

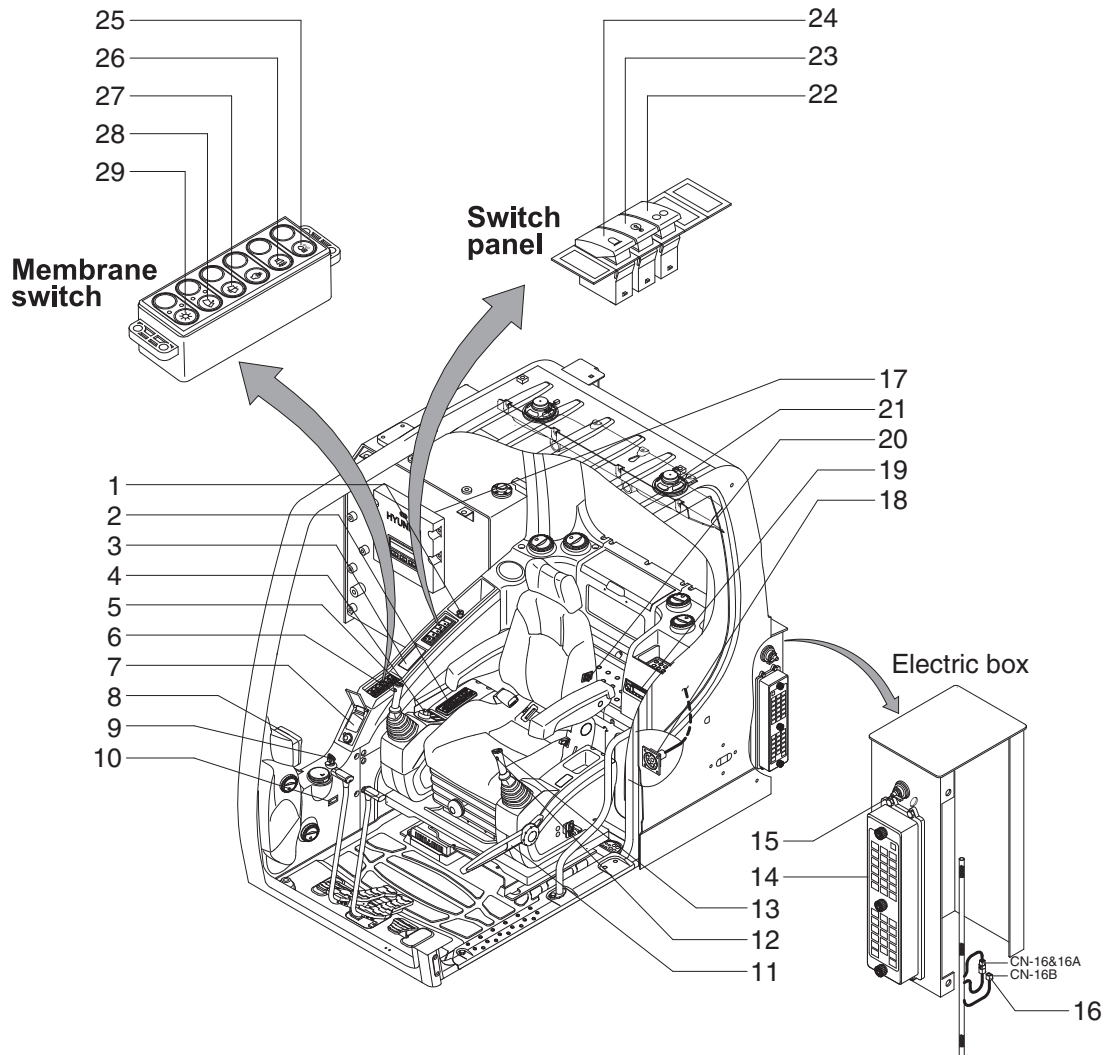
## SECTION 4 ELECTRICAL SYSTEM

|                                                  |      |
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# SECTION 4 ELECTRICAL SYSTEM

## GROUP 1 COMPONENT LOCATION

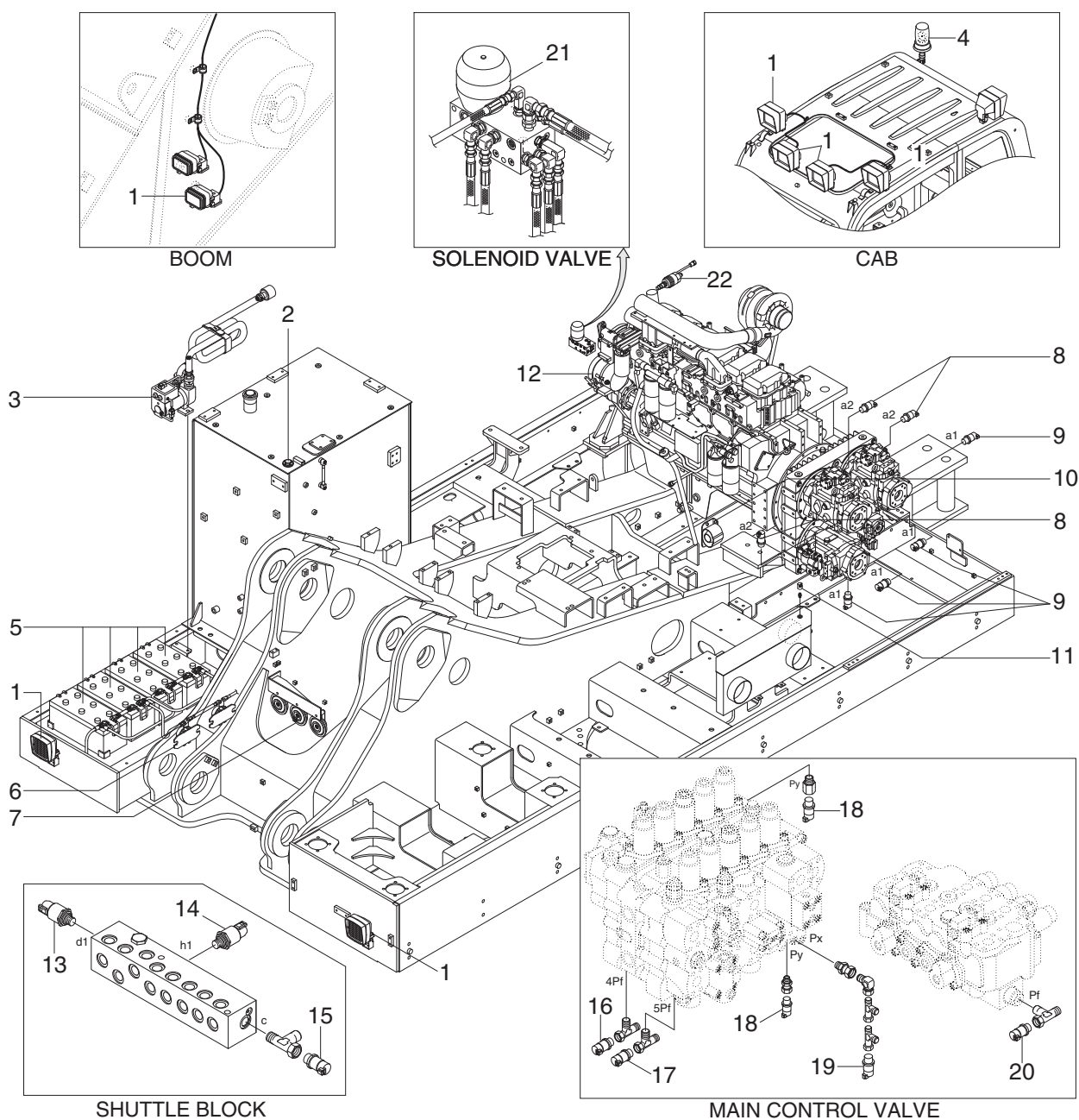
### 1. LOCATION 1



120094EL01

|                                |                                 |                                      |
|--------------------------------|---------------------------------|--------------------------------------|
| 1 Cigar light                  | 11 Safety lever                 | 21 Speaker                           |
| 2 Aircon & heater switch panel | 12 Power max switch             | 22 Central grease lubrication switch |
| 3 Remote controller            | 13 One touch decel switch       | 23 Overload switch                   |
| 4 Accel dial switch            | 14 Fuse box                     | 24 Beacon switch                     |
| 5 Horn switch                  | 15 Master switch                | 25 Cab light switch                  |
| 6 Breaker operation sw (null)  | 16 Emergency engine connector   | 26 Travel alarm switch               |
| 7 Handsfree                    | 17 MCU                          | 27 Washer switch                     |
| 8 Cluster                      | 18 RS232 & J1939 service socket | 28 Wiper switch                      |
| 9 Starting switch              | 19 Radio & USB player           | 29 Main light switch                 |
| 10 Service meter               | 20 Heated seat switch           |                                      |

## 2. LOCATION 2

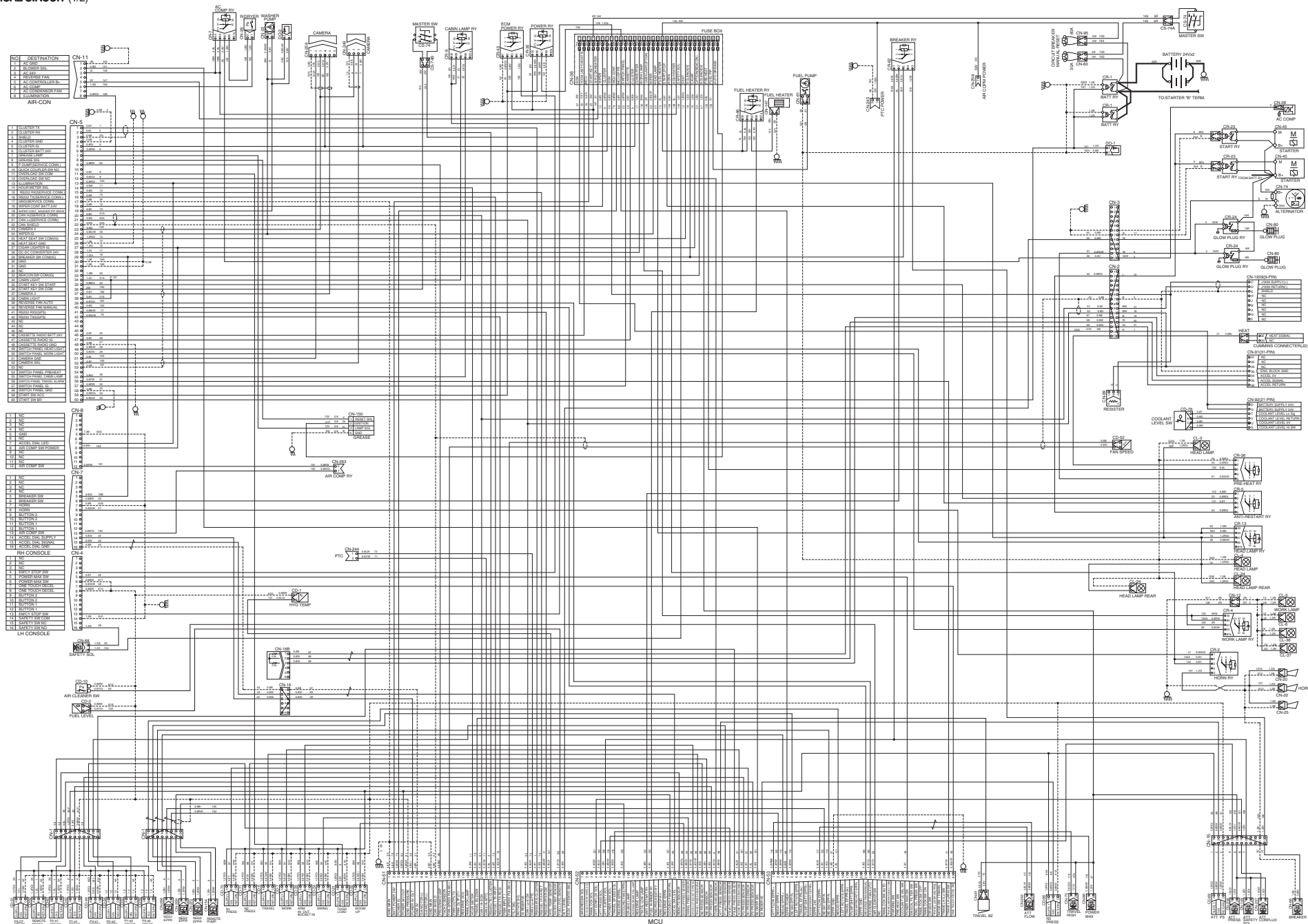


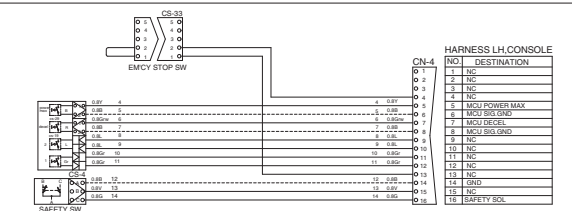
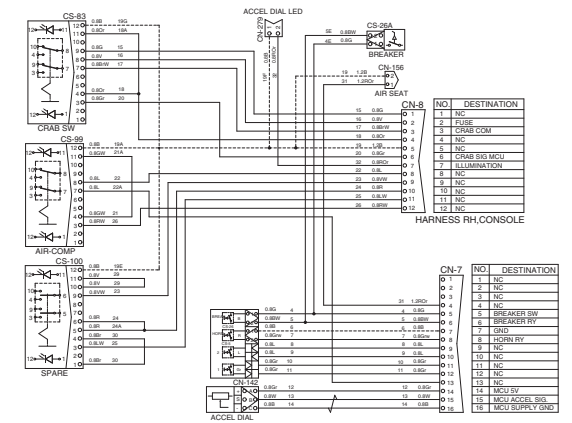
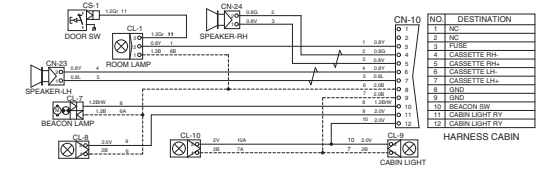
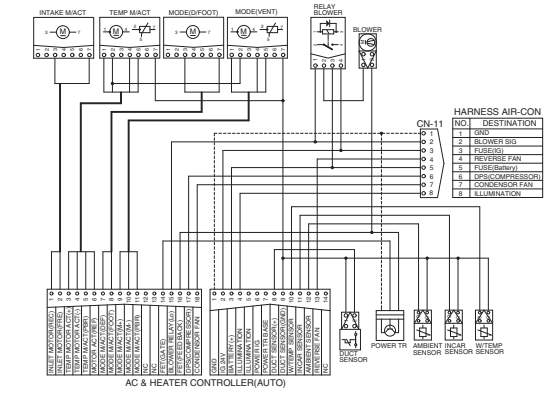
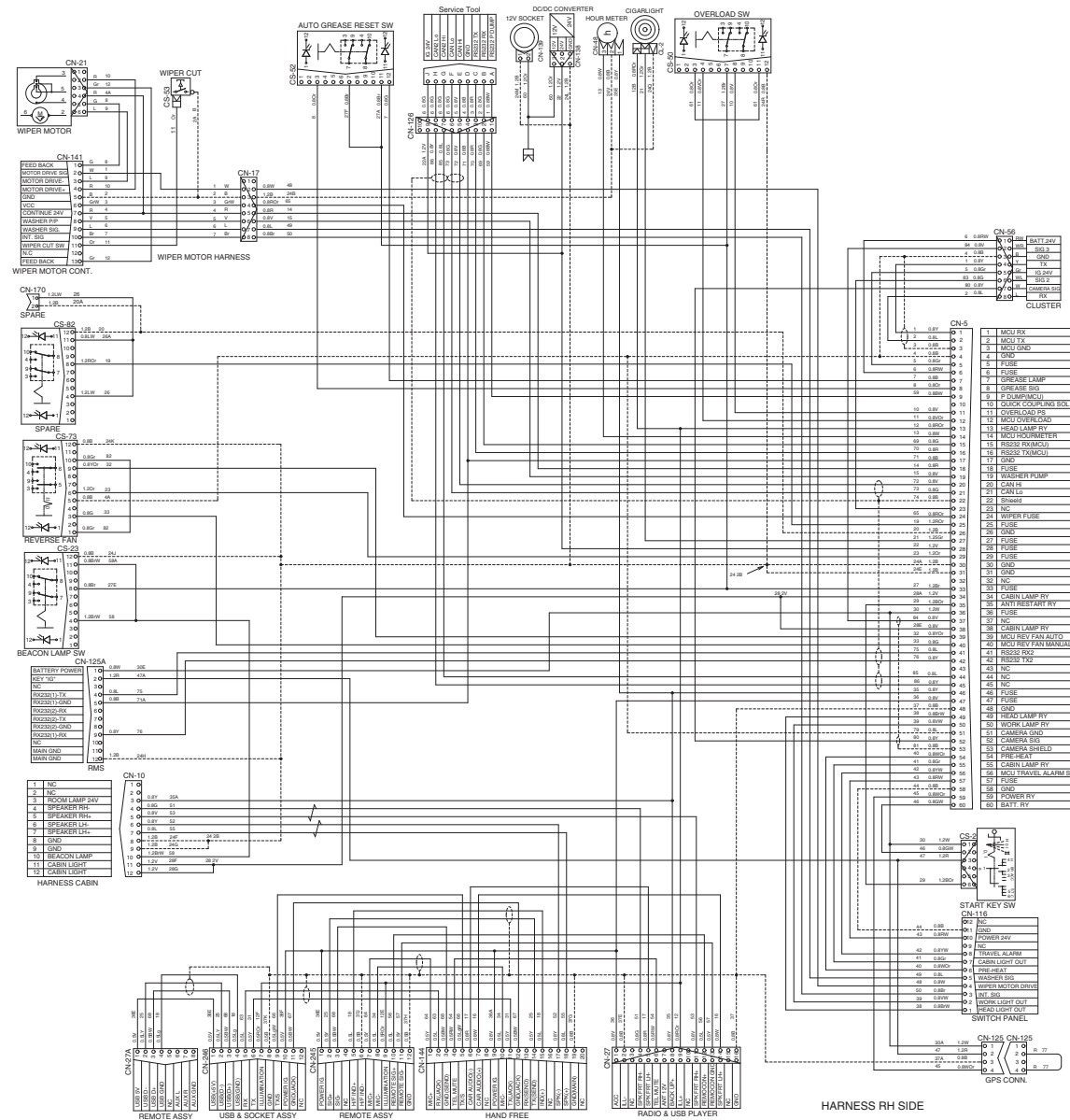
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- |                          |                                    |                                   |
|--------------------------|------------------------------------|-----------------------------------|
| 1 Lamp                   | 9 EPPR pressure sensor             | 16 Nega control 1 pressure sensor |
| 2 Fuel sender            | 10 Travel alarm buzzer             | 17 Nega control 2 pressure sensor |
| 3 Fuel filler pump       | 11 Air cleaner switch              | 18 Attach pressure sensor         |
| 4 Beacon lamp            | 12 Alternator                      | 19 Travel pressure sensor         |
| 5 Battery                | 13 Arm / bucket in pressure sensor | 20 Nega control pressure sensor   |
| 6 Battery relay          | 14 Boom up pressure sensor         | 21 Solenoid valve                 |
| 7 Horn                   | 15 Swing pressure sensor           | 22 Pump EPPR valve                |
| 8 P1, P2 pressure sensor |                                    |                                   |

# GROUP 2 ELECTRICAL CIRCUIT

## ELECTRICAL CIRCUIT (1/2)





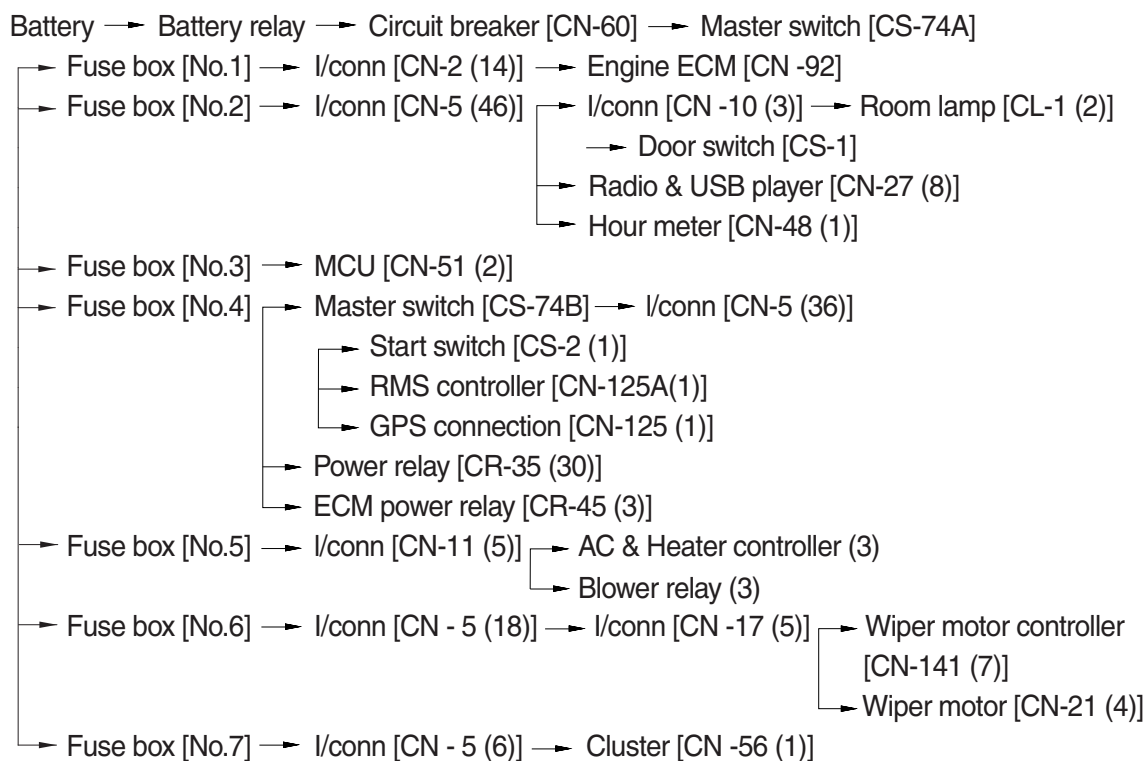
## MEMORANDUM

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

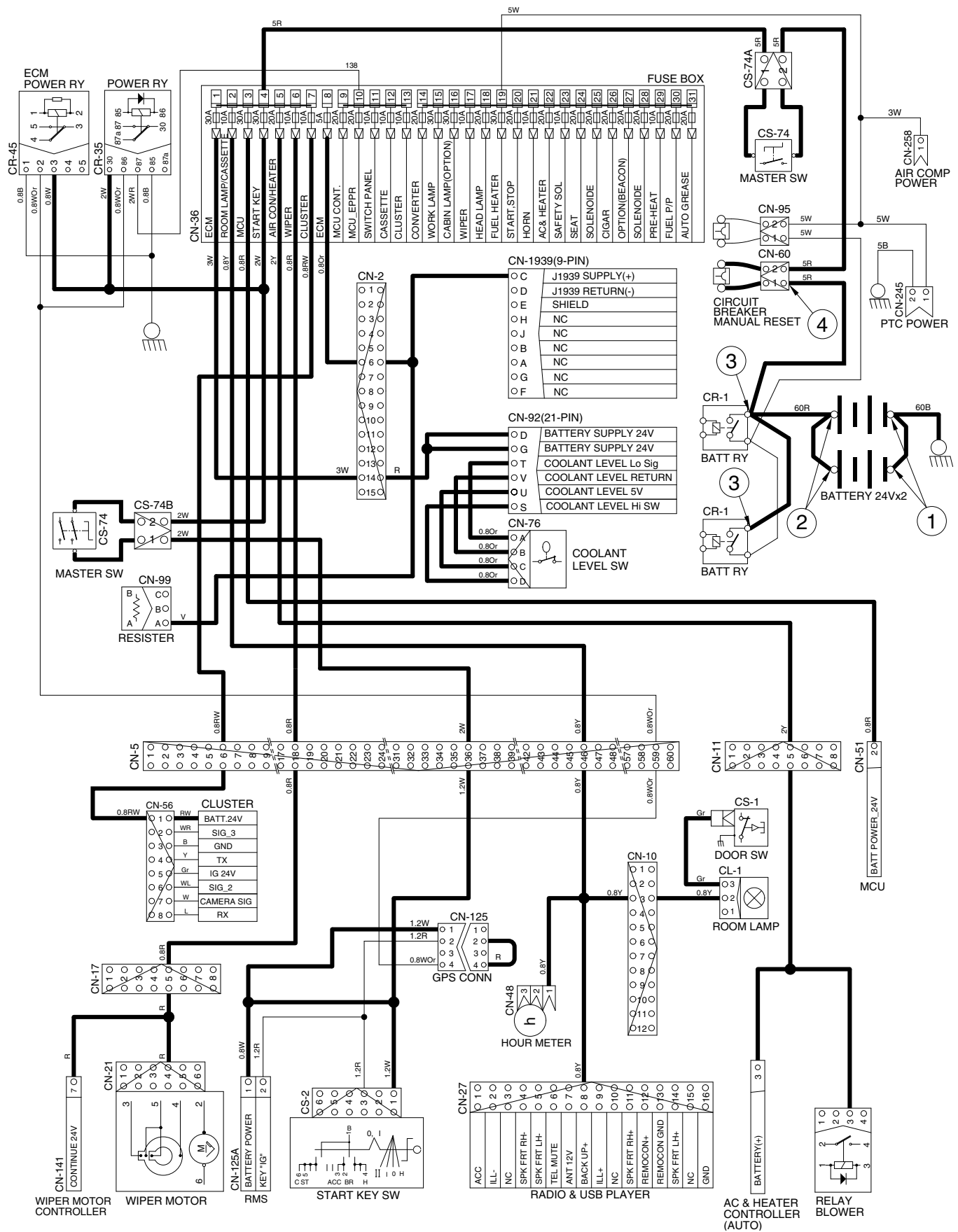
### 2) CHECK POINT

| Engine | Start switch | Check point               | Voltage  |
|--------|--------------|---------------------------|----------|
| OFF    | OFF          | ① - GND (battery)         | 10~12.5V |
|        |              | ② - GND (battery)         | 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



120094EL05

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

## 2. STARTING CIRCUIT

### 1) OPERATING FLOW

Battery(+) terminal → Battery relay [CR-1] → Circuit breaker [CN-60] → Master switch [CS-74A]  
 → 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)] → GPS conn [CN-125 (2) → (4)] → I/conn [CN-5 (59)]  
 → Power relay [CR-35 (86) → (87)] → Fuse box [No.10]  
 → ECM power relay [CR-45 (2) → (5)] → I/conn [CN-4 (4)] →  
 Emergency stop switch [CS-33 (2) → (1)] → I/conn [CN-4 (13)] → Fuse box [No.8]

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

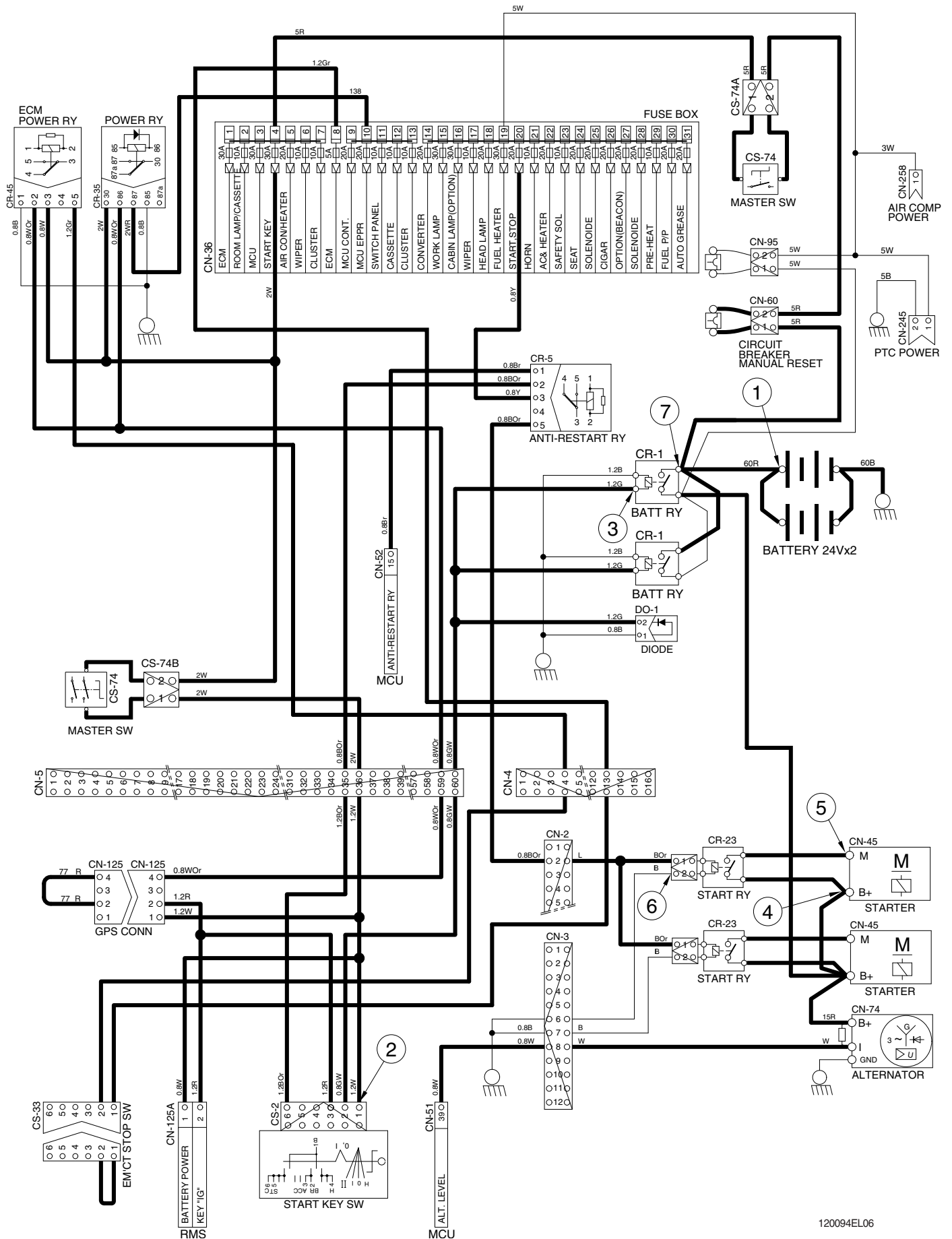
Start switch START [CS-2 (6)] → I/conn [CN-5 (35)] → Anti-restart relay [CR-5 (2) → (5)]  
 → I/conn [CN-2 (2)] → Start relay [CR-23]

### 2) CHECK POINT

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

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

# STARTING CIRCUIT



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

### 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 "I" terminal → I/conn [CN-3 (10)] → MCU alternator level [CN-51 (39)]

→ Cluster charging warning lamp(Via serial interface)

##### (2) Charging flow

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

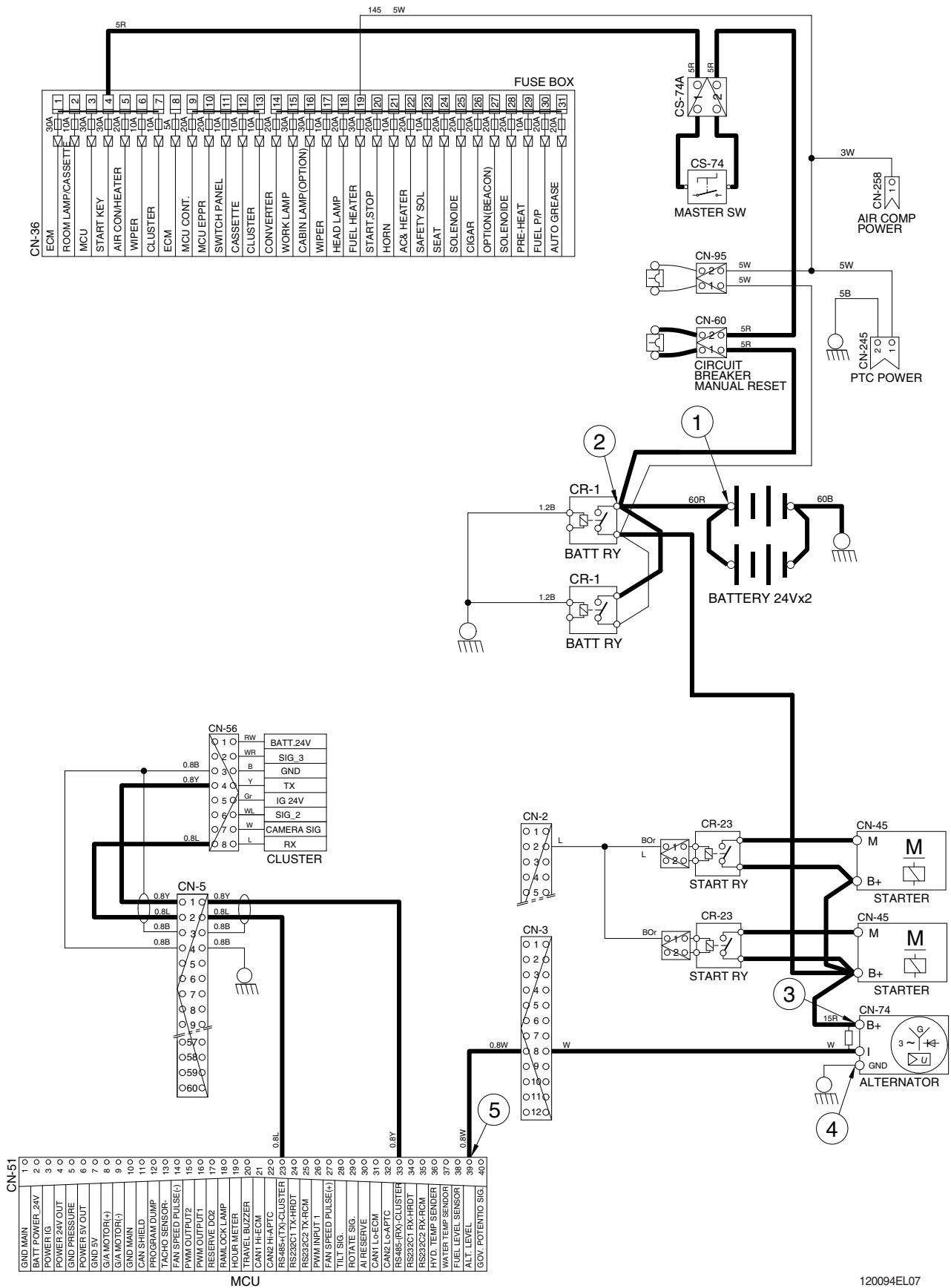
#### 2) CHECK POINT

| Engine | Start switch | Check point                                                                                                                                              | Voltage |
|--------|--------------|----------------------------------------------------------------------------------------------------------------------------------------------------------|---------|
| RUN    | ON           | ① - GND (battery voltage)<br>② - GND (battery relay)<br>③ - GND (alternator B <sup>+</sup> terminal)<br>④ - GND (alternator I terminal)<br>⑤ - GND (MCU) | 20~25V  |

※ GND : Ground

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# CHARGING CIRCUIT



120094EL07

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

## 4. HEAD AND WORK LIGHT CIRCUIT

### 1) OPERATING FLOW

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

Fuse box (No.18) → Head light relay [CR-13 (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 (2), CL-4 (2), CL-23 (2), CL-24 (2)]

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

→ I/conn [CN-5 (13)] → Remote controller illumination ON [CN-245 (9)]

→ Cigar light [CL-2]

→ USB & Socket illumination ON [CN-246 (7)]

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

→ I/conn [CN-8 (7)] → Accel dial LED [CN-279]

#### (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 (2)] → Work light ON [CL-5 (2), CL-6 (2), CL-36 (2), CL-37 (2)]

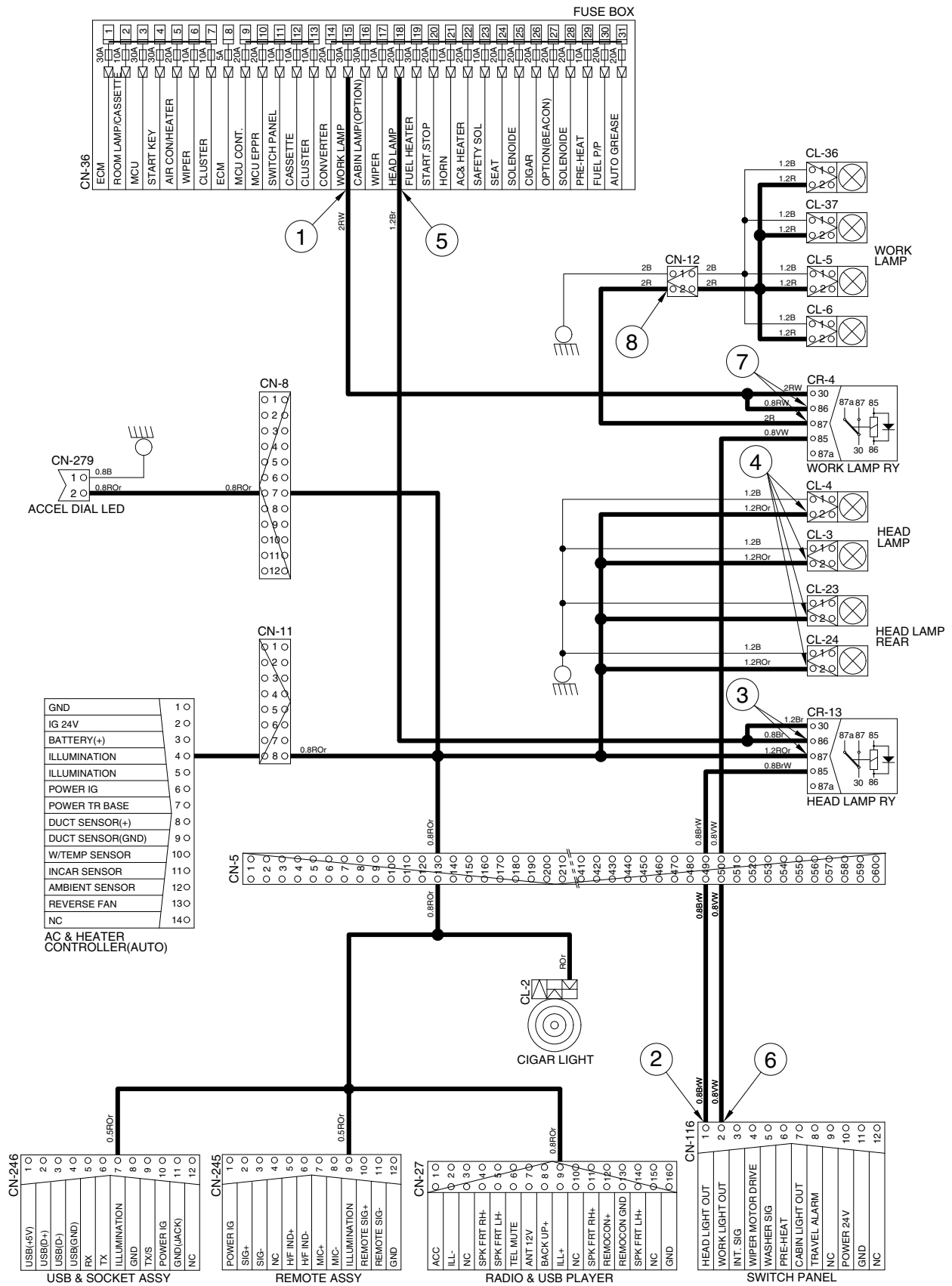
### 2) CHECK POINT

| Engine | Start switch | Check point                                                                                                                                                                                                            | Voltage |
|--------|--------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------|
| STOP   | ON           | ① - GND (fuse box)<br>② - GND (switch power output)<br>③ - GND (head light relay)<br>④ - GND (head light)<br>⑤ - GND (fuse box)<br>⑥ - GND (switch power output)<br>⑦ - GND (work light relay)<br>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



120094EL08

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

## 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)] → 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)]

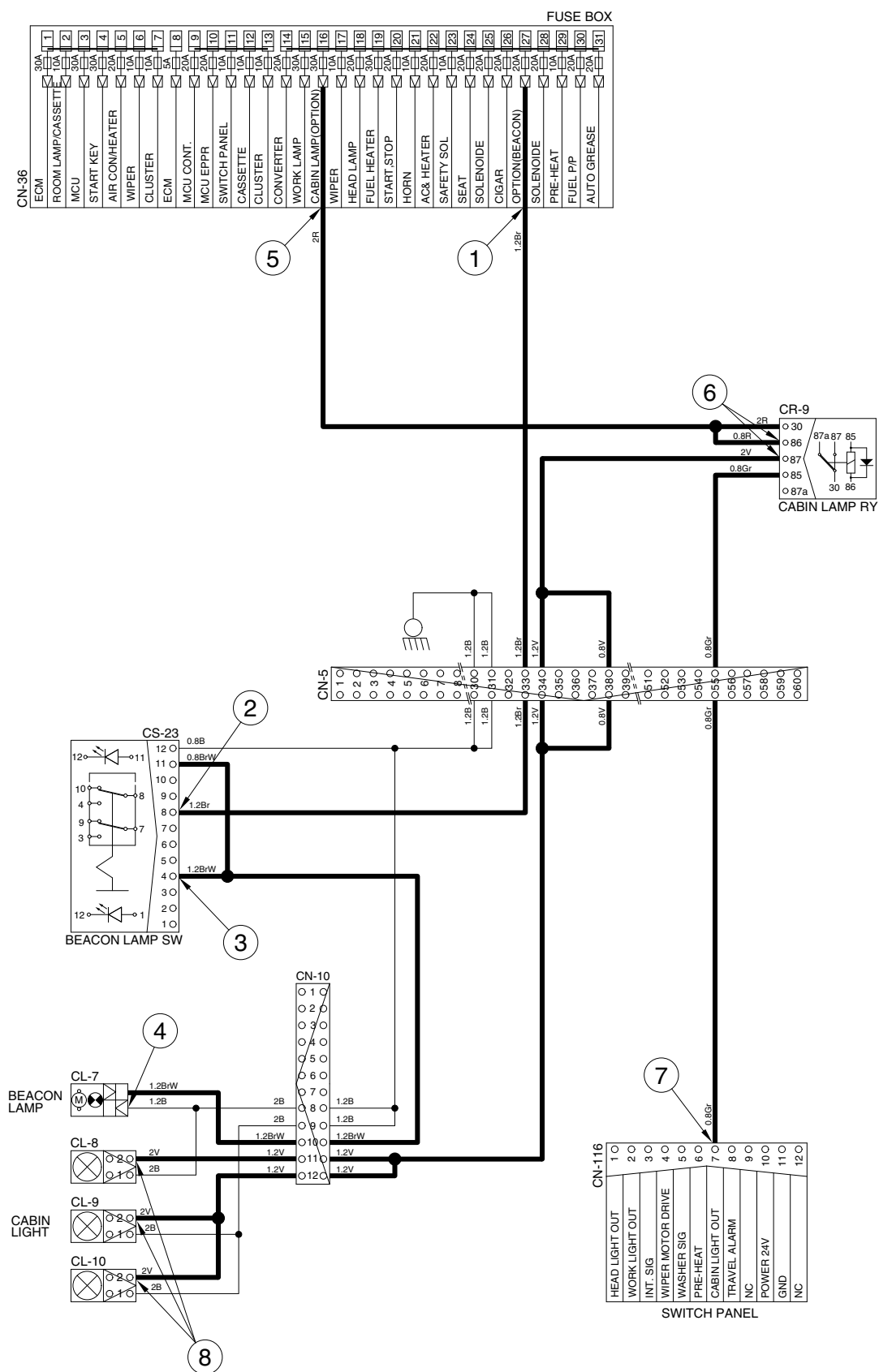
### 2) CHECK POINT

| Engine | Start switch | Check point                                                                                                                                                                                                               | Voltage |
|--------|--------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------|
| STOP   | ON           | ① - GND (fuse box)<br>② - GND (switch power input)<br>③ - GND (switch power output)<br>④ - GND (beacon lamp)<br>⑤ - GND (fuse box)<br>⑥ - GND (cabin light relay)<br>⑦ - GND (switch power output)<br>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



120094EL09

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

## 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

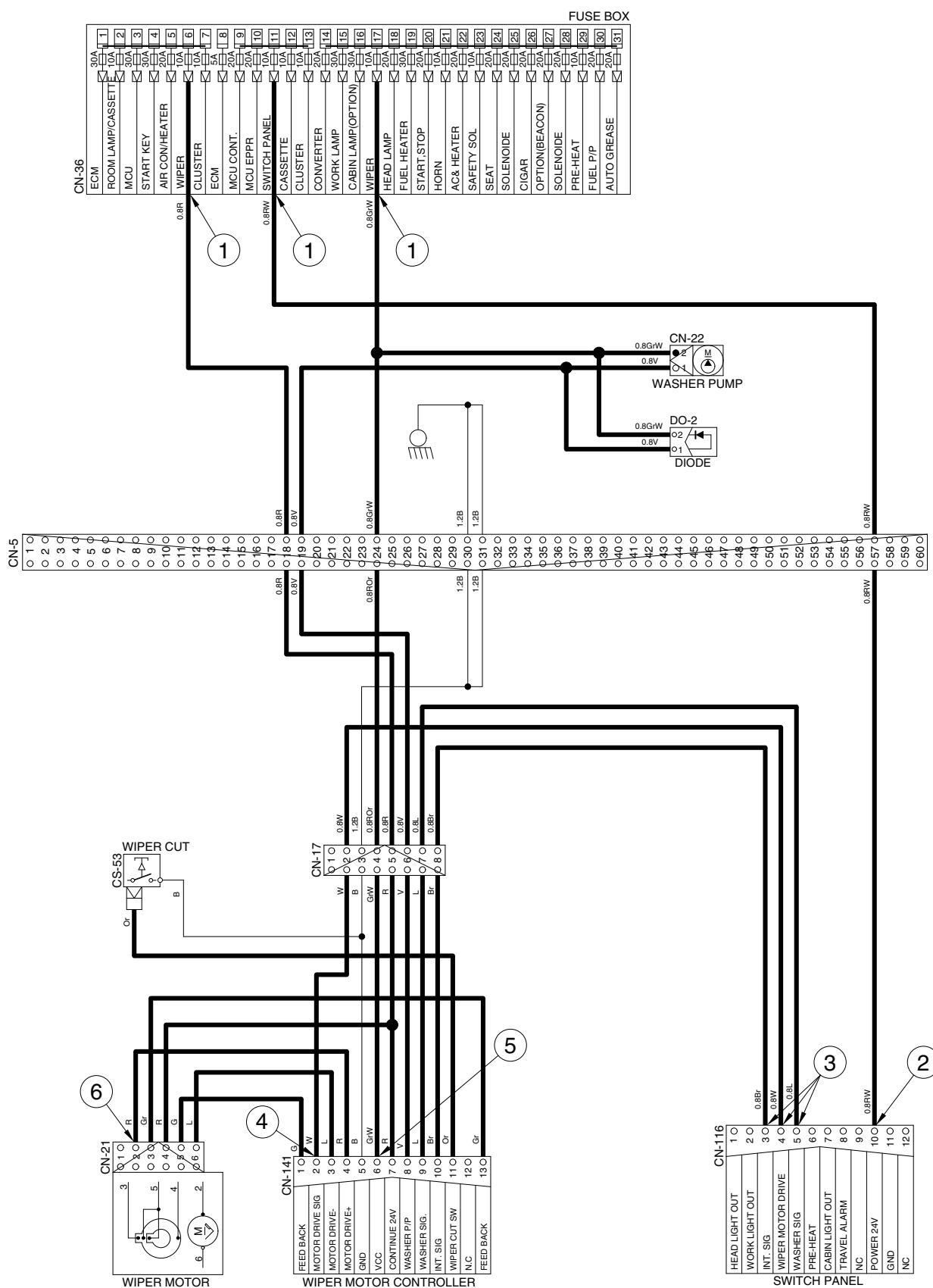
### 2) CHECK POINT

| 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

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

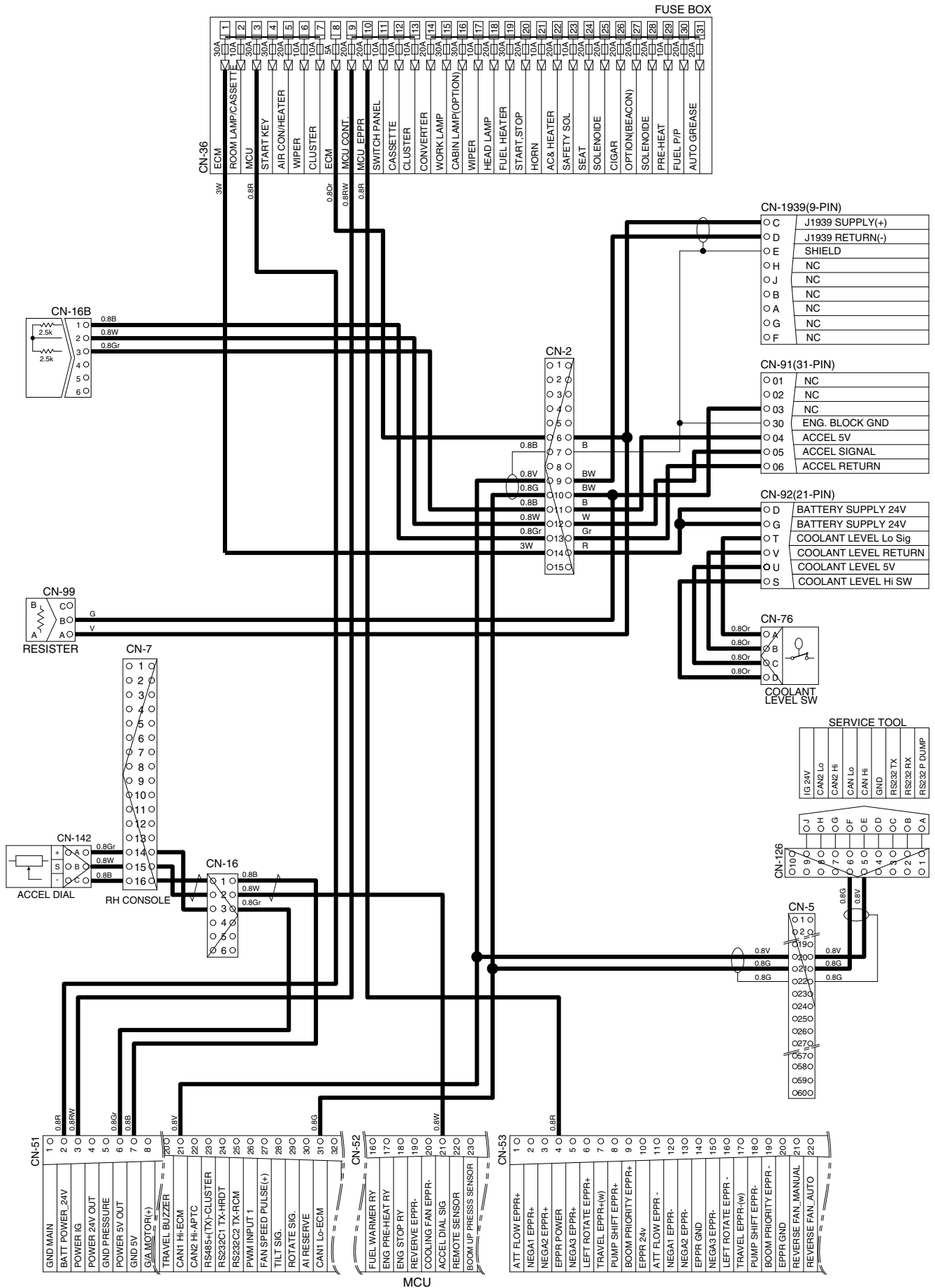
## WIPER AND WASHER CIRCUIT



120094EL10

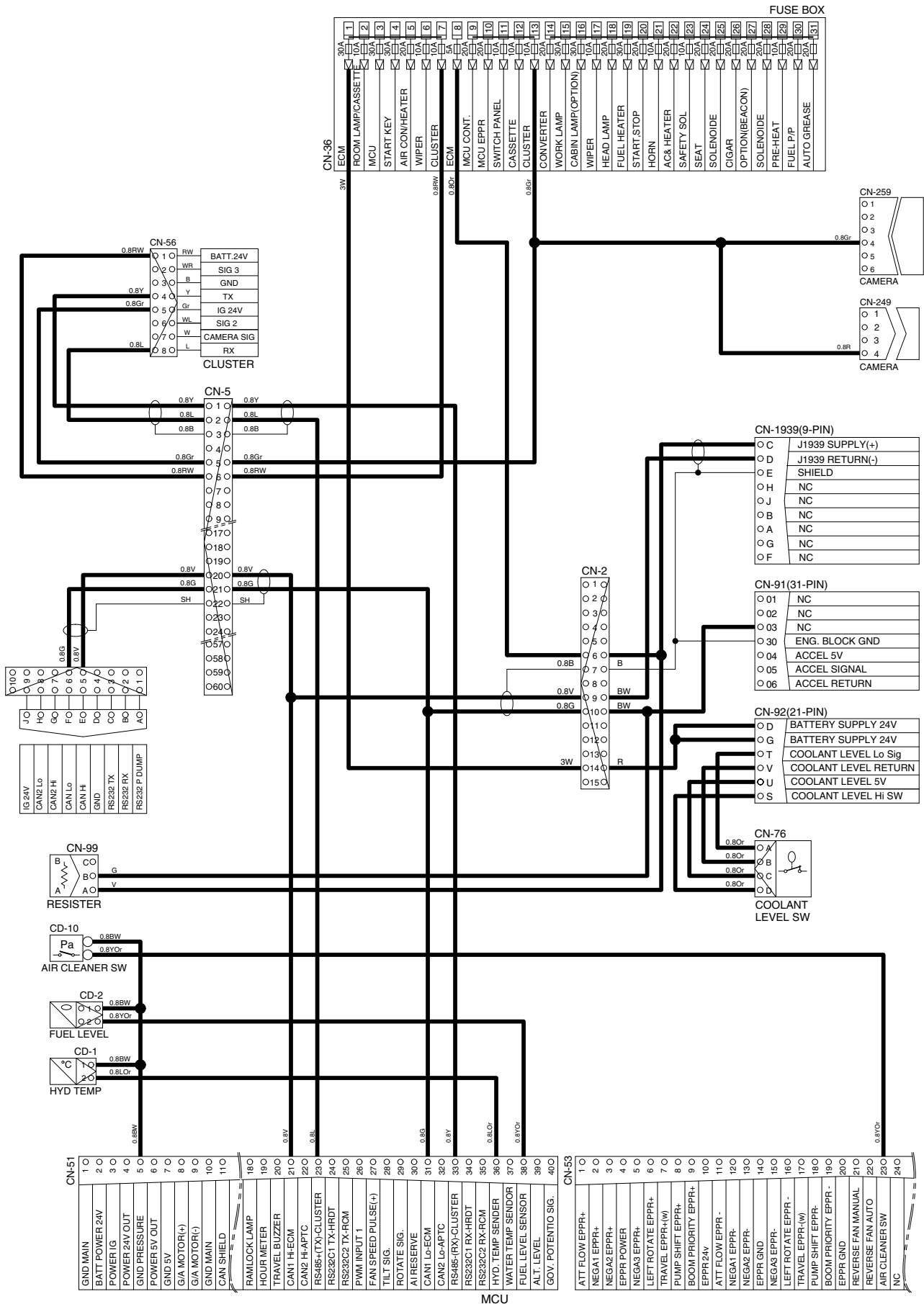
※ The circuit diagram may differ from the equipment, so please check before a repair.

# CONTROLLER CIRCUIT



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

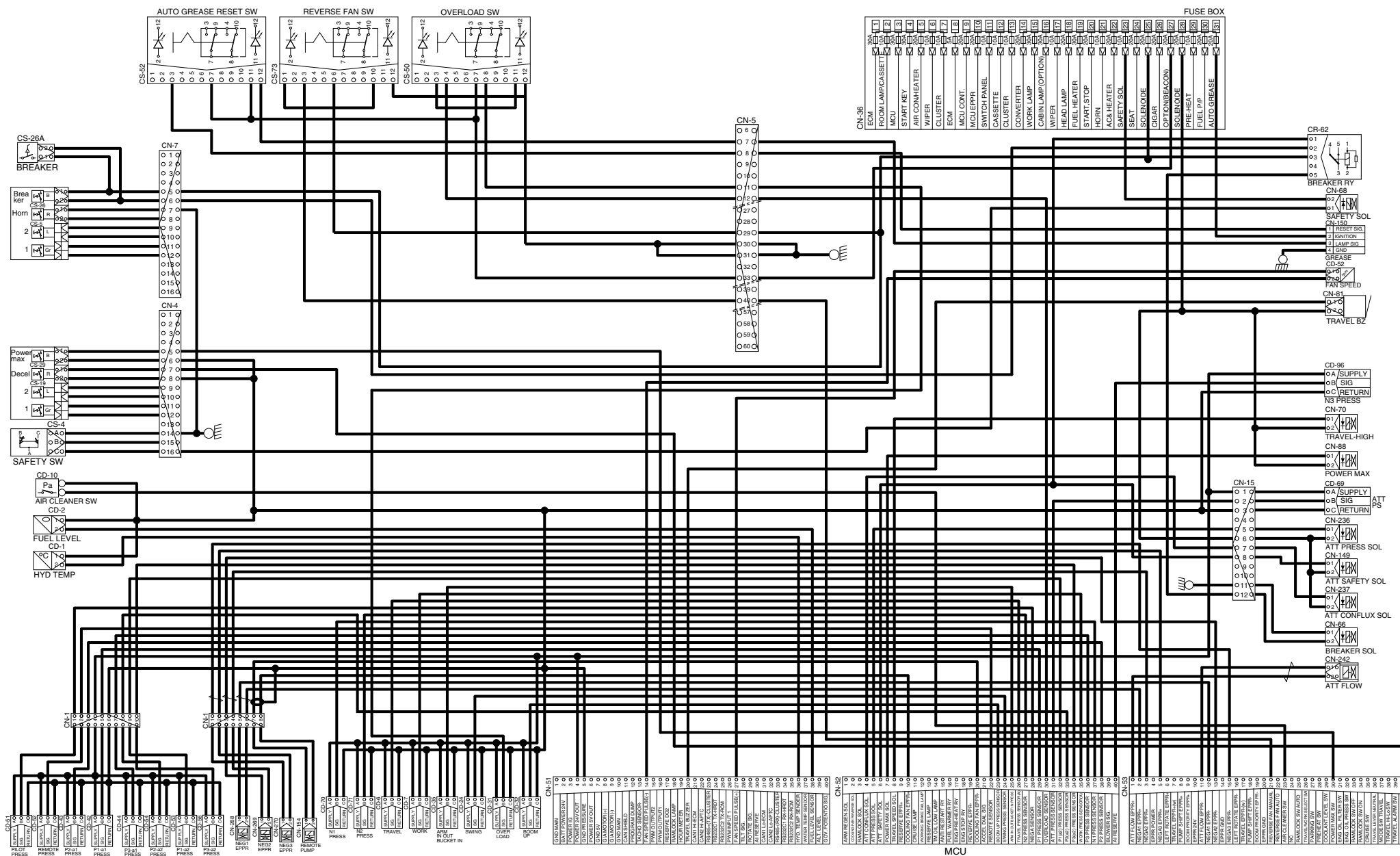
# MONITORING CIRCUIT



120094EL12

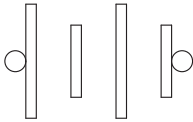
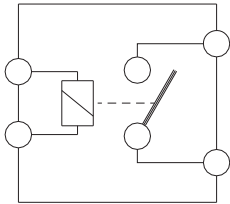
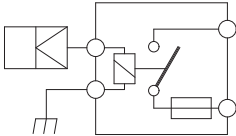
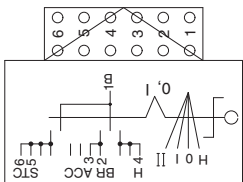
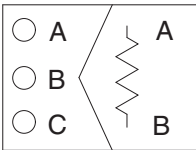
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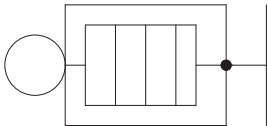
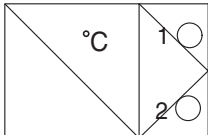
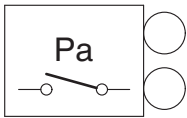
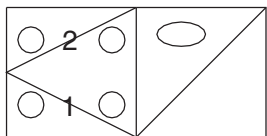
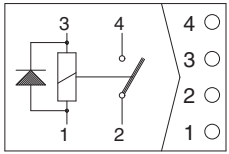
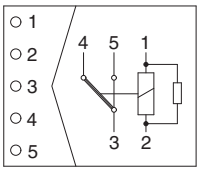
## ELECTRIC CIRCUIT FOR HYDRAULIC

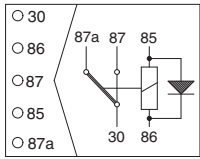
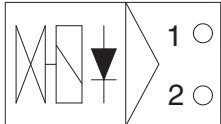
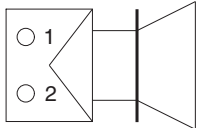
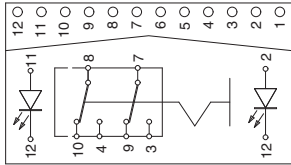
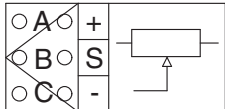


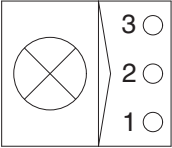
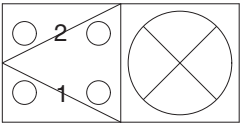
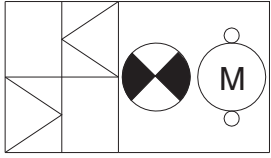
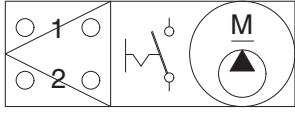
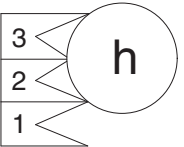
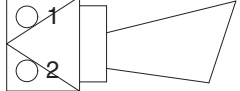
※ The circuit diagram may differ from the equipment, so please check before a repair.

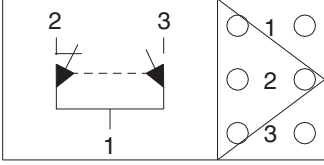
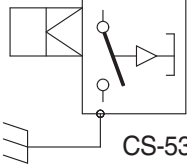
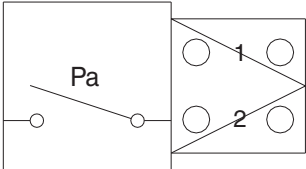
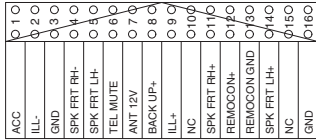
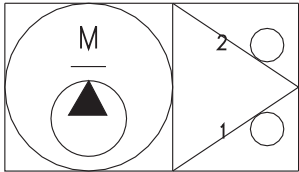
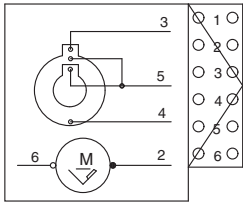
## GROUP 3 ELECTRICAL COMPONENT SPECIFICATION

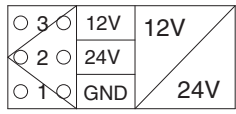
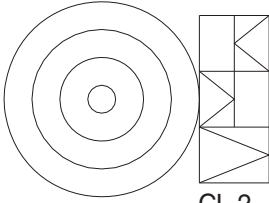
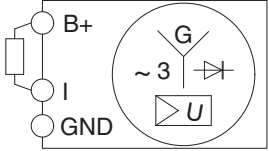
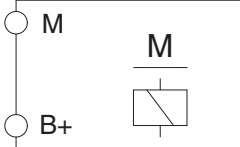
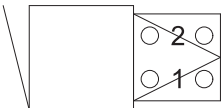
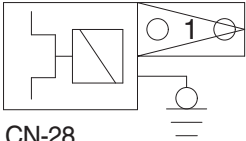
| Part name       | Symbol                                                                                                                                                                                                                                                           | Specifications                                                   | Check                                                                                                                     |
|-----------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------|
| Battery         |                                                                                                                                                                                 | 12V × 200Ah<br>(4EA)                                             | ※ Check specific gravity<br>1.280 over : Over charged<br>1.280 ~ 1.250 : Normal<br>1.250 below : Recharging               |
| Battery relay   | <br>CR-1                                                                                                                                                                        | Rated load :<br>24V<br>100A (continuity)<br>1000A<br>(30seconds) | ※ Check coil resistance(M4 to M4)<br>Normal : About 50 Ω<br>※ Check contact<br>Normal : ∞ Ω                               |
| Glow plug relay | <br>CR-24                                                                                                                                                                      | 24V 200A                                                         | ※ Check contact<br>Normal : 0.942 Ω<br>(For terminal 1-GND)                                                               |
| Start key       | <br>CS-2                                                                                                                                                                      | B-BR : 24V 1A<br>B-ACC : 24V 10A<br>B-ST : 24V 40A               | ※ Check contact<br>OFF : ∞ Ω (for each terminal)<br>ON : 0 Ω (for terminal 1-3 and 1-2)<br>START : 0 Ω (for terminal 1-5) |
| Pressure sensor | <div><div><div>○ A</div><div>○ B</div><div>○ C</div></div><div><div>SUPPLY</div><div>SIG</div><div>RETURN</div></div></div> <div>CD-6 CD-7 CD-24 CD-31<br/>CD-32 CD-35 CD-42 CD-43<br/>CD-44 CD-51 CD-52 CD-53<br/>CD-54 CD-56 CD-69 CD-70<br/>CD-71 CD-96</div> | 8~30V                                                            | ※ Check contact<br>Normal : 0.1 Ω                                                                                         |
| Resistor        | <br>CN-99                                                                                                                                                                     | 4W                                                               | ※ Check resistance<br>A-B : 120 Ω                                                                                         |

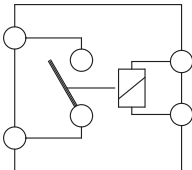
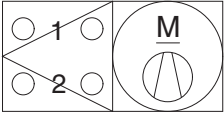
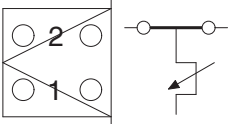
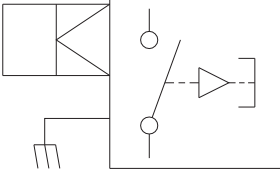
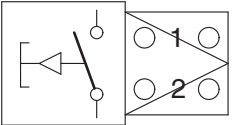
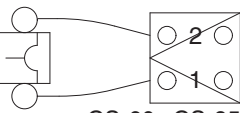
| Part name                      | Symbol                                                                                                                | Specifications | Check                                                                                                                                                                                                                                             |
|--------------------------------|-----------------------------------------------------------------------------------------------------------------------|----------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Glow plug                      | <br>CN-80                            | 24V 200A       | ※ Check resistance<br>0.25~0.12 Ω                                                                                                                                                                                                                 |
| Temperature sensor (hydraulic) | <br>CD-1                             | -              | ※ Check resistance<br>50°C : 804 Ω<br>80°C : 310 Ω<br>100°C : 180 Ω                                                                                                                                                                               |
| Air cleaner pressure switch    | <br>CD-10                           | (N.O TYPE)     | ※ Check contact<br>High level : ∞ Ω<br>Low level : 0 Ω                                                                                                                                                                                            |
| Fuel sender                    | <br>CD-2                           | -              | ※ Check resistance<br>Full : 50 Ω      6/12 : 350 Ω<br>11/12 : 100 Ω    5/12 : 400 Ω<br>10/12 : 150 Ω    4/12 : 450 Ω<br>9/12 : 200 Ω     3/12 : 500 Ω<br>8/12 : 250 Ω     2/12 : 550 Ω<br>7/12 : 300 Ω     1/12 : 600 Ω<br>Empty warning : 700 Ω |
| Relay (air con blower)         |                                    | 24V 20A        | ※ Check resistance<br>Normal : About 200 Ω<br>(for terminal 1-3)<br>0 Ω<br>(for terminal 2-4)                                                                                                                                                     |
| Relay                          | <br>CR-2 CR-5 CR-36<br>CR-45 CR-62 | 24V 16A        | ※ Check resistance<br>Normal : About 160 Ω<br>(for terminal 1-2)<br>0 Ω (for terminal 3-4)<br>∞ Ω (for terminal 3-5)                                                                                                                              |

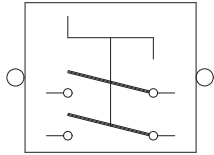
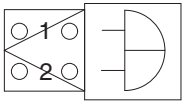
| Part name                | Symbol                                                                                                                                              | Specifications | Check                                                                                                                                                              |
|--------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------|----------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Relay                    | <br>CR-4 CR-7 CR-9<br>CR-13 CR-35 CR-46                            | 24V 16A        | ※ Check resistance<br>Normal : About 160 Ω<br>(for terminal 85-86)<br>0 Ω (for terminal 30-87a)<br>∞ Ω (for terminal 30-87)                                        |
| Solenoid valve           | <br>CN-66 CN-68 CN-70<br>CN-88 CN-140 CN-149<br>CN-236 CN-237      | 24V 1A         | ※ Check resistance<br>Normal : 15~25 Ω<br>(for terminal 1-2)                                                                                                       |
| EPPR valve               | <br>CN-133 CN-154<br>CN-242 CN-268<br>CN-269 CN-270                | 700mA          | ※ Check resistance<br>Normal : 15~25 Ω<br>(for terminal 1-2)                                                                                                       |
| Speaker                  | <br>CN-23(LH)<br>CN-24(RH)                                       | 20W            | ※ Check resistance<br>Normal : A few Ω                                                                                                                             |
| Switch<br>(locking type) | <br>CS-23 CS-50 CS-52<br>CS-67 CS-73 CS-82<br>CS-83 CS-99 CS-100 | 24V 8A         | ※ Check contact<br>Normal<br>ON : 0 Ω (for terminal 3-7, 4-8)<br>∞ Ω (for terminal 7-9, 8-10)<br>OFF : ∞ Ω (for terminal 3-7, 4-8)<br>0 Ω (for terminal 7-9, 8-10) |
| Accel dial               | <br>CN-142                                                       | -              | ※ Check resist<br>Normal : About 5k Ω<br>(for terminal A-C)<br>※ Check voltage<br>Normal : About 5V<br>(for terminal A-C)<br>: 2~4.5V<br>(for terminal C-B)        |

| Part name                            | Symbol                                                                                                                                           | Specifications       | Check                                                                                                                                                      |
|--------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------|----------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Room lamp                            | <br>CL-1                                                        | 24V 10W              | ※ Check disconnection<br>Normal : 1.0 Ω<br>ON : 0 Ω (For terminal 1-2)<br>∞ Ω (For terminal 1-3)<br>OFF : ∞ Ω (For terminal 1-2)<br>0 Ω (For terminal 1-3) |
| Head lamp,<br>Work lamp,<br>Cab lamp | <br>CL-3 CL-4 CL-5<br>CL-6 CL-8 CL-9 CL-10<br>CL-24 CL-36 CL-37 | 24V 65W<br>(H3 Type) | ※ Check disconnection<br>Normal : 1.2 Ω                                                                                                                    |
| Beacon lamp                          | <br>CL-7                                                       | 21V 70W<br>(H1 Type) | ※ Check disconnection<br>Normal : A few Ω                                                                                                                  |
| Fuel filler pump                     | <br>CN-61                                                     | 24V 10A<br>35 l /min | ※ Check resistance<br>Normal : 1.0 Ω                                                                                                                       |
| Hour meter                           | <br>CN-48                                                     | 16~32V               | ※ Check operation<br>Supply power(24V) to terminal<br>No.2 and connect terminal No.1<br>and ground                                                         |
| Horn                                 | <br>CN-20 CN-25                                               | DC22~28V<br>2A       | ※ Check operation<br>Supply power(24V) to each<br>terminal and connect ground.                                                                             |

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

| Part name         | Symbol                                                                                       | Specifications        | Check                                                                                                                            |
|-------------------|----------------------------------------------------------------------------------------------|-----------------------|----------------------------------------------------------------------------------------------------------------------------------|
| DC/DC Converter   | <br>CN-138  | 12V 3A                | 24V (1-2)<br>12V (1-3)                                                                                                           |
| Cigar lighter     | <br>CL-2    | 24V 5A 1.4W           | ※ Check coil resistance<br>Normal : About 1M $\Omega$<br>※ Check contact<br>Normal : $\infty \Omega$<br>Operating time : 5~15sec |
| Alternator        | <br>CN-74  | Delco Remy<br>24V 55A | ※ Check contact<br>Normal : 0 $\Omega$ (for terminal B <sup>+</sup> -I)<br>Normal : 24~27.5V                                     |
| Starter           | <br>CN-45 | Denso<br>24V 4.5kW    | ※ Check contact<br>Normal : 0.1 $\Omega$                                                                                         |
| Travel alarm      | <br>CN-81 | 24V 0.5A              | ※ Check contact<br>Normal : 5.2 $\Omega$                                                                                         |
| Aircon compressor | <br>CN-28 | 24V 79W               | ※ Check contact<br>Normal : 13.4 $\Omega$                                                                                        |

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

| Part name     | Symbol                                                                                              | Specifications         | Check                                   |
|---------------|-----------------------------------------------------------------------------------------------------|------------------------|-----------------------------------------|
| Master switch | <br>CS-74A, CS-74B | 6-36V                  | ※ Check disconnection<br>Normal : 0.1 Ω |
| Travel alarm  | <br>CN-113         | 24V 200mA<br>107 ± 4dB | -                                       |

## GROUP 4 CONNECTORS

### 1. CONNECTOR DESTINATION

| Connector number | Type      | No. of pin | Destination                               | Connector part No. |                  |
|------------------|-----------|------------|-------------------------------------------|--------------------|------------------|
|                  |           |            |                                           | Female             | Male             |
| CN-1             | AMP       | 8          | I/conn (Frame harness-Pump PS harness)    | S816-008002        | S816-108002      |
| 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          | S816-112002      |
| CN-3             | AMP       | 12         | I/conn (Frame harness-Engine harness)     | S816-012002        | 368301-1         |
| CN-4             | AMP       | 16         | I/conn (Console harness LH-Frame harness) | 368047-1           | 36850-1          |
| CN-5             | DEUTSCH   | 60         | I/conn (Side harness RH-Frame harness)    | DRB16-60SAE-L018   | DRB12-60PAE-L018 |
| CN-7             | AMP       | 16         | I/conn (Console harness RH-Frame harness) | 368047-1           | 36850-1          |
| 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-EP06       | -                |
| CN-12            | DEUTSCH   | 2          | I/conn (Frame harness-Boom wire harness)  | DT06-2S-EP06       | DT04-2P-E004     |
| CN-16            | AMP       | 6          | Emergency engine start & speed control    | S816-006002        | S816-106002      |
| CN-17            | AMP       | 8          | I/conn (Wiper harness-Side harness RH)    | S816-008002        | S816-108202      |
| CN-20            | MOLEX     | 2          | Horn                                      | 35825-0211         | -                |
| CN-21            | AMP       | 6          | Wiper motor                               | S810-006202        | -                |
| CN-22            | KET       | 2          | Washer tank                               | MG640795           | -                |
| CN-23            | KET       | 2          | Speaker-LH                                | MG610070           | -                |
| CN-24            | KET       | 2          | Speaker-RH                                | MG610070           | -                |
| CN-25            | MOLEX     | 2          | Horn                                      | 35825-0211         | -                |
| CN-27            | KUM       | 16         | Radio & USB player                        | PK145-16017        | -                |
| CN-28            | KUM       | 1          | Aircon compressor                         | NMWP01F-B          | -                |
| CN-29            | KET       | 2          | Receiver dryer                            | MG640795           | -                |
| CN-36            | AMP       | 12         | Fuse box                                  | 21Q7-10910         | -                |
| CN-45            | RING-TERM | -          | Starter motor B <sup>+</sup>              | S820-308000        | -                |
| CN-48            | AMP       | 1          | Hour meter                                | 2-520193-2         | -                |
| CN-51            | DEUTSCH   | 40         | MCU                                       | DRC26-40SA         | -                |
| CN-52            | DEUTSCH   | 40         | MCU                                       | DRC26-40SB         | -                |
| CN-53            | DEUTSCH   | 40         | MCU                                       | DRC26-40SC         | -                |
| CN-56            | DEUTSCH   | 8          | Cluster                                   | -                  | S816-108002      |
| CN-60            | YAZAKI    | 2          | Fusible link                              | 21N4-01320         | 7122-4125-50     |
| CN-61            | DEUTSCH   | 2          | Fuel filler pump                          | DT06-2S-EP06       | DT-04-2P-E005    |
| CN-68            | DEUTSCH   | 2          | Safety solenoid                           | DT06-2S-EP06       | -                |
| CN-70            | DEUTSCH   | 2          | Travel high solenoid                      | DT06-2S-EP06       | -                |

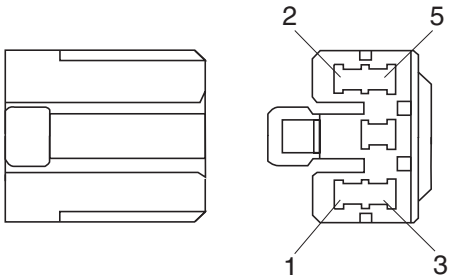
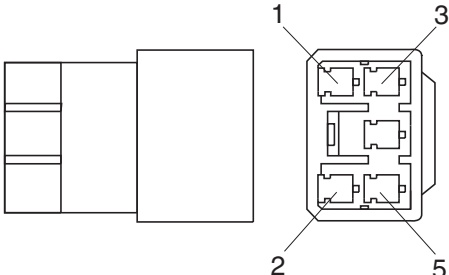
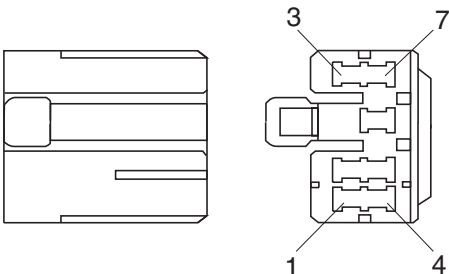
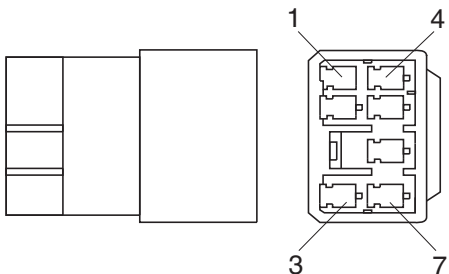
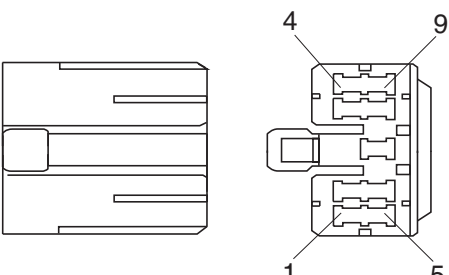
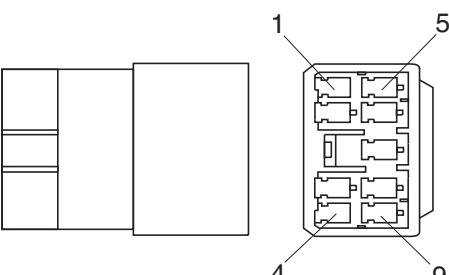
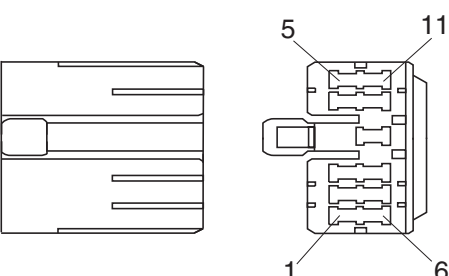
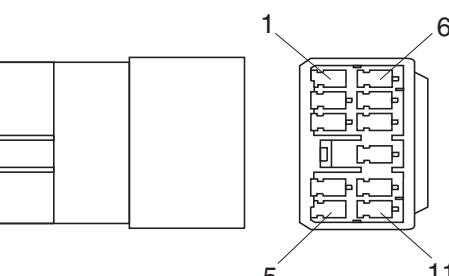
| Connector number | Type        | No. of pin | Destination               | Connector part No. |              |
|------------------|-------------|------------|---------------------------|--------------------|--------------|
|                  |             |            |                           | Female             | Male         |
| CN-74            | RING-TERM   | -          | Alternator "I" terminal   | ST710384-2         | -            |
| 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-91            | DEUTSCH     | 31         | ECM                       | HD36-24-31SN       | -            |
| CN-92            | DEUTSCH     | 21         | ECM                       | HD36-24-21SN       | -            |
| CN-95            | KET         | 2          | Fusible link              | 21N4-01311         | S813-130201  |
| CN-113           | KET         | 2          | Travel alarm              | MG651205-5         | -            |
| CN-116           | AMP         | 12         | Switch panel              | 176116             | -            |
| CN-125           | Econoseal J | 4          | GPS connector             | S816-004002        | S816-104002  |
| CN-126           | AMP         | 10         | Service tool              | S816-010002        | S816-110002  |
| CN-133           | DEUTSCH     | 2          | Boom priority solenoid    | DT06-2S-EP06       | -            |
| CN-138           | FASTEN      | 3          | DC/DC Converter           | S810-003202        | -            |
| CN-139           | FASTEN      | 2          | 12V socket                | 172434-2           | -            |
| CN-141           | AMP         | 13         | Wiper motor controller    | 172498-1           | DT04-3P-EP10 |
| CN-144           | KET         | 20         | Handsfree                 | MG610240           | -            |
| CN-147           | PACKARD     | 2          | Fuel-heater               | 4661958            | -            |
| CN-149           | DEUTSCH     | 2          | Attach safety solenoid    | DT06-2S-EP06       | -            |
| CN-150           | AMP         | 4          | Auto grease               | S816-004002        | -            |
| CN-154           | AMP         | 2          | Remote fan EPPR           | S816-002002        | -            |
| CN-156           | DEUTSCH     | 2          | Air seat                  | DT06-2S-EP06       | DT04-2P-E005 |
| CN-170           | AMP         | 2          | Heated seat               | S816-002002        | S816-102002  |
| CN-173           | DEUTSCH     | 3          | Resistor                  | DT06-3S-EP06       | DT04-3P-EP10 |
| CN-236           | DEUTSCH     | 2          | Attach pressure solenoid  | DT06-2S-EP06       | -            |
| CN-237           | DEUTSCH     | 2          | Attach confluent solenoid | DT06-2S-EP06       | -            |
| CN-242           | DEUTSCH     | 2          | Attach flow solenoid      | DT06-2S-EP06       | DT04-2P-E005 |
| CN-244           | AMP         | 2          | CAN 2                     | S816-002002        | S816-102002  |
| CN-245           | AMP         | 12         | PTC power                 | S813-030201        | -            |
| CN-246           | KET         | 12         | USB & Socket assy         | 174045-2           | -            |
| CN-249           | DEUTSCH     | 4          | Rear view camera          | DT06-4S-EP06       | DT04-4P-E005 |
| CN-258           | KET         | 1          | Air compressor power      | MG640944-5         | MG650943-5   |
| CN-259           | DEUTSCH     | 6          | Camera                    | DT06-6S-EP06       | DT04-6P-E005 |
| CN-263           | DEUTSCH     | 2          | Air compressor relay      | DT06-2S-EP06       | DT04-2P-E005 |
| CN-268           | AMP         | 2          | Pump A EPPR               | S816-002002        | -            |
| CN-270           | AMP         | 2          | Pump B & C EPPR           | S816-002002        | -            |
| CN-279           | AMP         | 2          | Accel dial LED            | S816-002002        | -            |

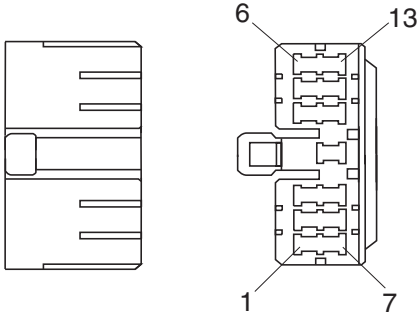
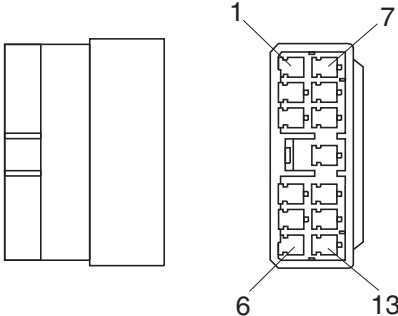
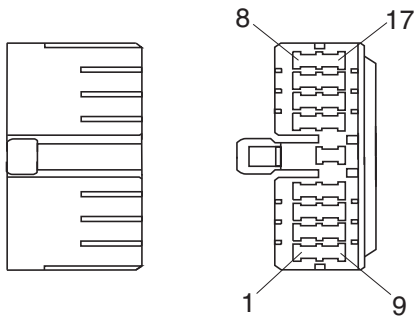
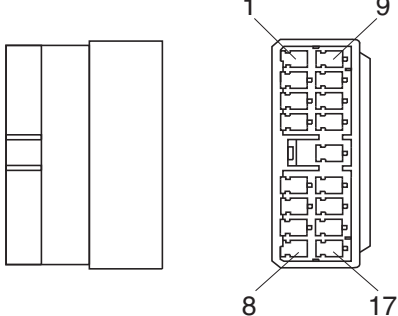
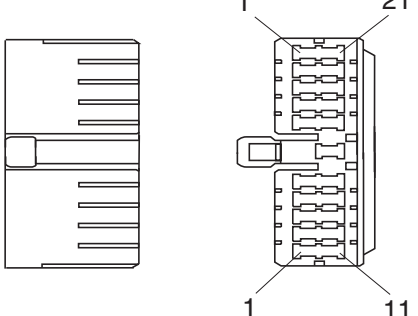
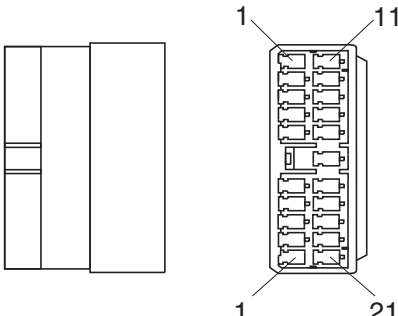
| Connector number | Type      | No. of pin | Destination             | Connector part No. |              |
|------------------|-----------|------------|-------------------------|--------------------|--------------|
|                  |           |            |                         | Female             | Male         |
| · Relay          |           |            |                         |                    |              |
| CR-1             | RING-TERM | -          | Battery relay           | ST710285-2         | -            |
| 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          | Head lamp relay         | -                  | -            |
| CR-13            | -         | 5          | Cabin lamp relay        | -                  | -            |
| CR-23            | DEUTSCH   | 2          | Start relay             | DT06-2S-EP06       | -            |
| CR-24            | RING TERM | -          | Preheat relay           | ST710384-2         | -            |
| CR-35            | -         | 5          | Power relay             | -                  | -            |
| CR-36            | -         | 5          | Preheat relay           | -                  | -            |
| CR-45            | -         | 5          | ECM power 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             | AMP       | 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-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-29            | DEUTSCH   | 2          | Power max switch        | DT06-2S-EP06       | -            |
| CS-50            | SWF       | 12         | Overload switch         | SWF589790          | -            |
| CS-52            | SWF       | 10         | Econo switch            | SWF 593757         | -            |
| CS-53            | AMP       | 1          | Wiper cut switch        | S822-014002        | -            |
| CS-67            | SWF       | 12         | Quick clamp switch      | SWF 589790         | -            |
| CS-73            | SWF       | 12         | Reverse fan switch      | SWF 589790         | -            |
| CS-74A           | AMP       | 2          | Master switch           | S813-030201        | -            |
| CS-74B           | DEUTSCH   | 2          | Master switch           | DT06-2S-EP06       | -            |
| CS-82            | SWF       | 12         | Spare switch            | SWF 589790         | -            |
| CS-83            | SWF       | 12         | Spare switch            | SWF 589790         | -            |
| CS-99            | SWF       | 12         | Spare switch            | SWF 589790         | -            |
| CS-100           | SWF       | 12         | Spare switch            | SWF 589790         | -            |
| CS-142           | DEUTSCH   | 3          | Accel dial switch       | DT06-3S-EP06       | -            |

| Connector number | Type      | No. of pin | Destination               | Connector part No. |              |
|------------------|-----------|------------|---------------------------|--------------------|--------------|
|                  |           |            |                           | Female             | Male         |
| · 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       | -            |
| CL-4             | DEUTSCH   | 2          | Head lamp-RH              | DT06-2S-EP06       | DT04-2P-E005 |
| 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 lamp-LH               | DT06-2S-EP06       | DT04-2P      |
| CL-9             | DEUTSCH   | 2          | Cab lamp-RH               | DT06-2S-EP06       | DT04-2P      |
| CL-10            | DEUTSCH   | 2          | Cab lamp-RH               | DT06-2S-EP06       | DT04-2P      |
| CL-24            | DEUTSCH   | 2          | Rear work lamp            | DT06-2S-EP06       | DT04-2P-E005 |
| CL-36            | DEUTSCH   | 2          | Work lamp-LH              | DT06-2S-EP06       | DT04-2P      |
| CL-37            | DEUTSCH   | 2          | Work lamp-RH              | 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 pressure switch    | DT06-3S-EP06       | -            |
| CD-7             | DEUTSCH   | 3          | Working pressure switch   | DT06-3S-EP06       | -            |
| CD-10            | RING TERM | -          | Air cleaner switch        | ST730135-3         | S820-104002  |
| CD-24            | DEUTSCH   | 3          | Swing sensor              | DT06-3S-EP06       | -            |
| CD-31            | DEUTSCH   | 3          | Overload sensor           | DT06-3S-EP06       | DT04-3P-E005 |
| CD-32            | DEUTSCH   | 3          | Boom up sensor            | DT06-3S-EP06       | -            |
| CD-35            | DEUTSCH   | 3          | Arm & bucket in sensor    | DT06-3S-EP06       | -            |
| CD-42            | DEUTSCH   | 3          | Pump A pressure 1         | DT06-3S-EP06       | -            |
| CD-43            | DEUTSCH   | 3          | Pump B pressure 1         | DT06-3S-EP06       | -            |
| CD-44            | DEUTSCH   | 3          | Pump C pressure 1         | DT06-3S-EP06       | -            |
| CD-51            | AMP       | 2          | Pilot pressure sensor     | S816-002002        | -            |
| CD-52            | AMP       | 2          | Fan speed sensor          | 174352-2           | -            |
| CD-53            | DEUTSCH   | 3          | Pump A pressure 2         | DT06-3S-EP06       | -            |
| CD-54            | DEUTSCH   | 3          | Pump B pressure 2         | DT06-3S-EP06       | -            |
| CD-56            | DEUTSCH   | 3          | Pump C pressure 2         | DT06-3S-EP06       | -            |
| CD-70            | DEUTSCH   | 3          | N1 pressure sensor        | DT06-3S-EP06       | -            |
| CD-71            | DEUTSCH   | 3          | N2 pressure sensor        | DT06-3S-EP06       | -            |
| CD-76            | AMP       | 4          | Coolant level switch      | 12065298           | -            |
| CD-96            | DEUTSCH   | 3          | N3 pressure sensor        | DT06-3S-EP06       | -            |

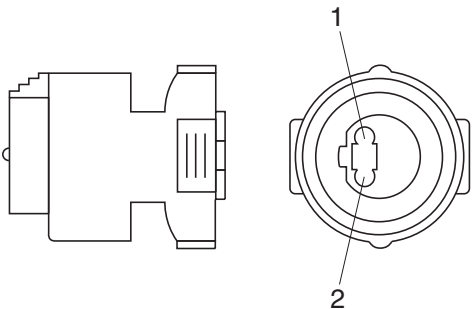
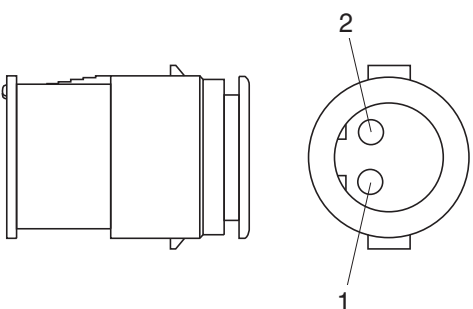
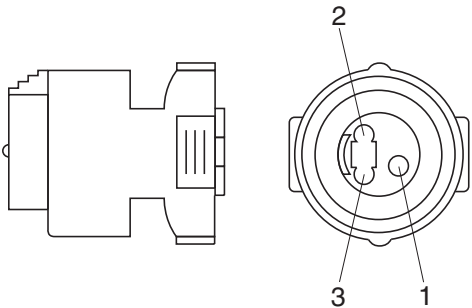
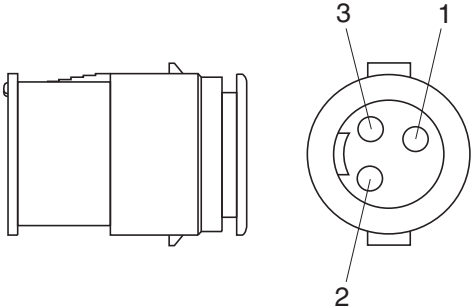
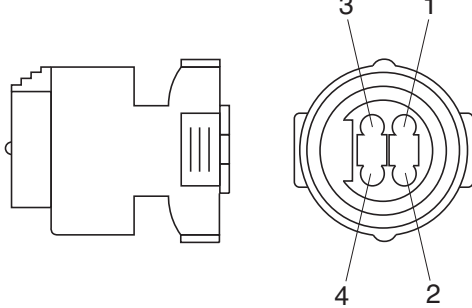
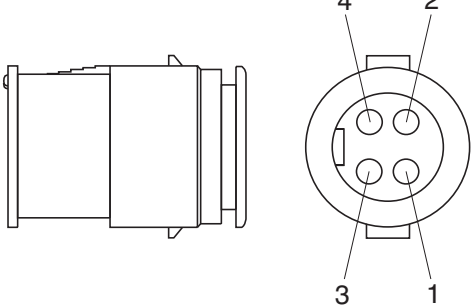
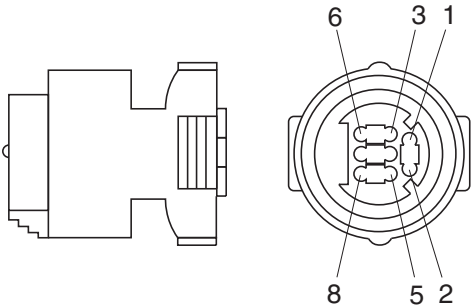
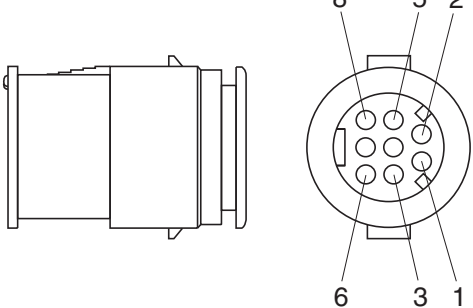
## 2. CONNECTION TABLE FOR CONNECTORS

### 1) PA TYPE CONNECTOR

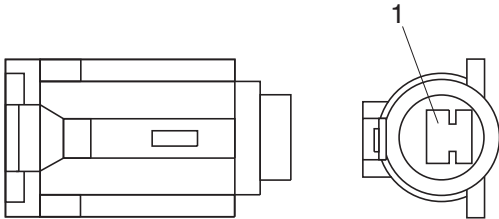
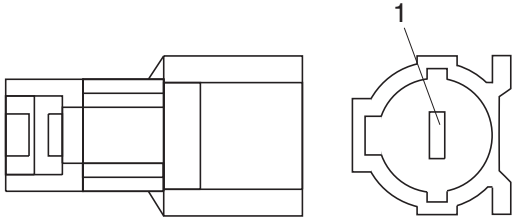
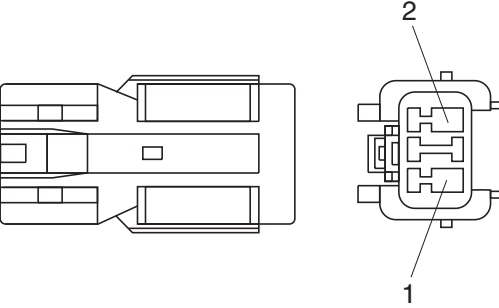
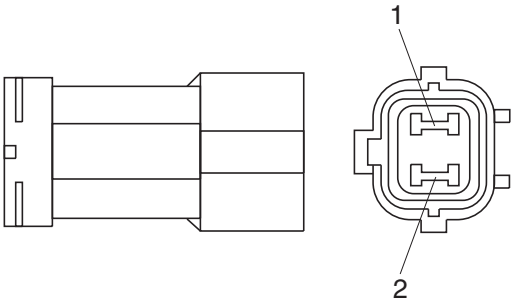
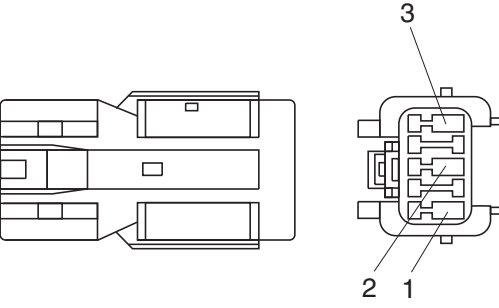
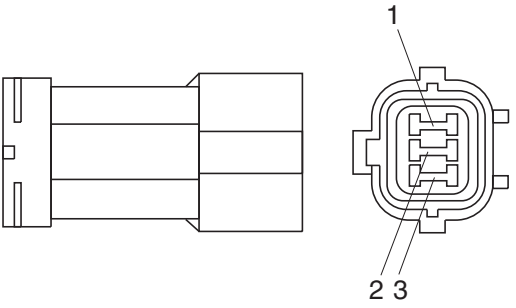
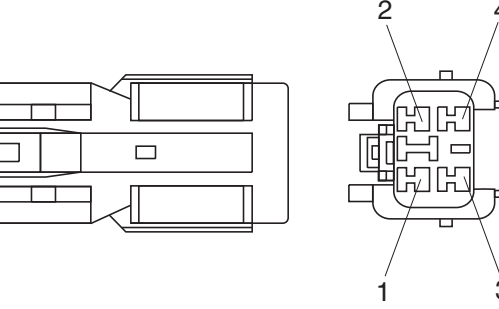
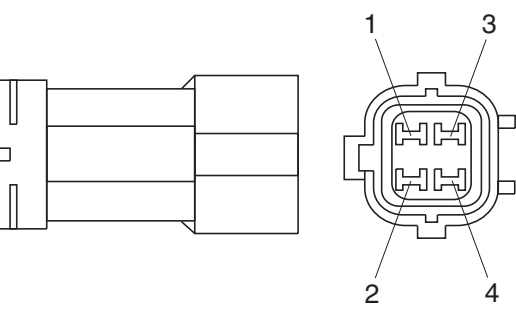
| No. of pin | Receptacle connector (female)                                                                          | Plug connector (male)                                                                                    |
|------------|--------------------------------------------------------------------------------------------------------|------------------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

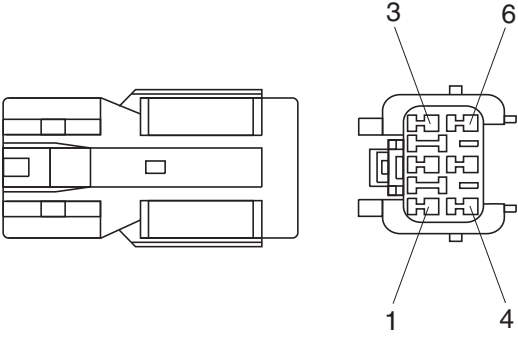
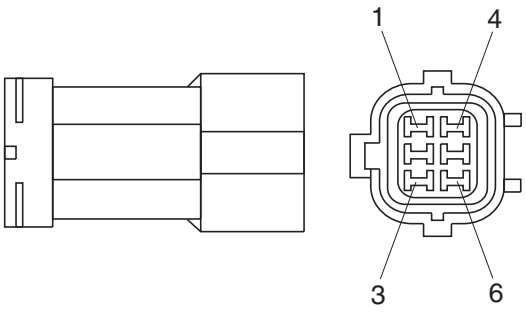
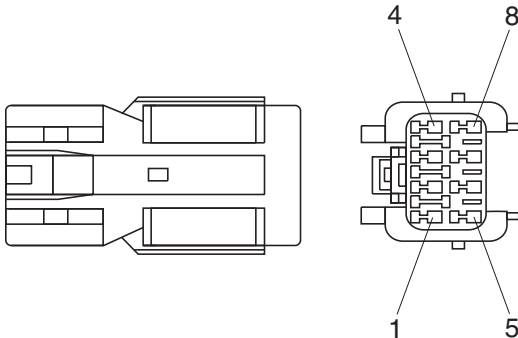
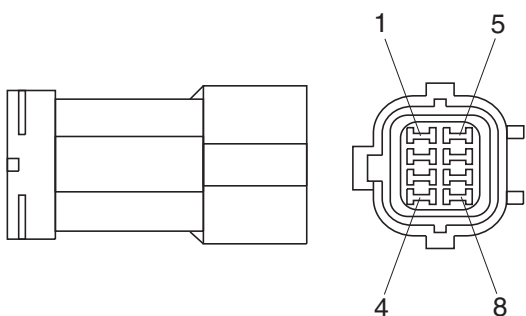
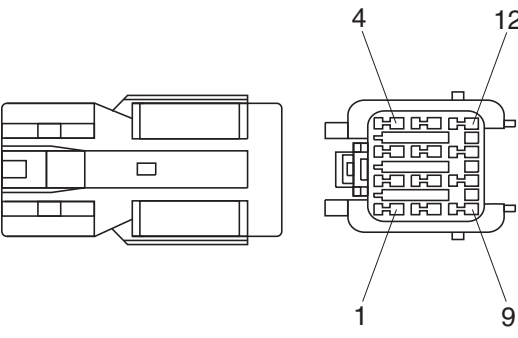
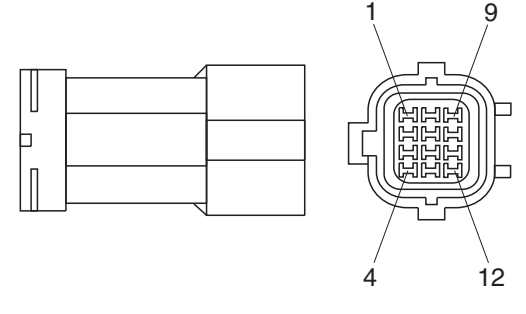
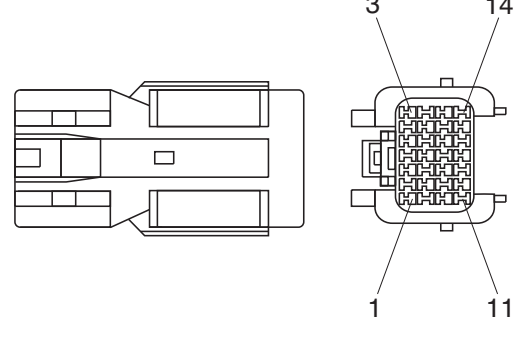
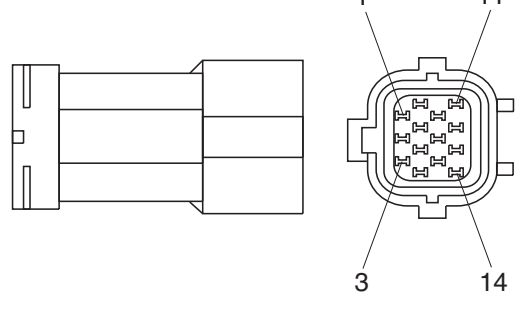
| No. of pin | Receptacle connector (female)                                                                          | Plug connector (male)                                                                                   |
|------------|--------------------------------------------------------------------------------------------------------|-------------------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

## 2) J TYPE CONNECTOR

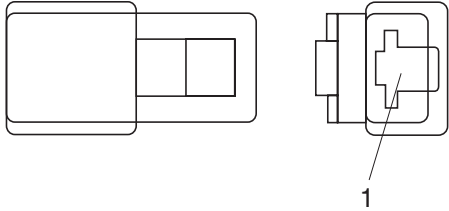
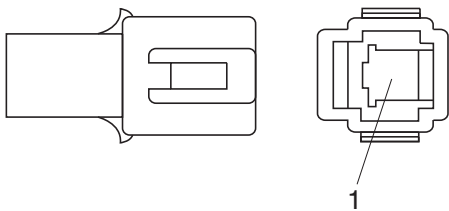
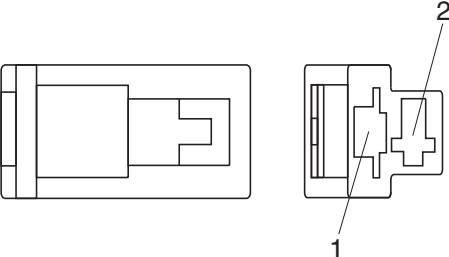
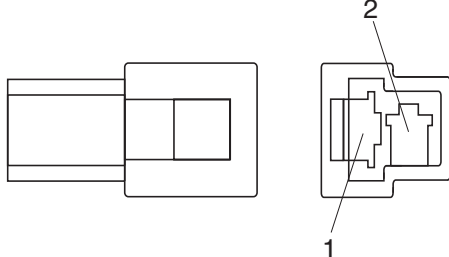
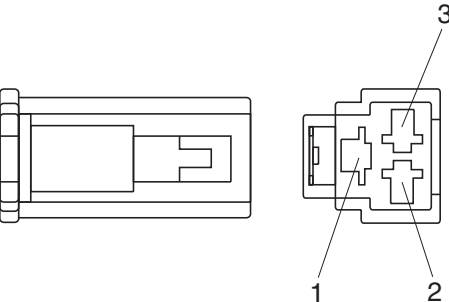
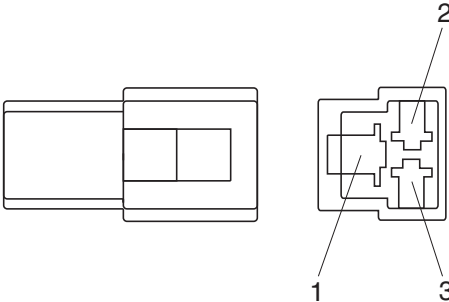
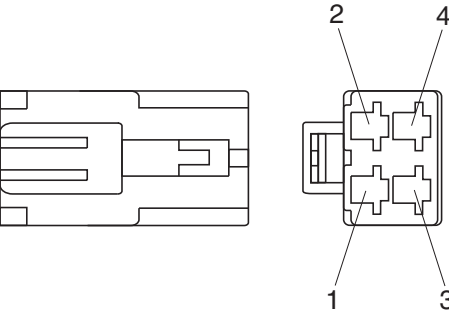
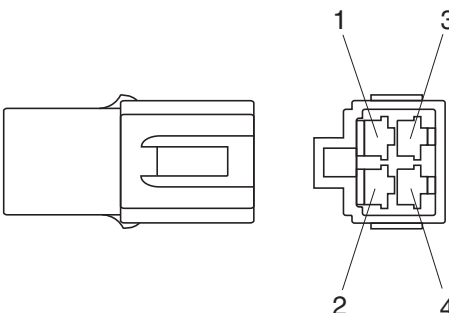
| No. of pin | Receptacle connector (female)                                                                          | Plug connector (male)                                                                                   |
|------------|--------------------------------------------------------------------------------------------------------|-------------------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

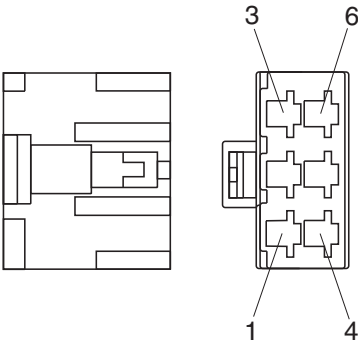
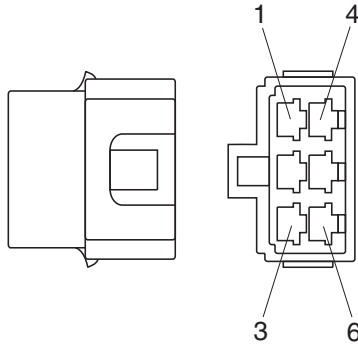
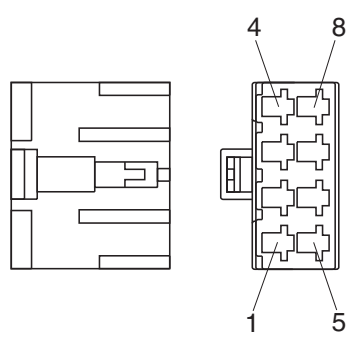
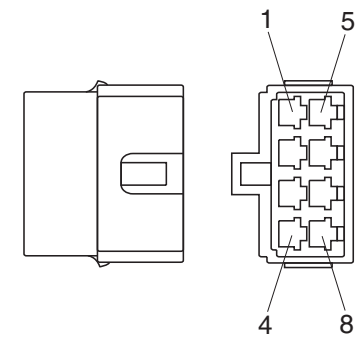
### 3) SWP TYPE CONNECTOR

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

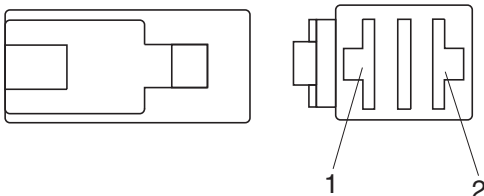
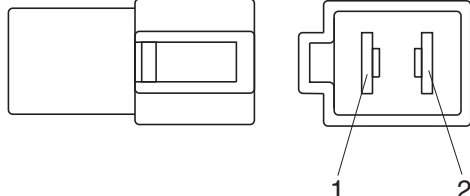
| No. of pin | Receptacle connector (female)                                                                          | Plug connector (male)                                                                                   |
|------------|--------------------------------------------------------------------------------------------------------|-------------------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

#### 4) CN TYPE CONNECTOR

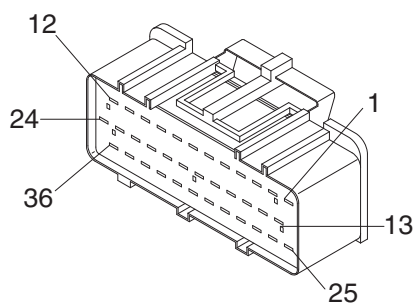
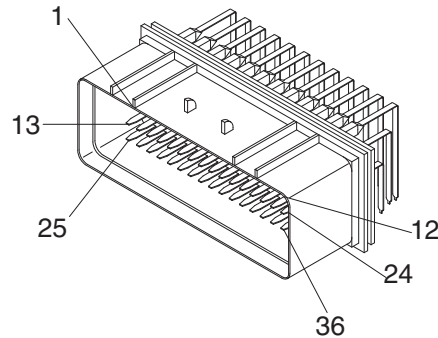
| No. of pin | Receptacle connector (female)                                                                          | Plug connector (male)                                                                                   |
|------------|--------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------|
| 1          |  <p>S810-001202</p>   |  <p>S810-101202</p>   |
| 2          |  <p>S810-002202</p>  |  <p>S810-102202</p>  |
| 3          |  <p>S810-003202</p> |  <p>S810-103202</p> |
| 4          |  <p>S810-004202</p> |  <p>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 1041 837 1075">S810-008202</p> |  <p data-bbox="1244 1041 1396 1075">S810-108202</p> |

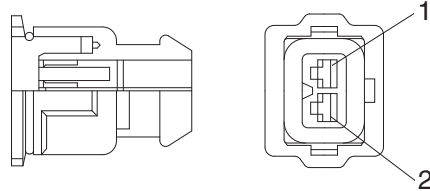
### 5) 375 FASTEN TYPE CONNECTOR

| No. of pin | Receptacle connector (female)                                                                        | Plug connector (male)                                                                                 |
|------------|------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------|
| 2          |  <p>S810-002402</p> |  <p>S810-102402</p> |

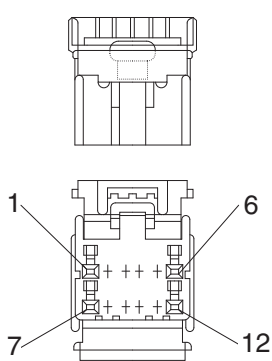
### 6) AMP ECONOSEAL CONNECTOR

| No. of pin | Receptacle connector (female)                                                                      | Plug connector (male)                                                                               |
|------------|----------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------|
| 36         |  <p>344111-1</p> |  <p>344108-1</p> |

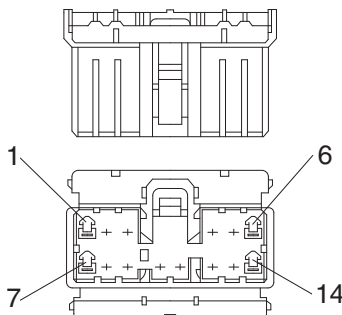
### 7) AMP TIMER CONNECTOR

| No. of pin | Receptacle connector (female)                                                                      | Plug connector (male) |
|------------|----------------------------------------------------------------------------------------------------|-----------------------|
| 2          |  <p>85202-1</p> |                       |

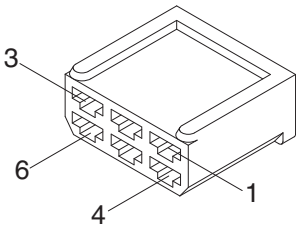
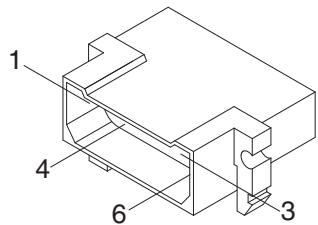
### 8) AMP 040 MULTILOCK CONNECTOR

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

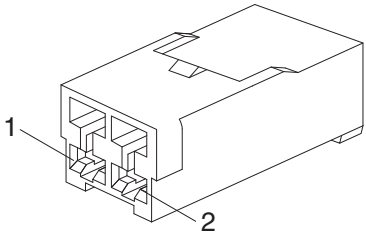
### 9) AMP 070 MULTILOCK CONNECTOR

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

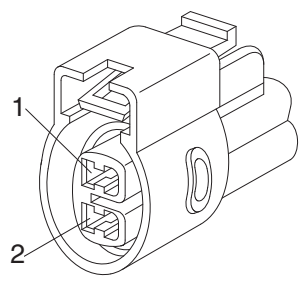
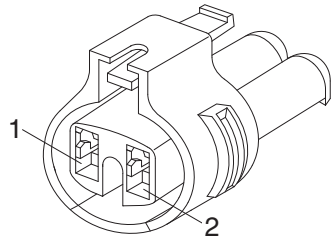
### 10) AMP FASTIN - FASTON CONNECTOR

| No. of pin | Receptacle connector (female)                                                       | Plug connector (male)                                                                |
|------------|-------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|
| 6          |  |  |

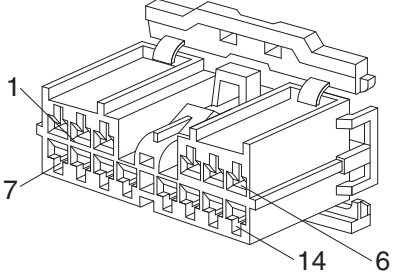
### 11) KET 090 CONNECTOR

| No. of pin | Receptacle connector (female)                                                                     | Plug connector (male) |
|------------|---------------------------------------------------------------------------------------------------|-----------------------|
| 2          |  <p>MG610070</p> |                       |

### 12) KET 090 WP CONNECTORS

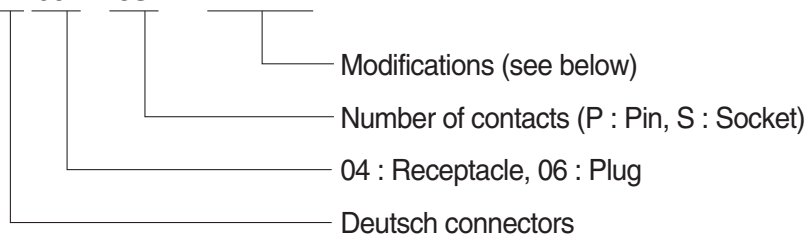
| No. of pin | Receptacle connector (female)                                                                       | Plug connector (male) |
|------------|-----------------------------------------------------------------------------------------------------|-----------------------|
| 2          |  <p>MG640605</p>  |                       |
| 2          |  <p>MG640795</p> |                       |

13) KET SDL CONNECTOR

| No. of pin | Receptacle connector (female)                                                                               | Plug connector (male) |
|------------|-------------------------------------------------------------------------------------------------------------|-----------------------|
| 14         | <div><p>MG610406</p></div> |                       |

#### 14) DEUTSCH DT CONNECTORS

DT 06 - 3S - ★★☆☆



#### ※ Modification

E003 : Standard end cap - gray

E004 : Color of connector to be black

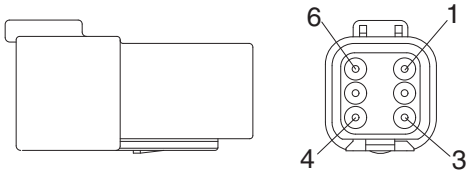
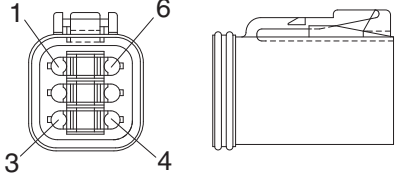
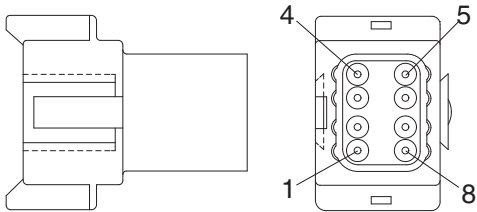
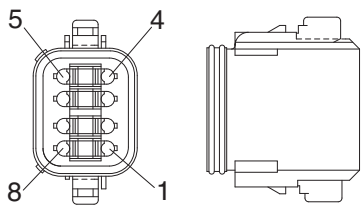
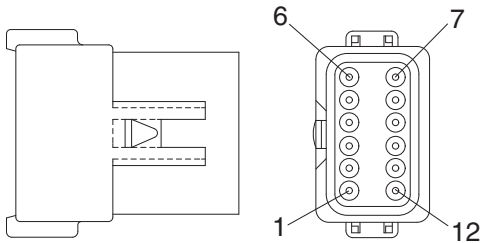
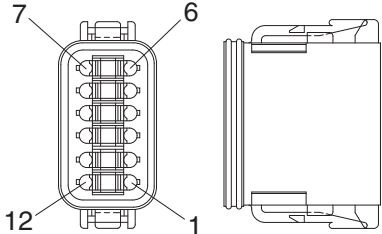
E005 : Combination - E004 & E003

EP04 : End cap

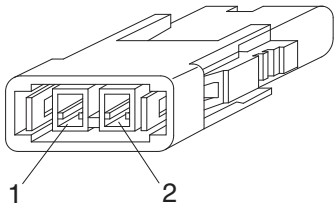
EP06 : Combination P012 & EP04

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

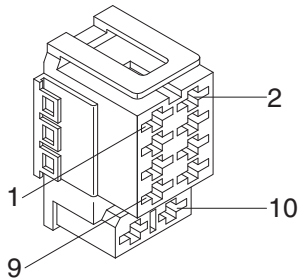
| No. of pin | Receptacle connector (female) | Plug connector (male) |
|------------|-------------------------------|-----------------------|
| 2          | <p>DT06-2S</p>                | <p>DT04-2P</p>        |
| 3          | <p>DT06-3S</p>                | <p>DT04-3P</p>        |
| 4          | <p>DT06-4S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

| No. of pin | Receptacle connector (female)                                                                       | Plug connector (male)                                                                                |
|------------|-----------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------|
| 6          |  <p>DT06-6S</p>    |  <p>DT04-6P</p>    |
| 8          |  <p>DT06-8S</p>    |  <p>DT04-8P</p>    |
| 12         |  <p>DT06-12S</p> |  <p>DT04-12P</p> |

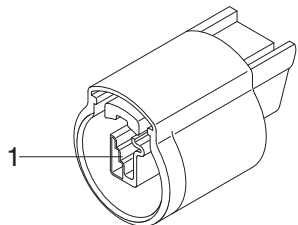
### 15) MOLEX 2CKTS CONNECTOR

| No. of pin | Receptacle connector (female)                                                                       | Plug connector (male) |
|------------|-----------------------------------------------------------------------------------------------------|-----------------------|
| 2          |  <p>35215-0200</p> |                       |

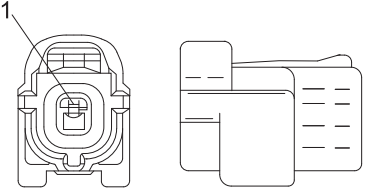
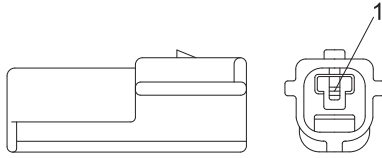
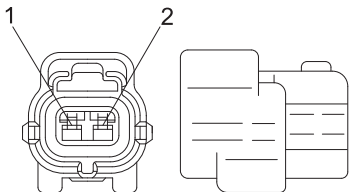
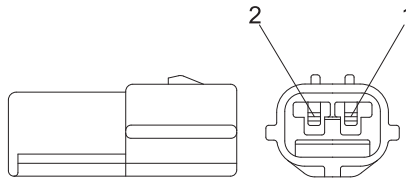
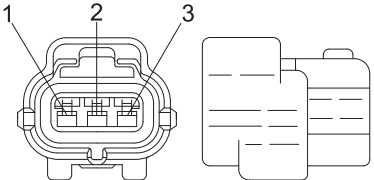
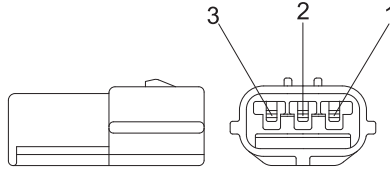
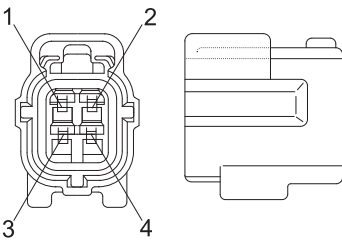
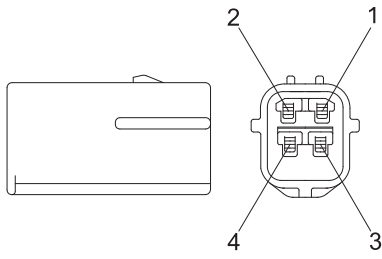
### 16) ITT SWF CONNECTOR

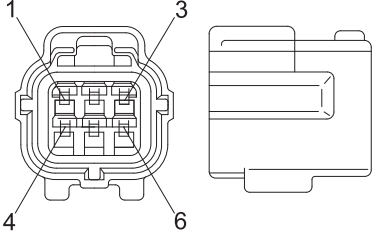
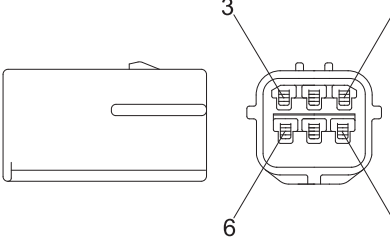
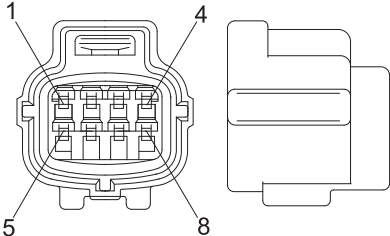
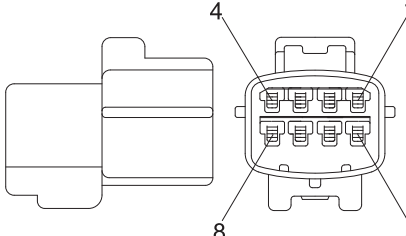
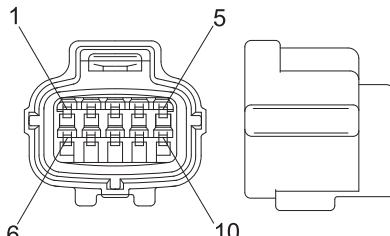
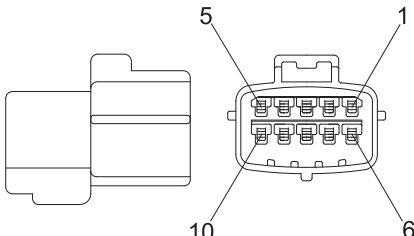
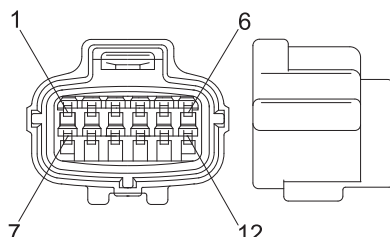
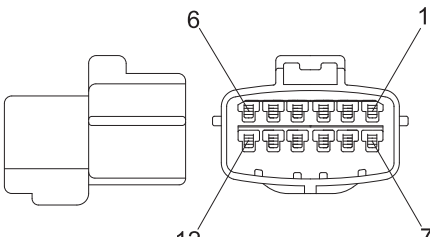
| No. of pin | Receptacle connector (female)                                                                       | Plug connector (male) |
|------------|-----------------------------------------------------------------------------------------------------|-----------------------|
| 10         |  <p>SWF593757</p> |                       |

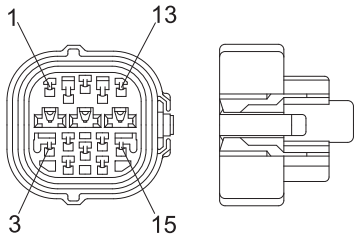
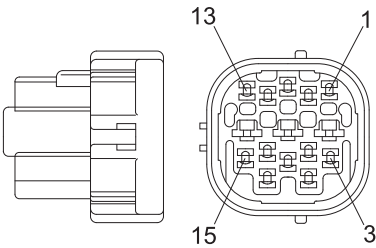
### 17) MWP NMWP CONNECTOR

| No. of pin | Receptacle connector (female)                                                                        | Plug connector (male) |
|------------|------------------------------------------------------------------------------------------------------|-----------------------|
| 1          |  <p>NMWP01F-B</p> |                       |

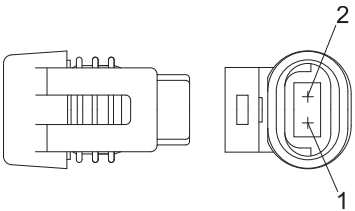
## 18) ECONOSEAL J TYPE CONNECTORS

| No. of pin | Receptacle connector (female)                                                                                                        | Plug connector (male)                                                                                                                   |
|------------|--------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------|
| 1          |  <p data-bbox="686 683 837 712">S816-001002</p>     |  <p data-bbox="1236 683 1388 712">S816-101002</p>     |
| 2          |  <p data-bbox="686 1086 837 1115">S816-002002</p>  |  <p data-bbox="1236 1086 1388 1115">S816-102002</p>  |
| 3          |  <p data-bbox="686 1489 837 1518">S816-003002</p> |  <p data-bbox="1236 1489 1388 1518">S816-103002</p> |
| 4          |  <p data-bbox="686 1892 837 1921">S816-004002</p> |  <p data-bbox="1236 1892 1388 1921">S816-104002</p> |

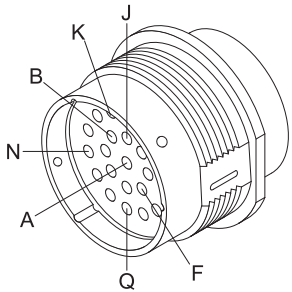
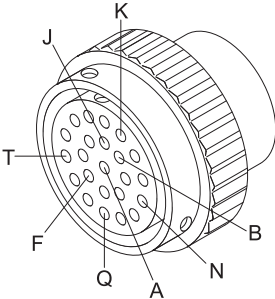
| No. of pin | Receptacle connector (female)                                                                          | Plug connector (male)                                                                                   |
|------------|--------------------------------------------------------------------------------------------------------|-------------------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

| No. of pin | Receptacle connector (female)                                                                     | Plug connector (male)                                                                               |
|------------|---------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------|
| 15         |  <p>368301-1</p> |  <p>2-85262-1</p> |

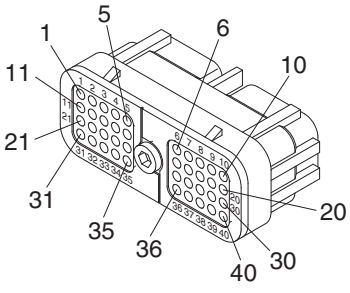
## 19) METRI-PACK TYPE CONNECTOR

| No. of pin | Receptacle connector (female)                                                                      | Plug connector (male) |
|------------|----------------------------------------------------------------------------------------------------|-----------------------|
| 2          |  <p>12040753</p> |                       |

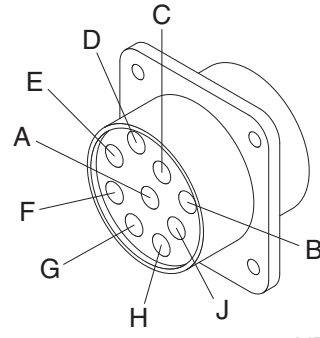
## 20) DEUTSCH HD30 CONNECTOR

| No. of pin | Receptacle connector (female)                                                                           | Plug connector (male)                                                                                    |
|------------|---------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------|
| 23         |  <p>HD36-24-23SN</p> |  <p>HD34-24-23PN</p> |

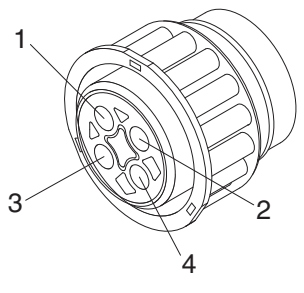
## 21) DEUTSCH MCU CONNECTOR

| No. of pin | Receptacle connector (Female)                                                                           | Plug connector (Male) |
|------------|---------------------------------------------------------------------------------------------------------|-----------------------|
| 40         |  <p>DRC26-40SA/B/C</p> |                       |

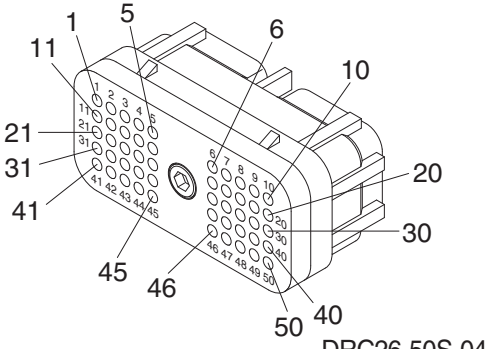
## 22) DEUTSCH SERVICE TOOL CONNECTOR

| No. of pin | Receptacle connector (Female)                                                                        | Plug connector (Male) |
|------------|------------------------------------------------------------------------------------------------------|-----------------------|
| 9          |  <p>HD10-9-96P</p> |                       |

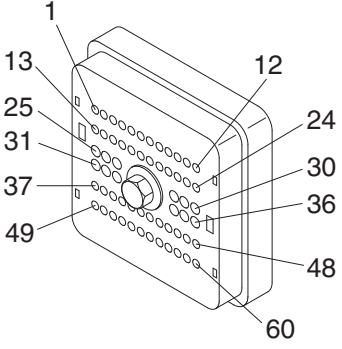
## 23) AMP FUEL WARMER CONNECTOR

| No. of pin | Receptacle connector (Female)                                                                         | Plug connector (Male) |
|------------|-------------------------------------------------------------------------------------------------------|-----------------------|
| 4          |  <p>2-967325-3</p> |                       |

## 24) DEUTSCH ENGINE ECM CONNECTOR

| No. of pin | Receptacle connector (Female)                                                                         | Plug connector (Male) |
|------------|-------------------------------------------------------------------------------------------------------|-----------------------|
| 50         |  <p>DRC26-50S-04</p> |                       |

## 25) DEUTSCH INTERMEDIATE CONNECTOR

| No. of pin | Receptacle connector (Female)                                                                              | Plug connector (Male) |
|------------|------------------------------------------------------------------------------------------------------------|-----------------------|
| 60         |  <p>DRB16-60SAE-L018</p> |                       |