923-0	-
CL-7	SHUR	1	Beacon lamp	S822-014002	S822-114002
CL-8	DEUTSCH	2	Cab light-LH	DT06-2S-EP06	DT-2P
CL-9	DEUTSCH	2	Cab light-RH	DT06-2S-EP06	DT04-2P

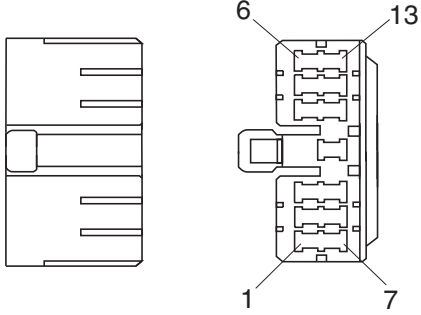
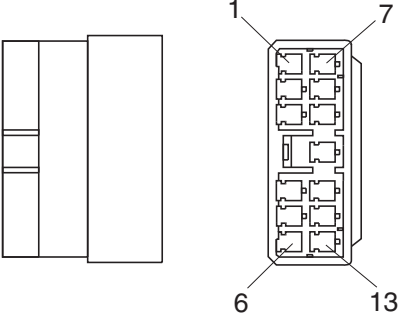
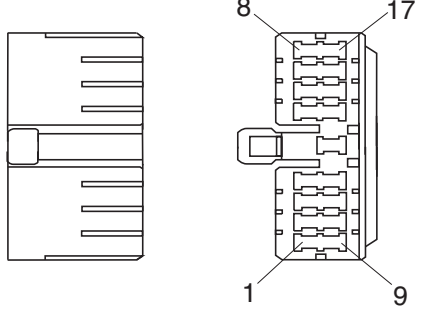
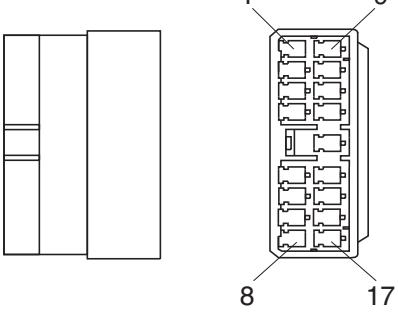
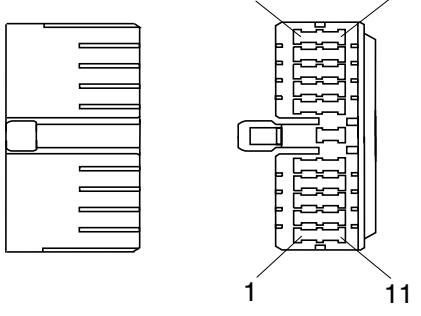
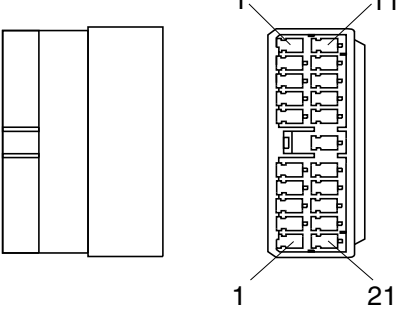


Connector number	Type	No. of pin	Destination	Connector part No.	
				Female	Male
· Sensor, sender					
CD-1	AMP	2	Hydraulic oil temp sender	85202-1	-
CD-2	DEUTSCH	2	Fuel level sender	DT06-2S-EP06	-
CD-6	DEUTSCH	3	Travel pressure sensor	DT06-3S-EP06	-
CD-7	DEUTSCH	3	Working pressure sensor	DT06-3S-EP06	-
CD-8	AMP	2	Water temperature sender	85202-1	-
CD-10	RING TERM	-	Air cleaner switch	ST730135-2	-
CD-17	-	2	Speed sensor	-	S818-120221
CD-18	RING TERM	1	Engine oil pressure switch	S820-104000	-
CD-24	DEUTSCH	3	Swing sensor	DT06-3S-EP06	-
CD-31	AMP	3	Overload sensor	S816-003002	S816-103002
CD-32	DEUTSCH	3	Boom up sensor	DT06-3S-EP06	-
CD-42	DEUTSCH	3	Pump pressure 1	DT06-3S-EP06	-
CD-43	DEUTSCH	3	Pump pressure 2	DT06-3S-EP06	-
CD-44	DEUTSCH	3	Pump pressure 3	DT06-3S-EP06	-
CD-69	DEUTSCH	3	Attach pressure sensor	DT06-3S-EP06	-

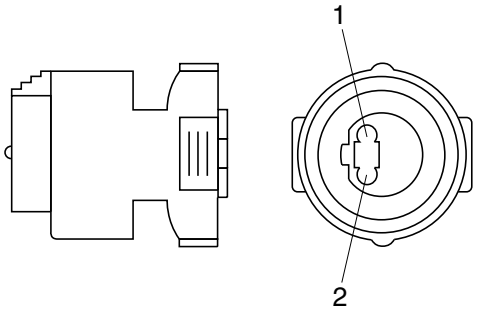
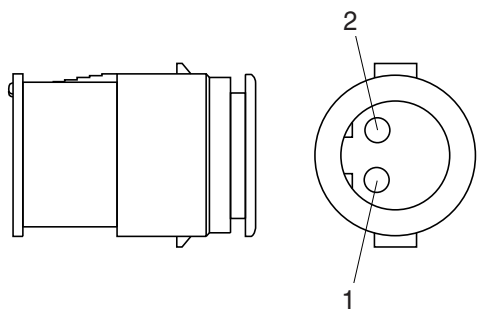
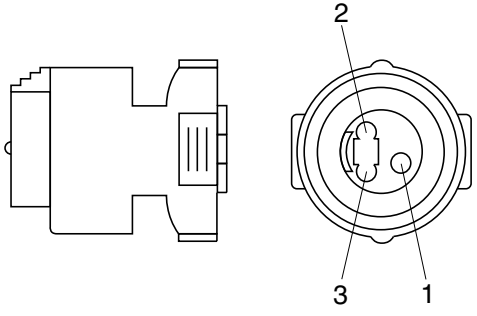
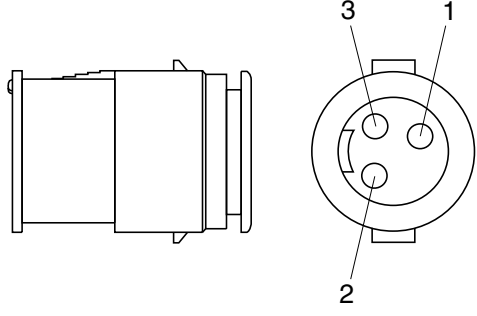
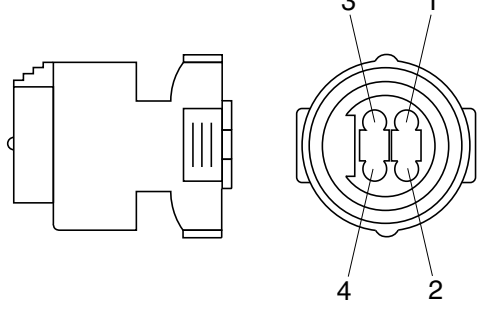
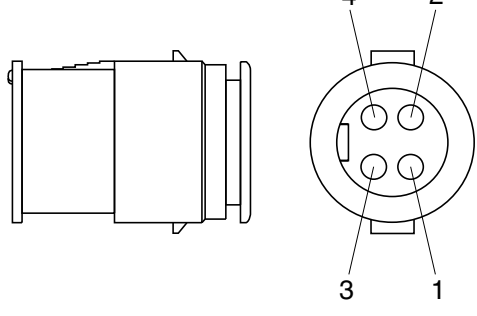
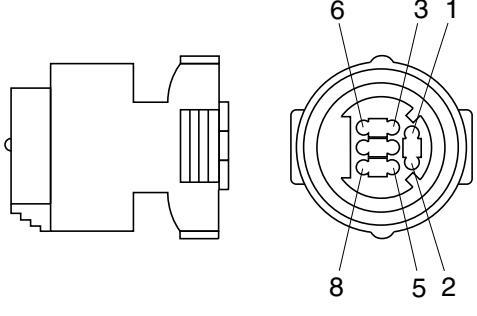
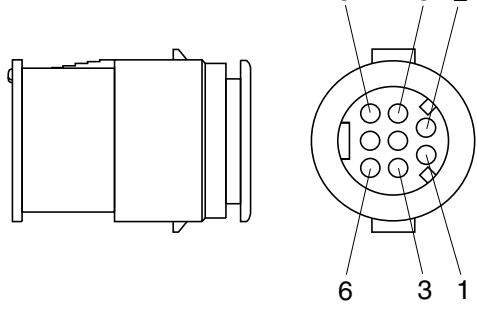
## 2. CONNECTION TABLE FOR CONNECTORS

### 1) PA TYPE CONNECTOR

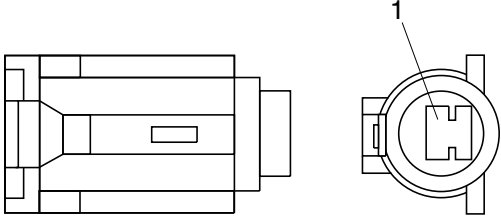
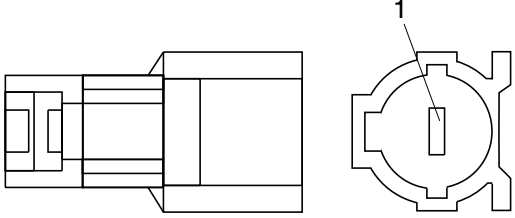
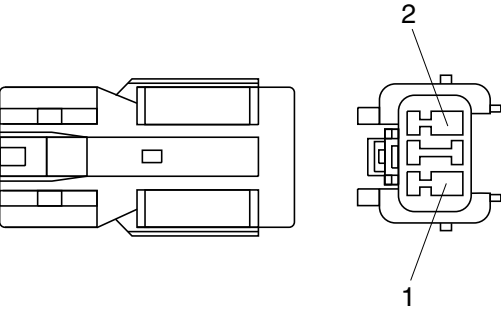
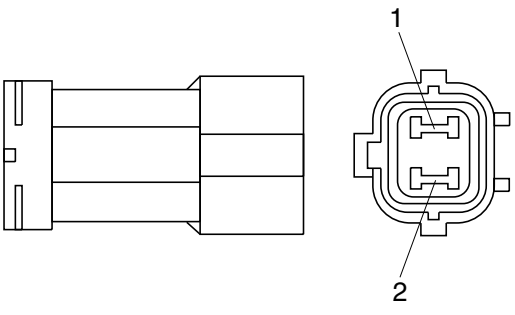
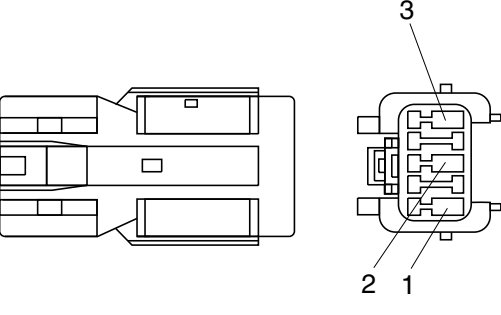
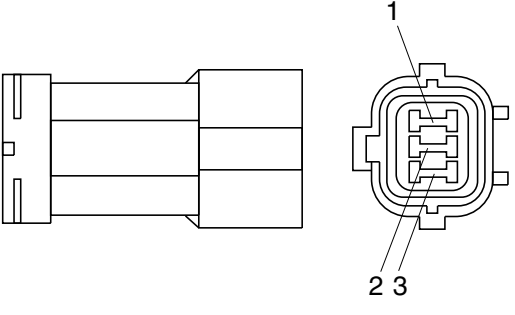
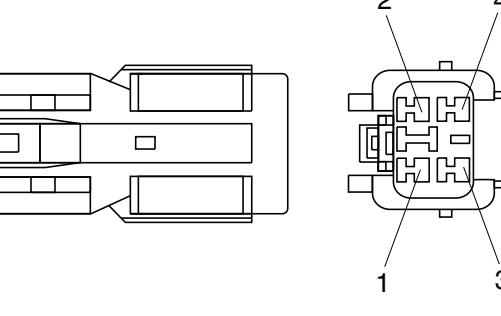
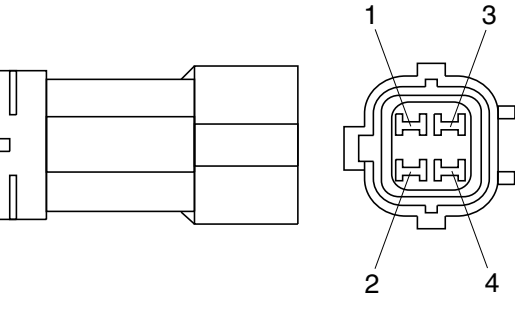
No. of pin	Receptacle connector (female)	Plug connector (male)
5	 <p data-bbox="687 734 836 768">S811-005002</p>	 <p data-bbox="1241 734 1390 768">S811-105002</p>
7	 <p data-bbox="687 1144 836 1178">S811-007002</p>	 <p data-bbox="1241 1144 1390 1178">S811-107002</p>
9	 <p data-bbox="687 1554 836 1588">S811-009002</p>	 <p data-bbox="1230 1554 1378 1588">3S811-109002</p>
11	 <p data-bbox="687 1964 836 1998">S811-011002</p>	 <p data-bbox="1241 1964 1390 1998">S811-111002</p>

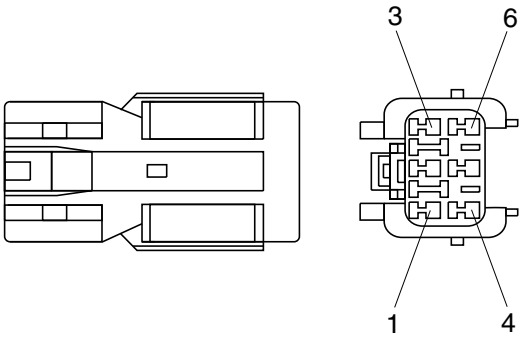
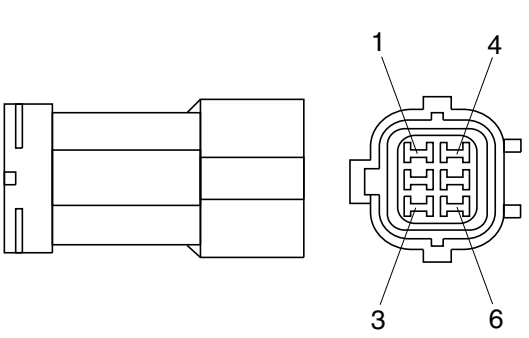
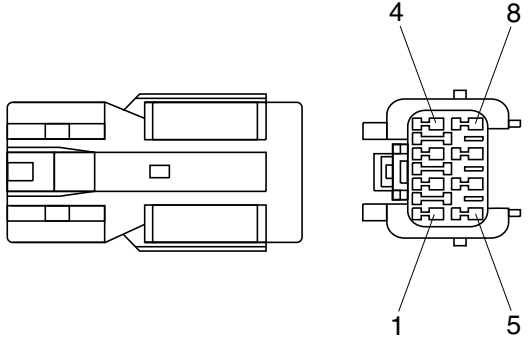
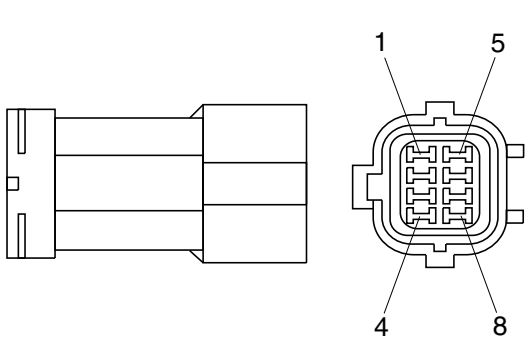
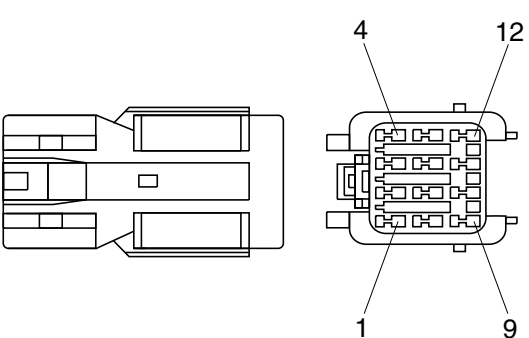
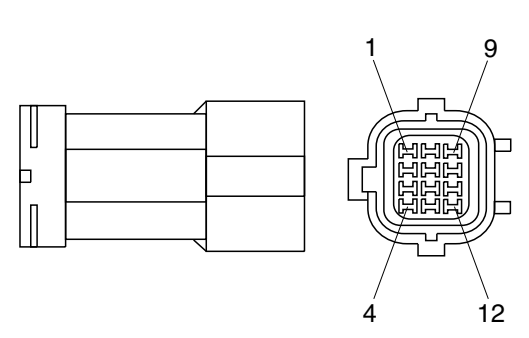
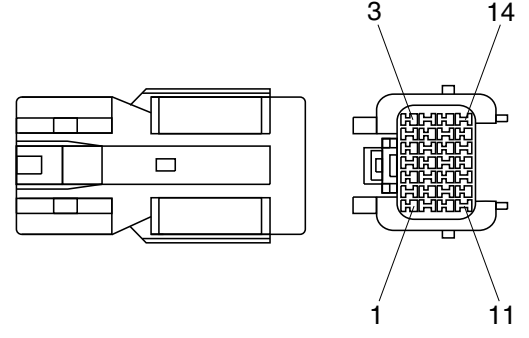
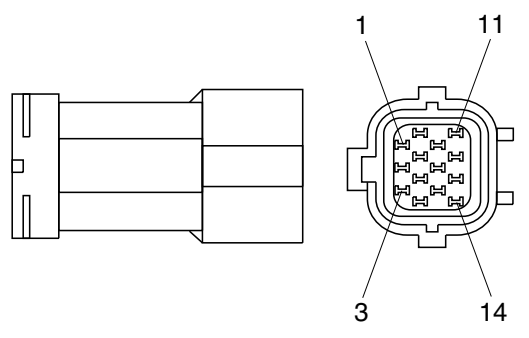
No. of pin	Receptacle connector (female)	Plug connector (male)
13	 <p data-bbox="689 638 837 674">S811-013002</p>	 <p data-bbox="1248 638 1396 674">S811-113002</p>
17	 <p data-bbox="689 1048 837 1084">S811-017002</p>	 <p data-bbox="1248 1048 1396 1084">S811-117002</p>
21	 <p data-bbox="689 1458 837 1494">S811-021002</p>	 <p data-bbox="1248 1458 1396 1494">S811-121002</p>

## 2) J TYPE CONNECTOR

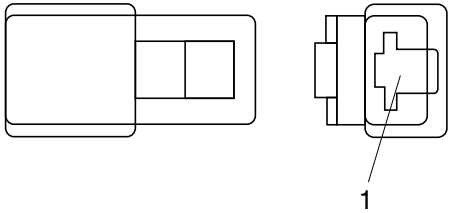
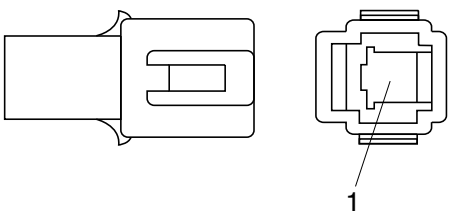
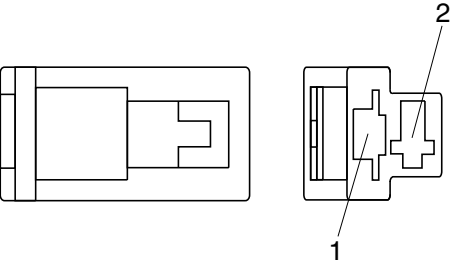
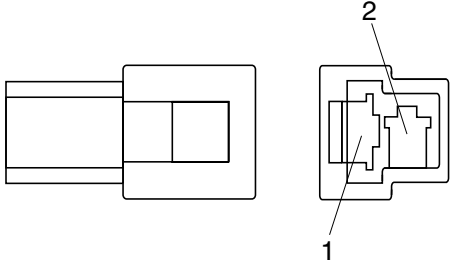
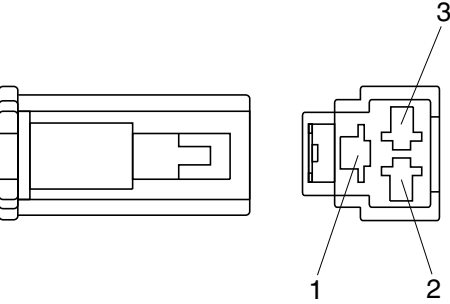
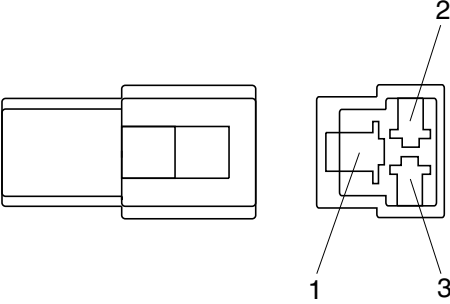
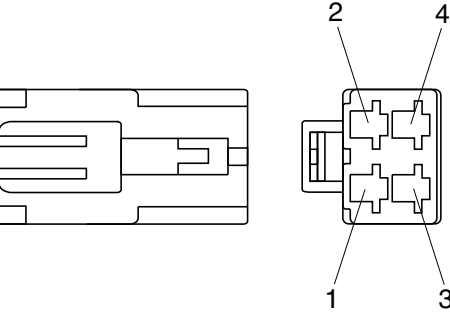
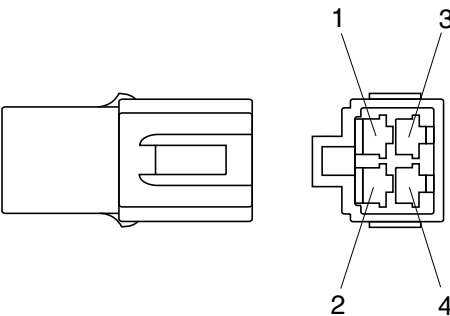
No. of pin	Receptacle connector (female)	Plug connector (male)
2	 <p style="text-align: center;">S816-002001</p>	 <p style="text-align: center;">S816-102001</p>
3	 <p style="text-align: center;">S816-003001</p>	 <p style="text-align: center;">S816-103001</p>
4	 <p style="text-align: center;">S816-004001</p>	 <p style="text-align: center;">S816-104001</p>
8	 <p style="text-align: center;">S816-008001</p>	 <p style="text-align: center;">S816-108001</p>

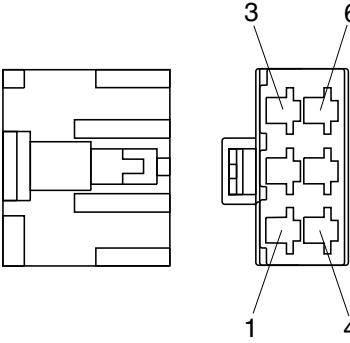
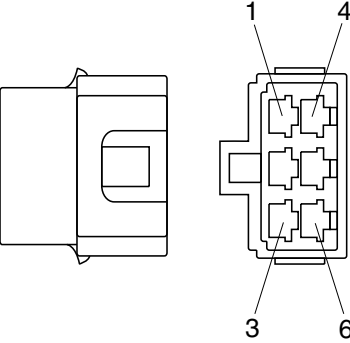
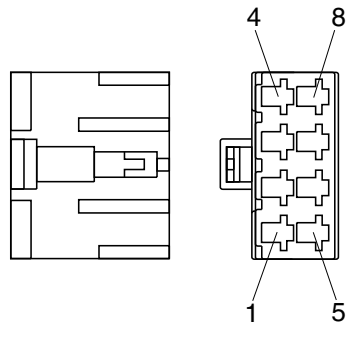
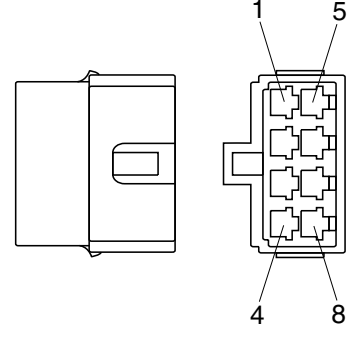
### 3) SWP TYPE CONNECTOR

No. of pin	Receptacle connector (female)	Plug connector (male)
1	 <p data-bbox="687 685 836 712">S814-001000</p>	 <p data-bbox="1241 685 1390 712">S814-101000</p>
2	 <p data-bbox="687 1088 836 1115">S814-002000</p>	 <p data-bbox="1241 1088 1390 1115">S814-102000</p>
3	 <p data-bbox="687 1498 836 1525">S814-003000</p>	 <p data-bbox="1241 1498 1390 1525">S814-103000</p>
4	 <p data-bbox="687 1908 836 1935">S814-004000</p>	 <p data-bbox="1241 1908 1390 1935">S814-104000</p>

No. of pin	Receptacle connector (female)	Plug connector (male)
6	 <p data-bbox="686 638 837 674">S814-006000</p>	 <p data-bbox="1236 638 1391 674">S814-106000</p>
8	 <p data-bbox="686 1048 837 1084">S814-008000</p>	 <p data-bbox="1236 1048 1391 1084">S814-108000</p>
12	 <p data-bbox="686 1458 837 1494">S814-012000</p>	 <p data-bbox="1236 1458 1391 1494">S814-112000</p>
14	 <p data-bbox="686 1868 837 1895">S814-014000</p>	 <p data-bbox="1236 1868 1391 1895">S814-114000</p>

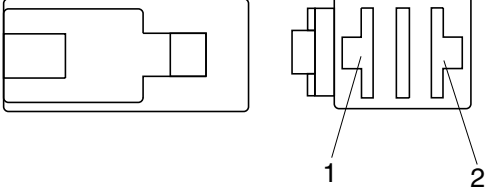
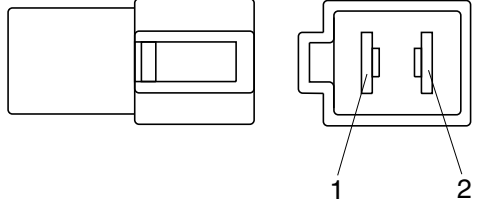
#### 4) CN TYPE CONNECTOR

No. of pin	Receptacle connector (female)	Plug connector (male)
1	 <p style="text-align: center;">S810-001202</p>	 <p style="text-align: center;">S810-101202</p>
2	 <p style="text-align: center;">S810-002202</p>	 <p style="text-align: center;">S810-102202</p>
3	 <p style="text-align: center;">S810-003202</p>	 <p style="text-align: center;">S810-103202</p>
4	 <p style="text-align: center;">S810-004202</p>	 <p style="text-align: center;">S810-104202</p>

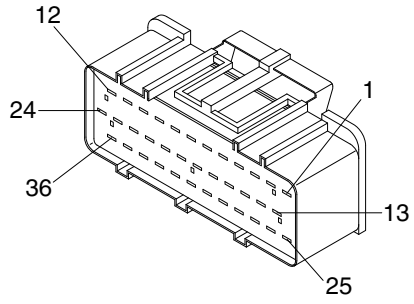
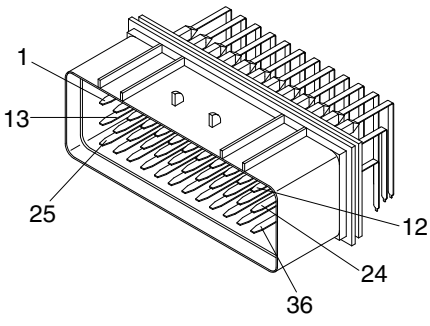
No. of pin	Receptacle connector (female)	Plug connector (male)
6	 <p data-bbox="686 638 837 672">S810-006202</p>	 <p data-bbox="1244 638 1396 672">S810-106202</p>
8	 <p data-bbox="686 1048 837 1081">S810-008202</p>	 <p data-bbox="1244 1048 1396 1081">S810-108202</p>



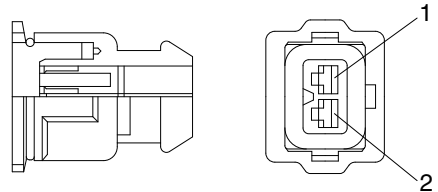
### 5) 375 FASTEN TYPE CONNECTOR

No. of pin	Receptacle connector (female)	Plug connector (male)
2	 <p style="text-align: right;">S810-002402</p>	 <p style="text-align: right;">S810-102402</p>

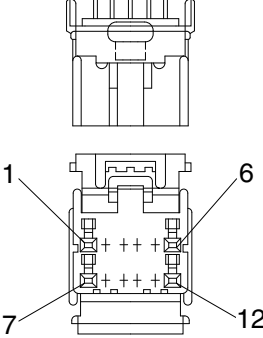
### 6) AMP ECONOSEAL CONNECTOR

No. of pin	Receptacle connector (female)	Plug connector (male)
36	 <p style="text-align: right;">344111-1</p>	 <p style="text-align: right;">344108-1</p>

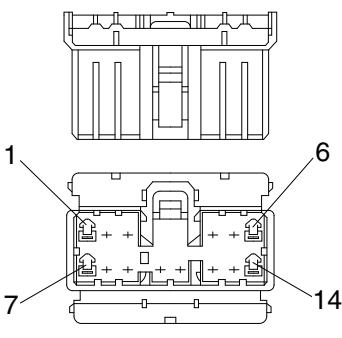
### 7) AMP TIMER CONNECTOR

No. of pin	Receptacle connector (female)	Plug connector (male)
2	 <p style="text-align: right;">85202-1</p>	

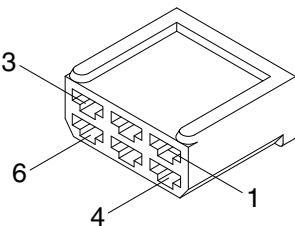
### 8) AMP 040 MULTILOCK CONNECTOR

No. of pin	Receptacle connector (female)	Plug connector (male)
12	 <p style="text-align: right;">174045-2</p>	

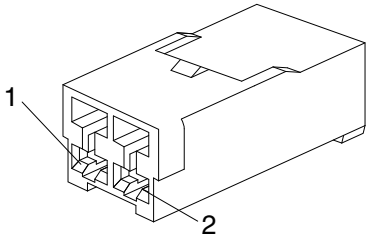
### 9) AMP 070 MULTILOCK CONNECTOR

No. of pin	Receptacle connector (female)	Plug connector (male)
14	 <p style="text-align: right;">173852</p>	

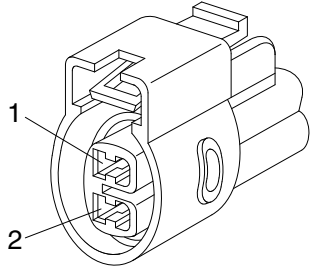
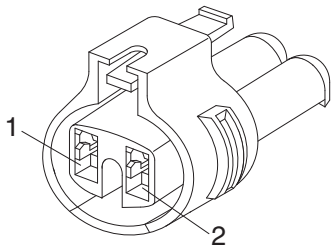
### 10) AMP FASTIN - FASTON CONNECTOR

No. of pin	Receptacle connector (female)	Plug connector (male)
6	 <p style="text-align: right;">925276-0</p>	

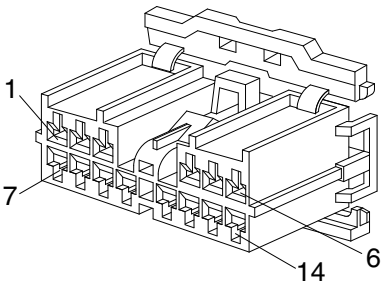
### 11) KET 090 CONNECTOR

No. of pin	Receptacle connector (female)	Plug connector (male)
2	 <p style="text-align: right;">MG610070</p>	

### 12) KET 090 WP CONNECTORS

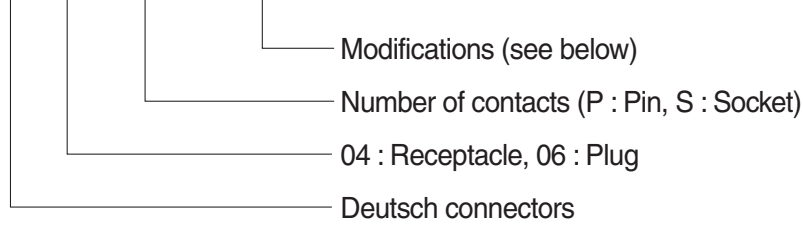
No. of pin	Receptacle connector (female)	Plug connector (male)
2	 <p style="text-align: right;">MG640605</p>	
2	 <p style="text-align: right;">MG640795</p>	

### 13) KET SDL CONNECTOR

No. of pin	Receptacle connector (female)	Plug connector (male)
14	 <p data-bbox="710 683 837 705">MG610406</p>	

## 14) DEUTSCH DT CONNECTORS

DT 06 - 3S - ★★☆☆



※ Modification

E003 : Standard end cap - gray

E004 : Color of connector to be black

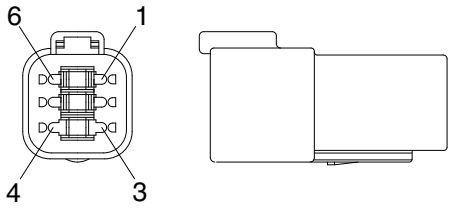
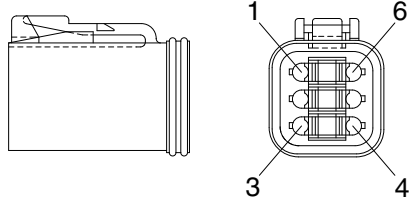
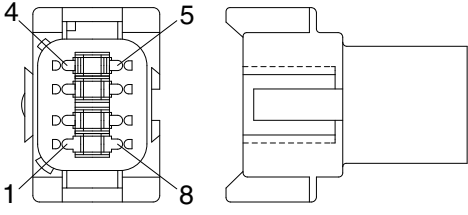
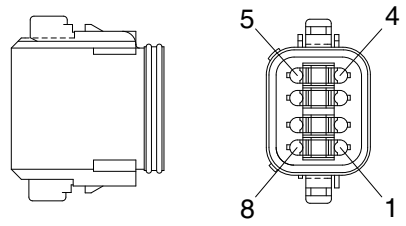
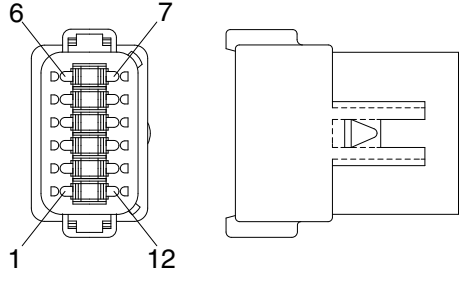
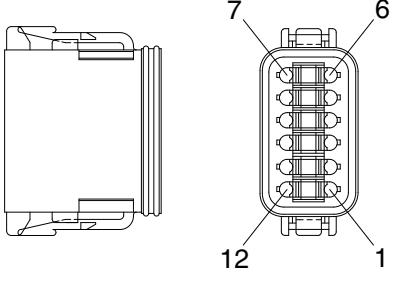
E005 : Combination - E004 & E003

EP04 : End cap

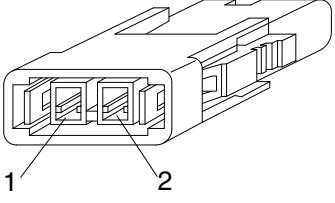
EP06 : Combination P012 & EP04

P012 : Front seal enhancement - connectors color to black for 2, 3, 4 & 6pin

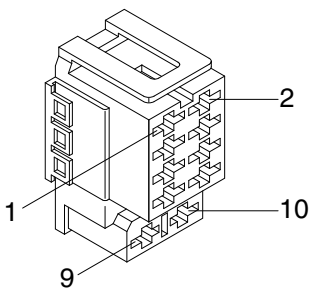
No. of pin	Receptacle connector (female)	Plug connector (male)
2	<p>DT06-2S</p>	<p>DT04-2P</p>
3	<p>DT06-3S</p>	<p>DT04-3P</p>
4	<p>DT06-4S</p>	<p>DT04-4P</p>

No. of pin	Receptacle connector (female)	Plug connector (male)
6	 <p style="text-align: right;">DT06-6S</p>	 <p style="text-align: right;">DT04-6P</p>
8	 <p style="text-align: right;">DT06-8S</p>	 <p style="text-align: right;">DT04-8P</p>
12	 <p style="text-align: right;">DT06-12S</p>	 <p style="text-align: right;">DT04-12P</p>

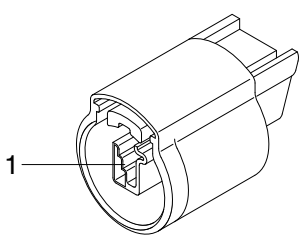
### 15) MOLEX 2CKTS CONNECTOR

No. of pin	Receptacle connector (female)	Plug connector (male)
2	 <p data-bbox="702 683 837 705">35215-0200</p>	

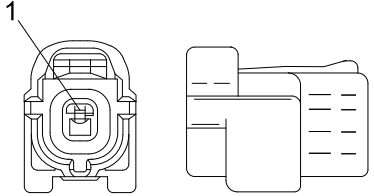
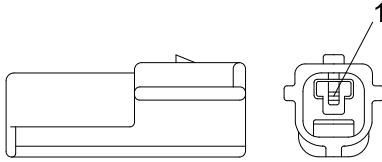
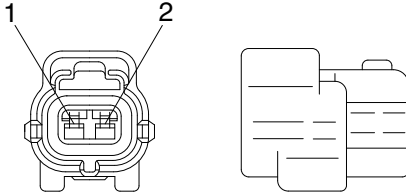
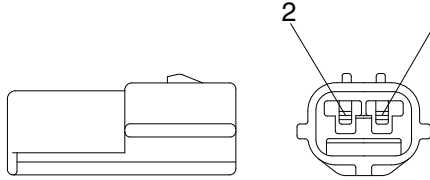
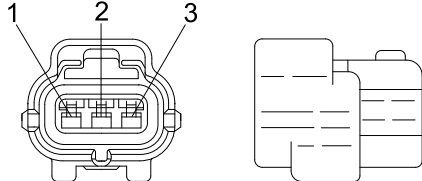
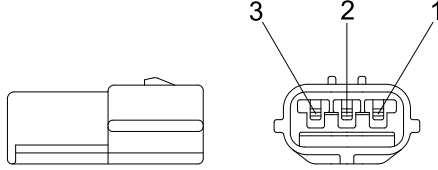
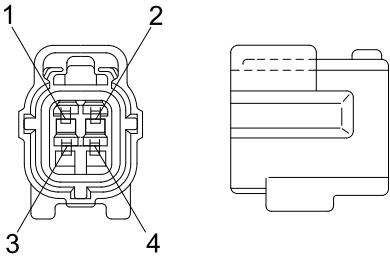
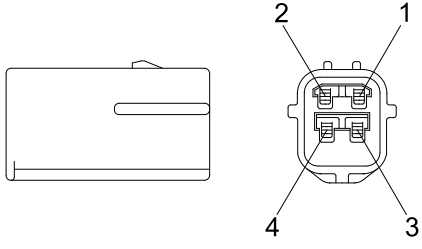
### 16) ITT SWF CONNECTOR

No. of pin	Receptacle connector (female)	Plug connector (male)
10	 <p data-bbox="694 1288 837 1310">SWF593757</p>	

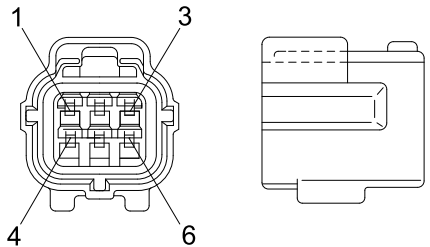
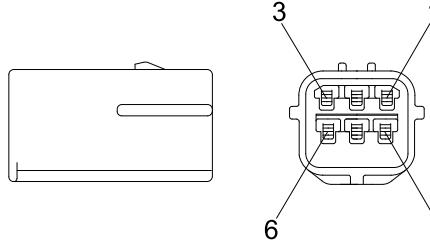
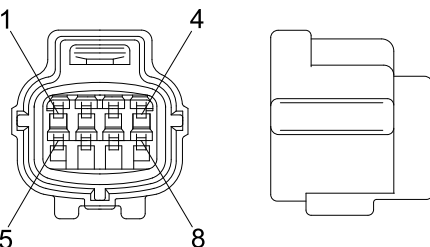
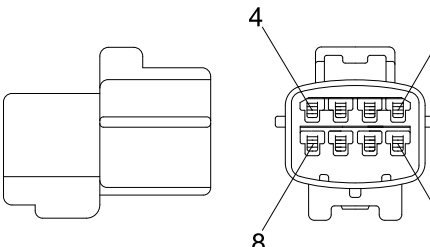
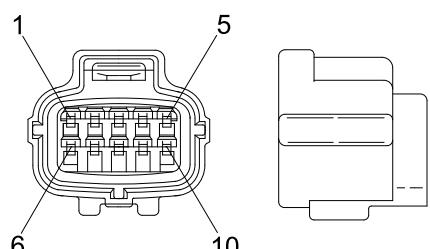
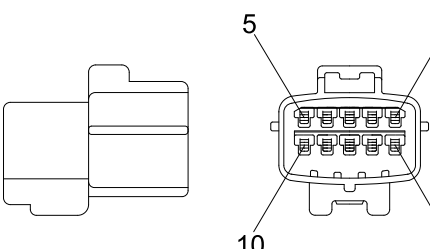
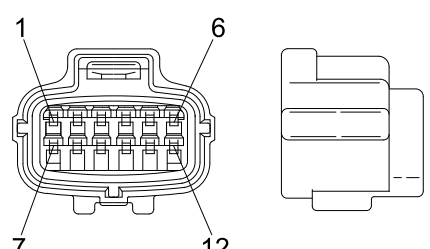
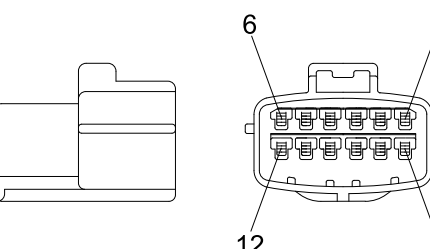
### 17) MWP NMWP CONNECTOR

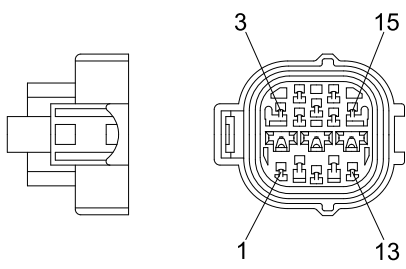
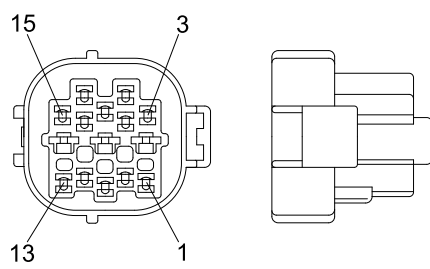
No. of pin	Receptacle connector (female)	Plug connector (male)
1	 <p data-bbox="686 1892 837 1915">NMWP01F-B</p>	

### 18) ECONOSEAL J TYPE CONNECTORS

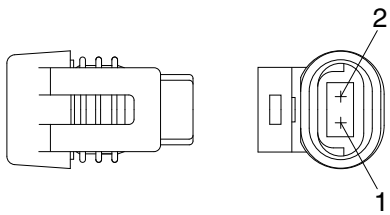
No. of pin	Receptacle connector (female)	Plug connector (male)
1	 <p style="text-align: right;">S816-001002</p>	 <p style="text-align: left;">S816-101002</p>
2	 <p style="text-align: right;">S816-002002</p>	 <p style="text-align: left;">S816-102002</p>
3	 <p style="text-align: right;">S816-003002</p>	 <p style="text-align: left;">S816-103002</p>
4	 <p style="text-align: right;">S816-004002</p>	 <p style="text-align: left;">S816-104002</p>



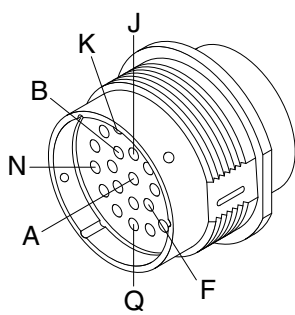
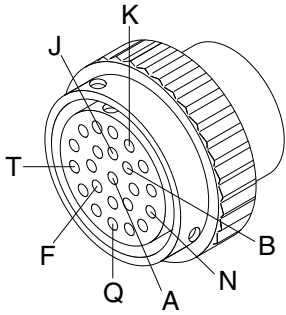
No. of pin	Receptacle connector (female)	Plug connector (male)
6	 <p style="text-align: center;">S816-006002</p>	 <p style="text-align: center;">S816-106002</p>
8	 <p style="text-align: center;">S816-008002</p>	 <p style="text-align: center;">S816-108002</p>
10	 <p style="text-align: center;">S816-010002</p>	 <p style="text-align: center;">S816-110002</p>
12	 <p style="text-align: center;">S816-012002</p>	 <p style="text-align: center;">S816-112002</p>

No. of pin	Receptacle connector (female)	Plug connector (male)
15	 <p data-bbox="726 638 837 672">368301-1</p>	 <p data-bbox="1268 638 1380 672">2-85262-1</p>

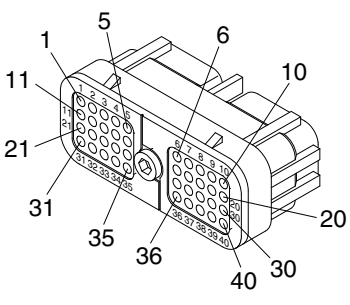
### 19) METRI-PACK TYPE CONNECTOR

No. of pin	Receptacle connector (female)	Plug connector (male)
2	 <p data-bbox="726 1243 837 1276">12040753</p>	

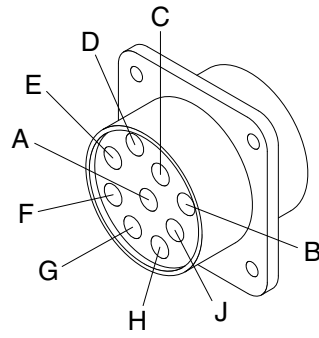
### 20) DEUTSCH HD30 CONNECTOR

No. of pin	Receptacle connector (female)	Plug connector (male)
23	 <p data-bbox="662 1848 837 1881">HD36-24-23SN</p>	 <p data-bbox="1220 1848 1396 1881">HD34-24-23PN</p>

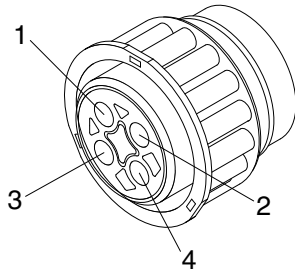
### 21) DEUTSCH MCU CONNECTOR

No. of pin	Receptacle connector (female)	Plug connector (male)
40	 <p style="text-align: right;">DRC26-40SA/B</p>	

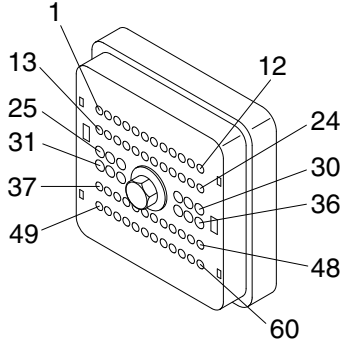
### 22) DEUTSCH SERVICE TOOL CONNECTOR

No. of pin	Receptacle connector (female)	Plug connector (male)
9	 <p style="text-align: right;">HD10-9-96P</p>	

### 23) AMP FUEL WARMER CONNECTOR

No. of pin	Receptacle connector (female)	Plug connector (male)
4	 <p style="text-align: right;">2-967325-3</p>	

## 24) DEUTSCH INTERMEDIATE CONNECTOR

No. of pin	Receptacle connector (female)	Plug connector (male)
60	 <p style="text-align: center;">DRB16-60SAE-L018</p>	