

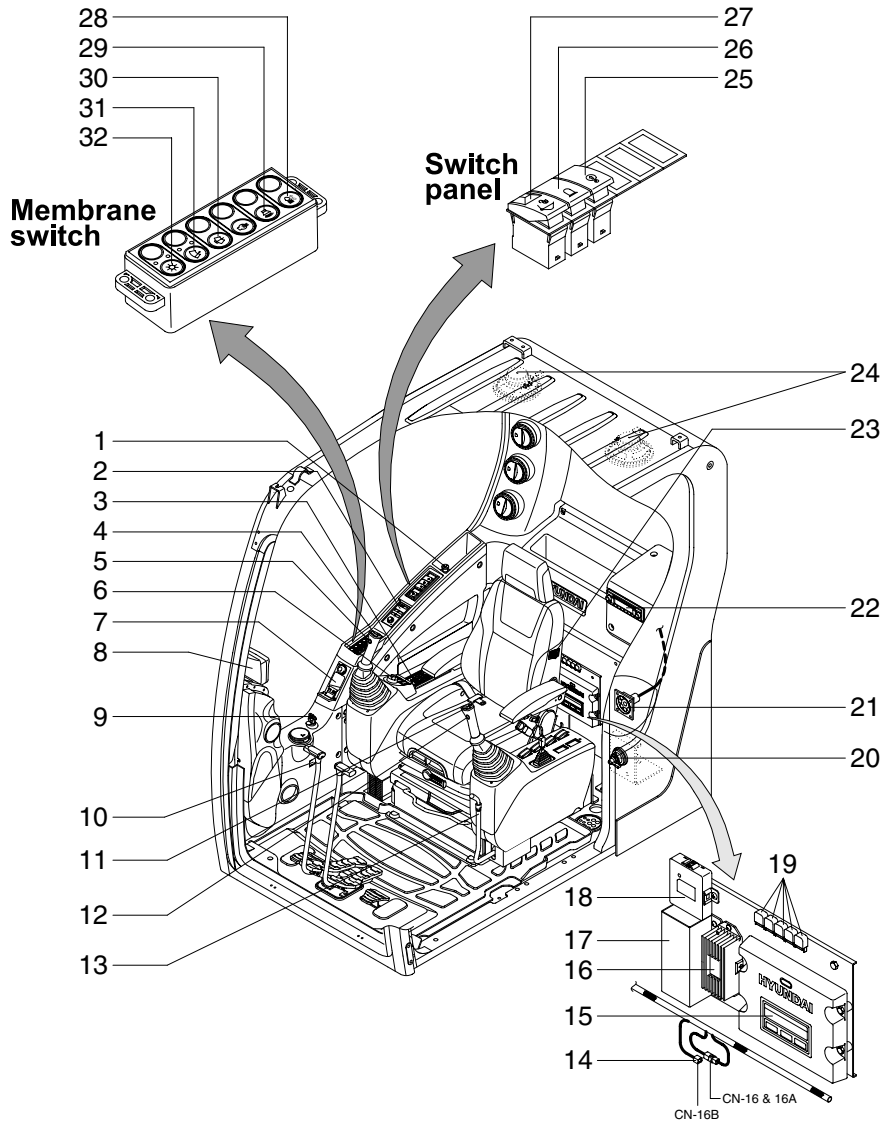
SECTION 4 ELECTRICAL SYSTEM

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SECTION 4 ELECTRICAL SYSTEM

GROUP 1 COMPONENT LOCATION

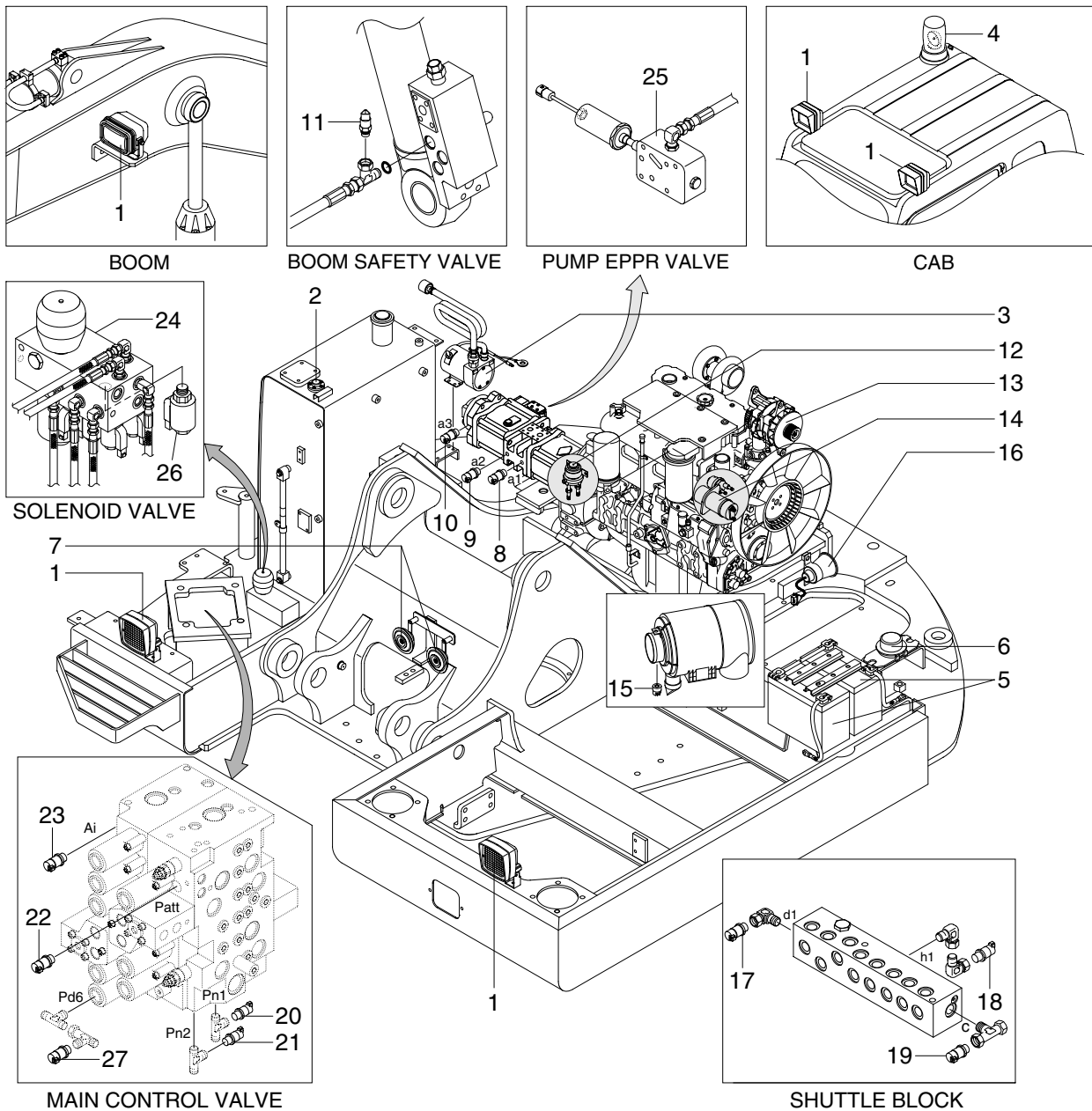
1. LOCATION 1



140Z94EL01

- | | | |
|----------------------------|---------------------------------|------------------------|
| 1 Cigar lighter | 12 Power max switch | 23 Heated seat switch |
| 2 Remote controller | 13 Safety lever | 24 Speaker |
| 3 Air conditioner switch | 14 Emergency engine connector | 25 Overload switch |
| 4 Horn switch | 15 Machine control unit | 26 Beacon switch |
| 5 Breaker operation switch | 16 DC-DC converter | 27 Quick clamp switch |
| 6 Accel dial switch | 17 Remote control unit | 28 Cab light switch |
| 7 Handsfree | 18 Handsfree control unit | 29 Travel alarm switch |
| 8 Cluster | 19 Fuse & relay box | 30 Washer switch |
| 9 Start switch | 20 Master switch | 31 Wiper switch |
| 10 Hour meter | 21 RS232 & J1939 service socket | 32 Main light switch |
| 11 One touch decel switch | 22 Radio & CD/MP3 player | |

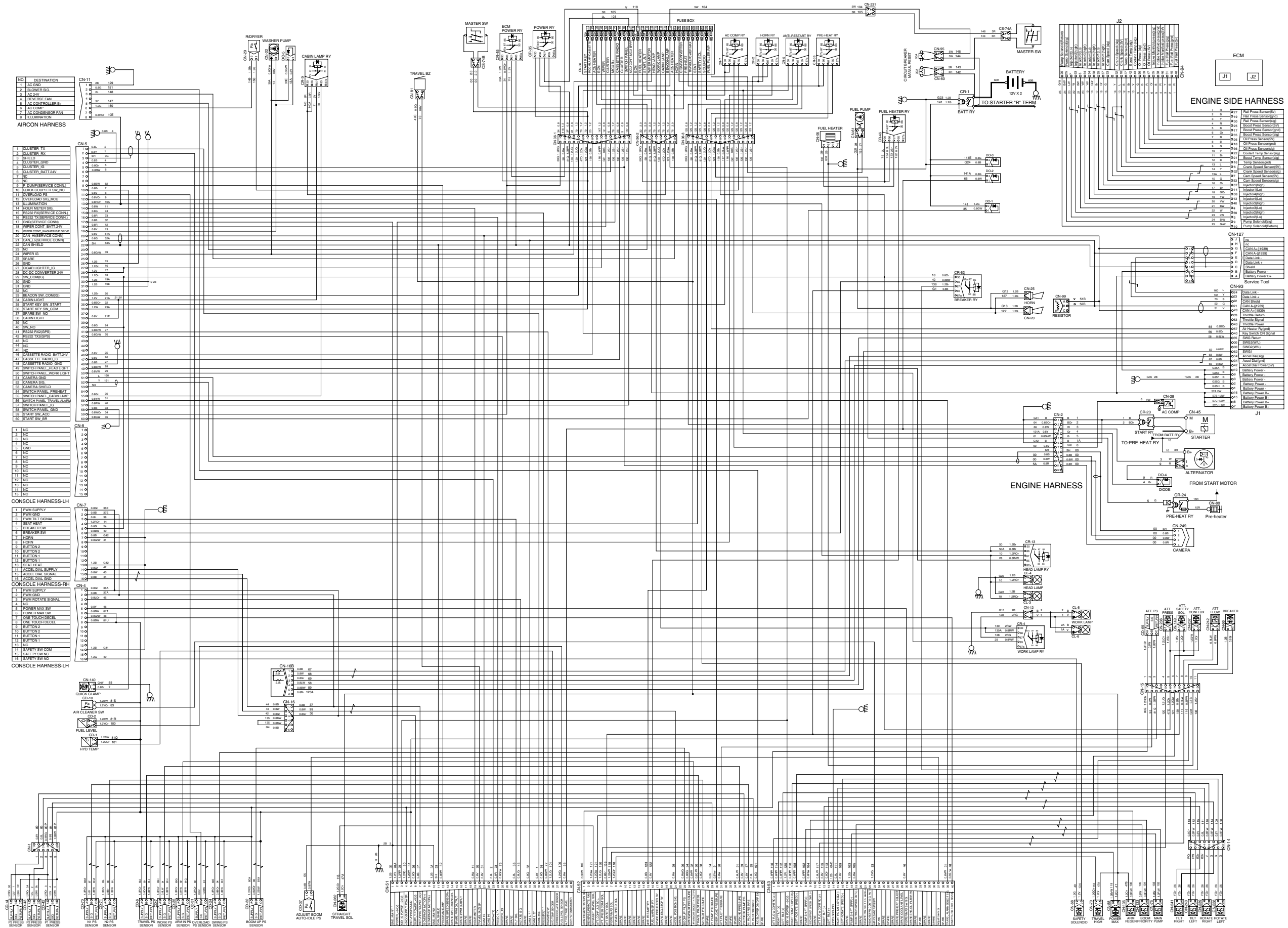
2. LOCATION 2



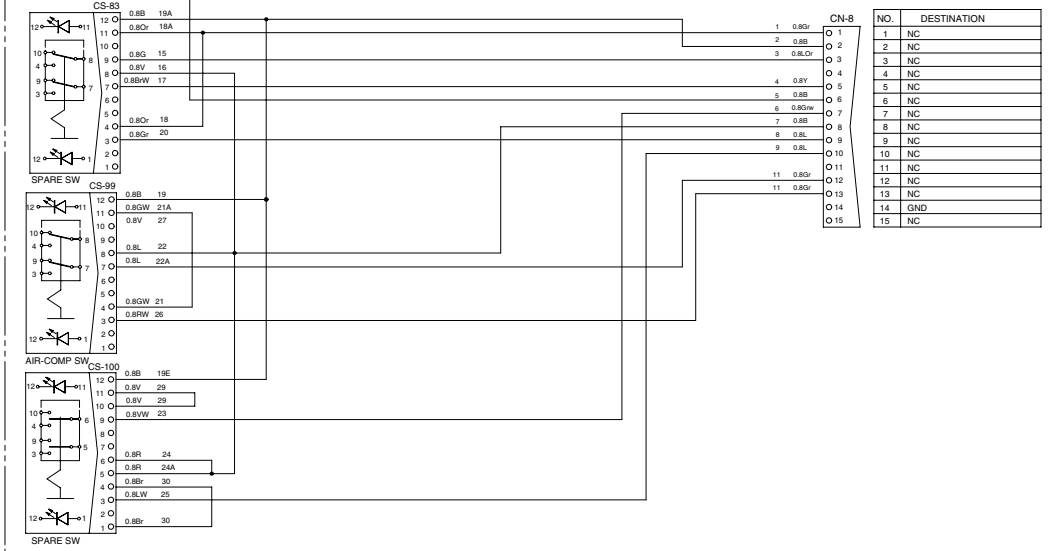
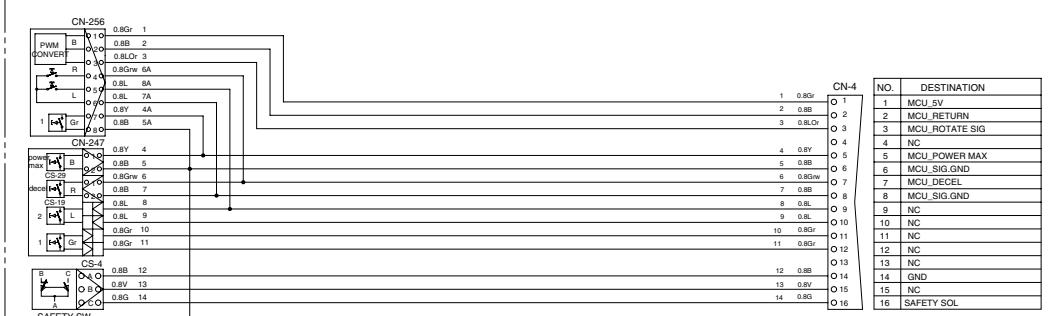
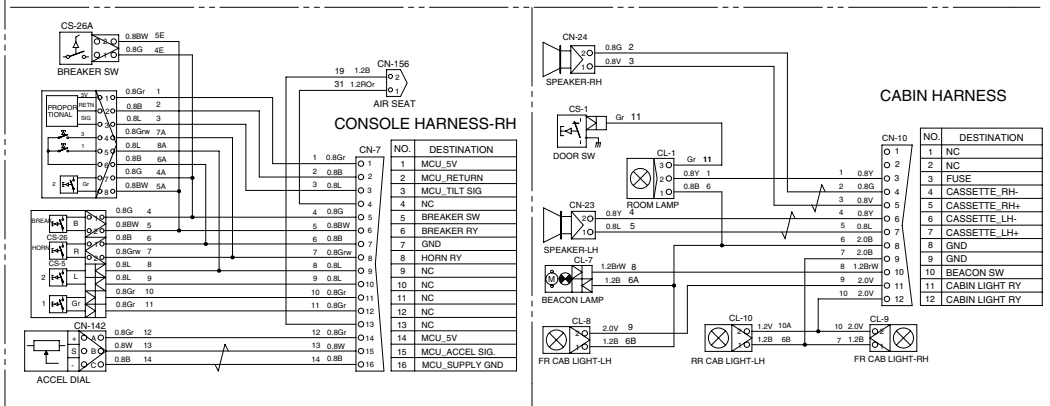
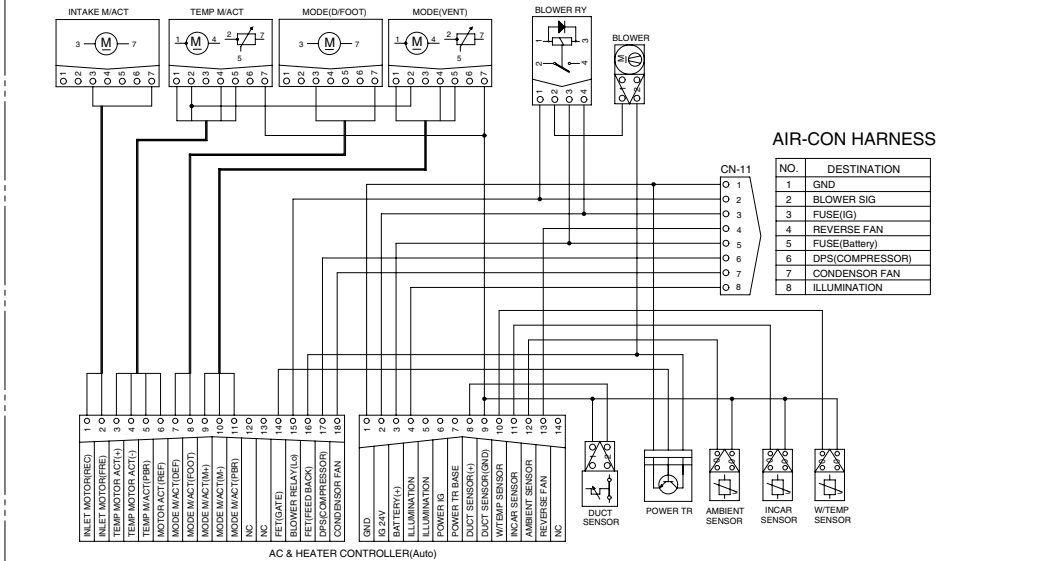
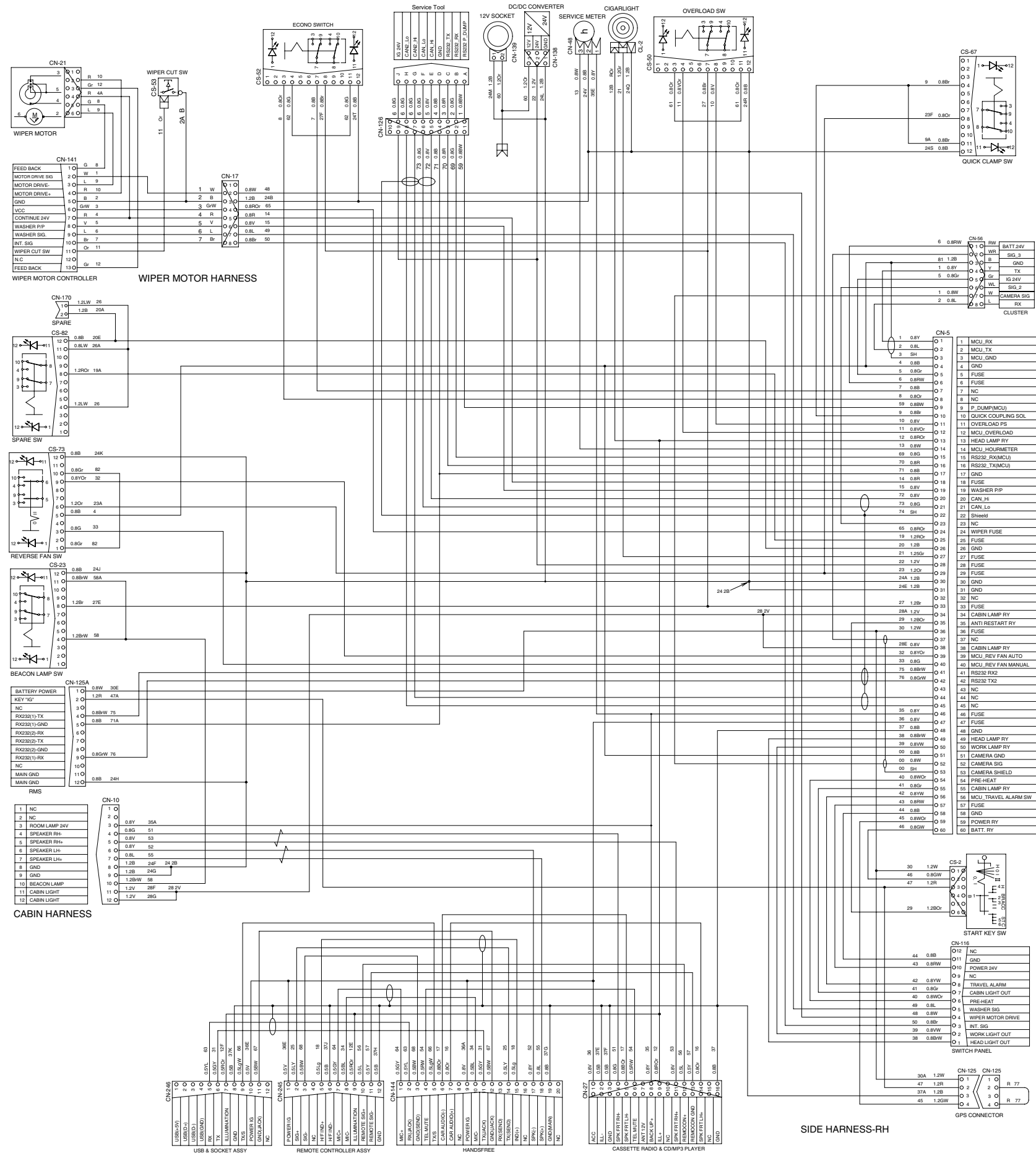
140Z94EL02

- | | | |
|----------------------|-----------------------------------|-------------------------------|
| 1 Lamp | 10 P3 pressure sensor | 19 Swing pressure sensor |
| 2 Fuel sender | 11 Overload pressure sensor | 20 Negative 1 pressure sensor |
| 3 Fuel filler pump | 12 Heater relay | 21 Negative 2 pressure sensor |
| 4 Beacon lamp | 13 Alternator | 22 Attach pressure sensor |
| 5 Battery | 14 Start relay | 23 Travel pressure sensor |
| 6 Battery relay | 15 Air cleaner switch | 24 Solenoid valve |
| 7 Horn | 16 Travel alarm buzzer | 25 Pump EPPR valve |
| 8 P1 pressure sensor | 17 Arm/ Bucket in pressure sensor | 26 Boom priority EPPR valve |
| 9 P2 pressure sensor | 18 Boom up pressure sensor | 27 Dozer pressure switch |

GROUP 2 ELECTRICAL CIRCUIT(1/2)



ELECTRICAL CIRCUIT(2/2)



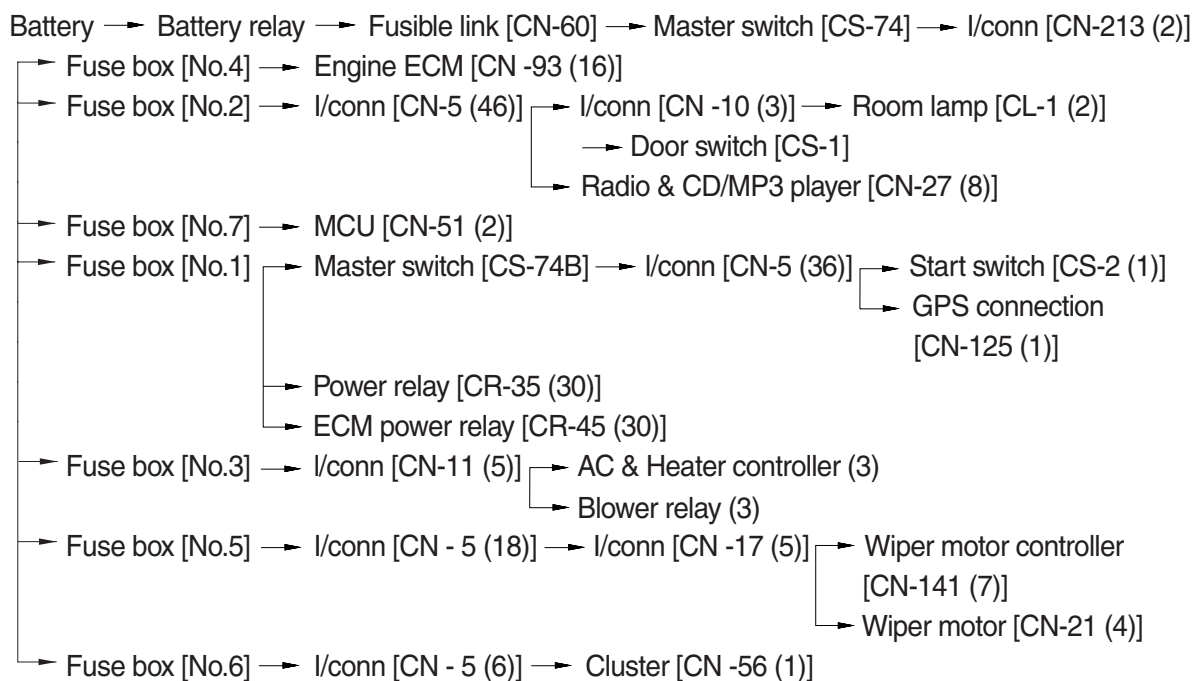
MEMORANDUM

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



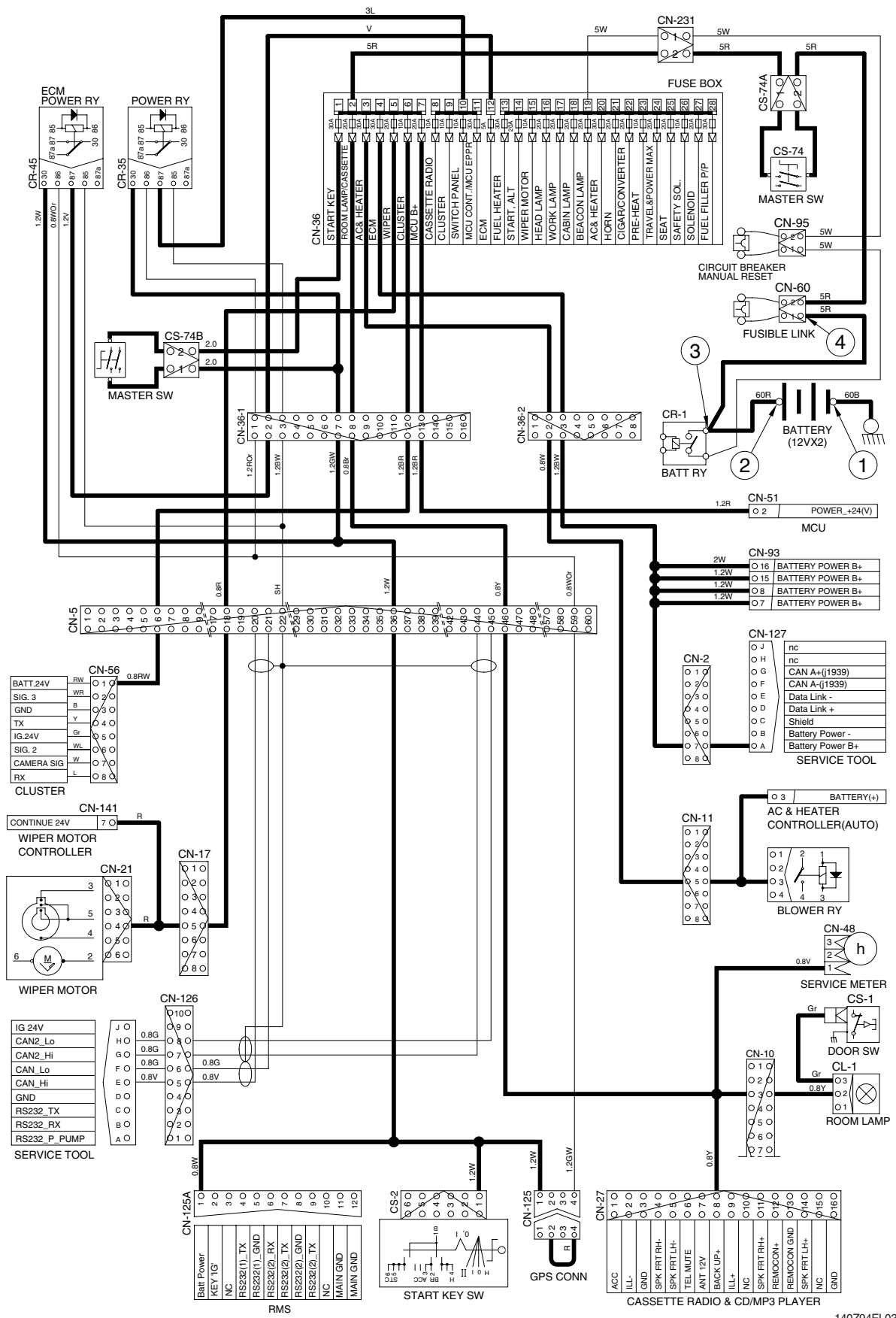
※ I/conn : Intermediate connector

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



140Z94EL03

2. STARTING CIRCUIT

1) OPERATING FLOW

Battery(+) terminal → Battery relay [CR-1] → Fusible link [CN-60] → Master switch [CS-74]
 → I/conn [CN-231 (2)] → Fuse box [No.1] → Master switch [CS-74B] → I/conn [CN-36-1 (7)]
 → 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 connector [CN-125 (2) → (4)] → I/conn [CN-5 (59)]
 → Power relay [CR-35 (86) → (87)] → Fuse box [No.10]
 → ECM power relay [CR-45 (86) → (87)] → Fuse box [No.12]

(2) When start key switch is in START position

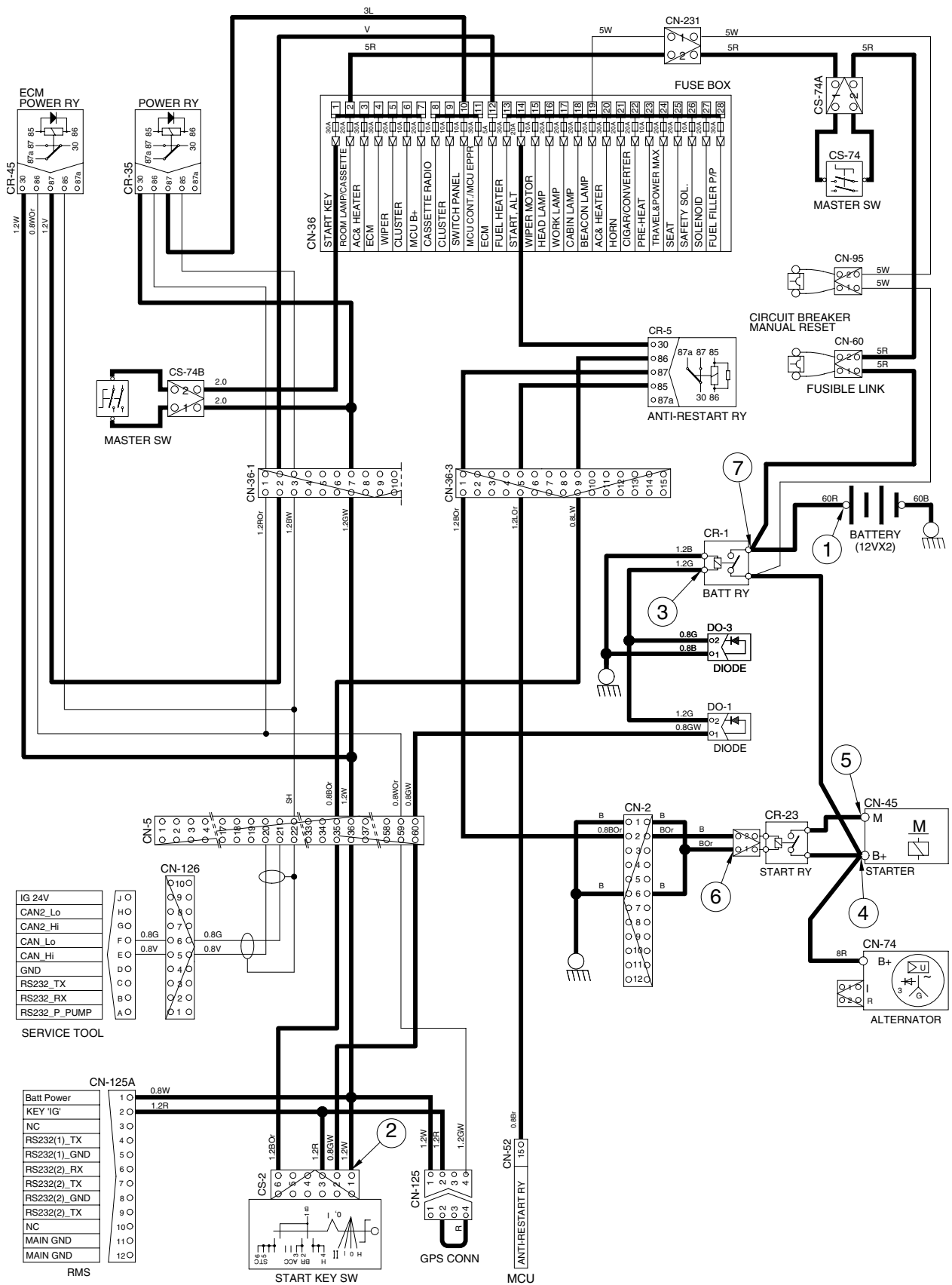
Start switch START [CS-2 (6)] → I/conn [CN-5 (35)] → Anti-restart relay [CR-5 (86) → (87)]
 → I/conn [CN-2 (2)] → Start relay [CR-23]

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 ⁺) ⑤ - GND (starter M) ⑥ - GND (start relay) ⑦ - GND (battery relay M8) | 20~25V |

※ GND : Ground

STARTING CIRCUIT



140Z94EL04

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-2 (3)] → MCU alternator voltage level [CN-51 (39)]
 Cluster charging warning lamp(Via serial interface)

(2) Charging flow

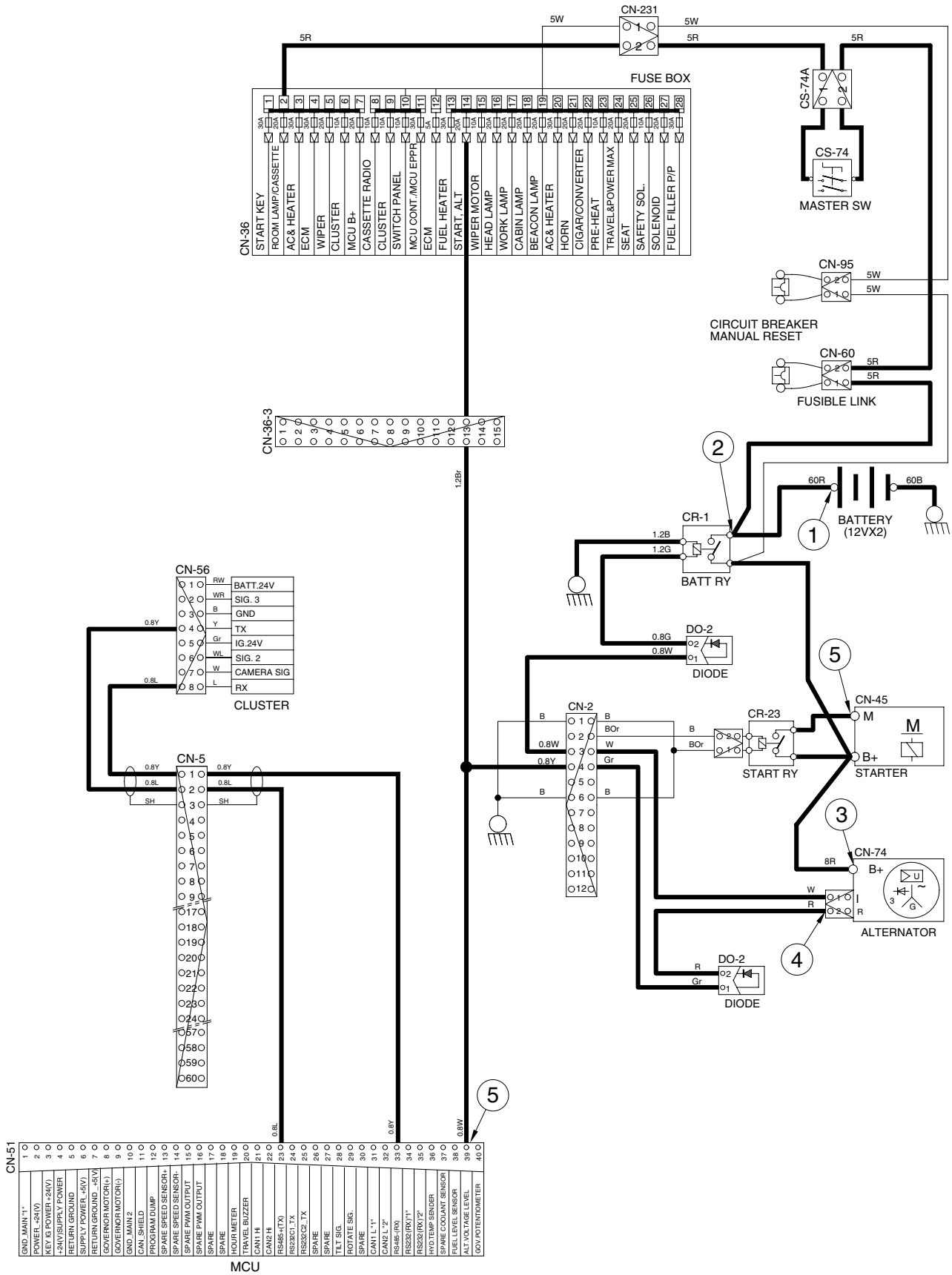
Alternator "B+" terminal → Battery relay(M8) → Battery(+) terminal
 → Fusible link [CN-60] → Master switch [CS-74]
 → I/conn [CN-231 (2)] → Fuse box

2) CHECK POINT

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

※ GND : Ground

CHARGING CIRCUIT



4. HEAD AND WORK LIGHT CIRCUIT

1) OPERATING FLOW

Fuse box (No.16) → Head light relay [CR-13 (30,86)]

Fuse box (No.17) → 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)] → Remote controller illumination ON [CN-245 (9)]

→ Cigar light [CL-2]

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

→ Radio & CD/MP3 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)]

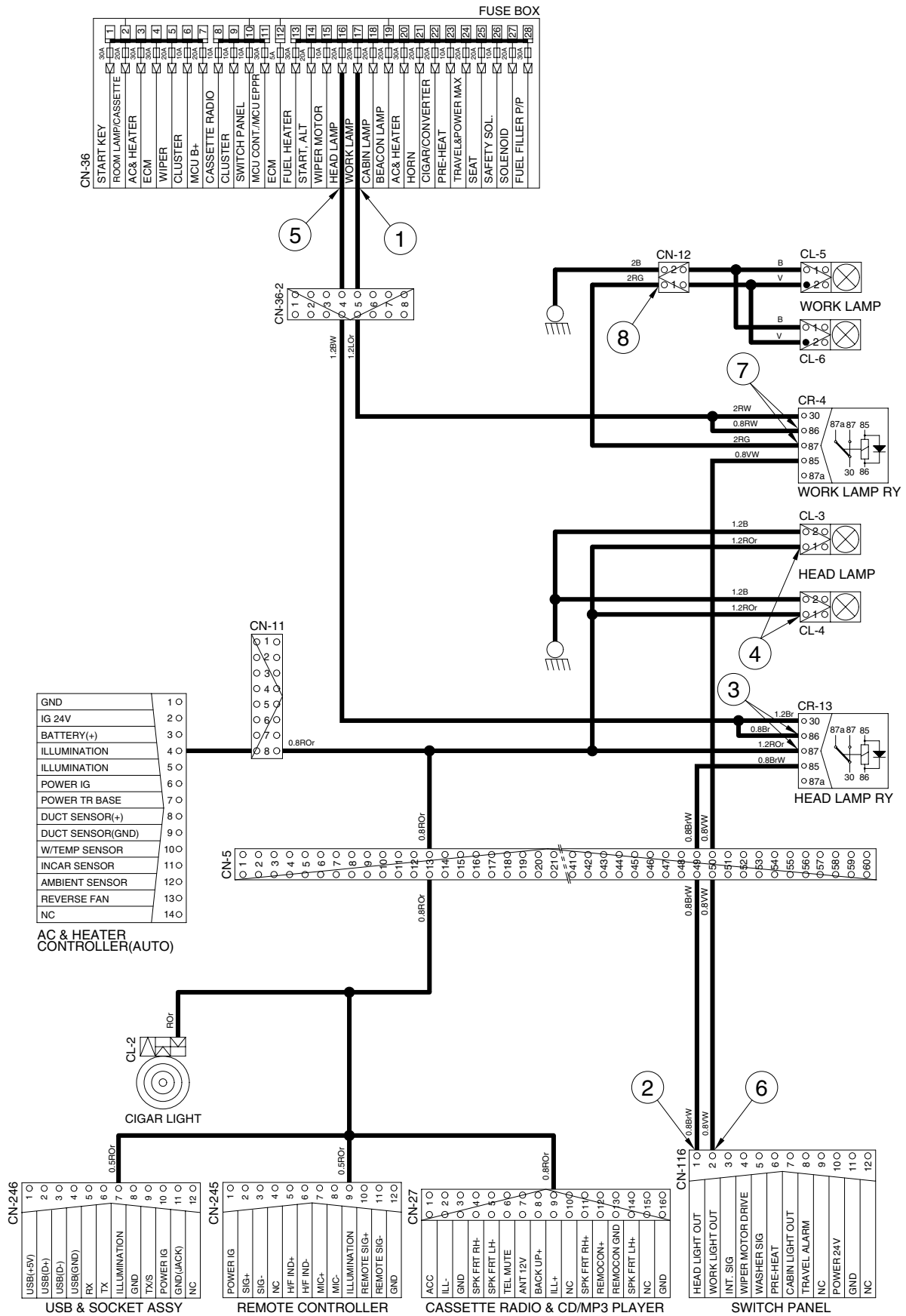
→ I/conn [CN-12 (1)] → Work light ON [CL-5 (2), CL-6 (2)]

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.19) → I/conn [CN-5 (33)] → Beacon lamp switch [CN-23 (8)]

Fuse box (No.18) → 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)]

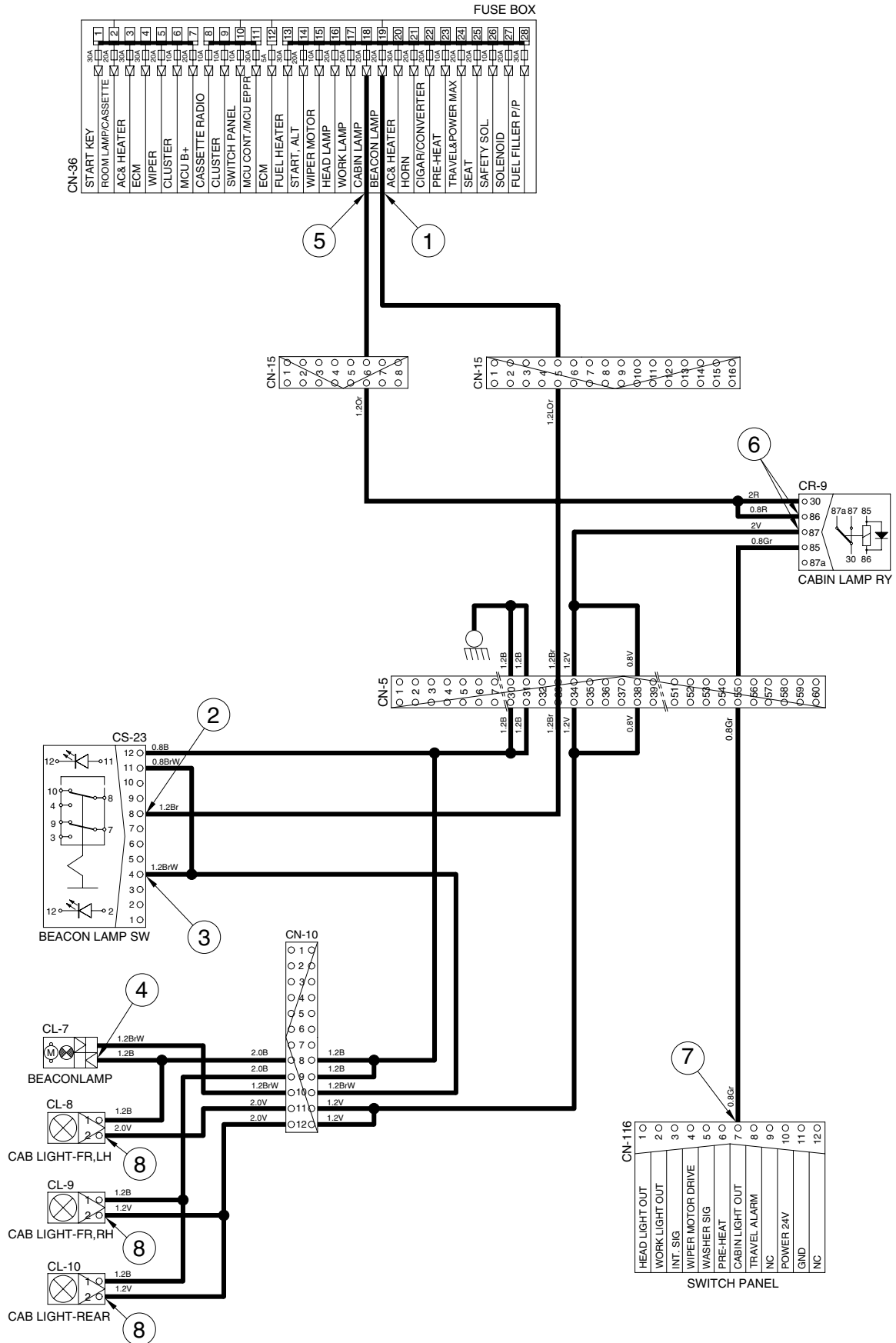
→ I/conn [CN-5 (34, 38)] → I/conn [CN-10 (11)] → Front cab light ON [CL-8 (2)]
 → I/conn [CN-10 (12)] → Front cab light ON [CL-9 (2)]
 → Rear cab light ON [CL-10 (2)]

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) | 20~25V |
| STOP | ON | ⑤ - GND (fuse box) ⑥ - GND (cabin light relay) ⑦ - GND (switch power output) ⑧ - GND (cab light) | 20~25V |

※ GND : Ground

BEACON LAMP AND CAB LIGHT CIRCUIT



6. WIPER AND WASHER CIRCUIT

1) OPERATING FLOW

(1) Key switch ON

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

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

Fuse box (No.15) → 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)

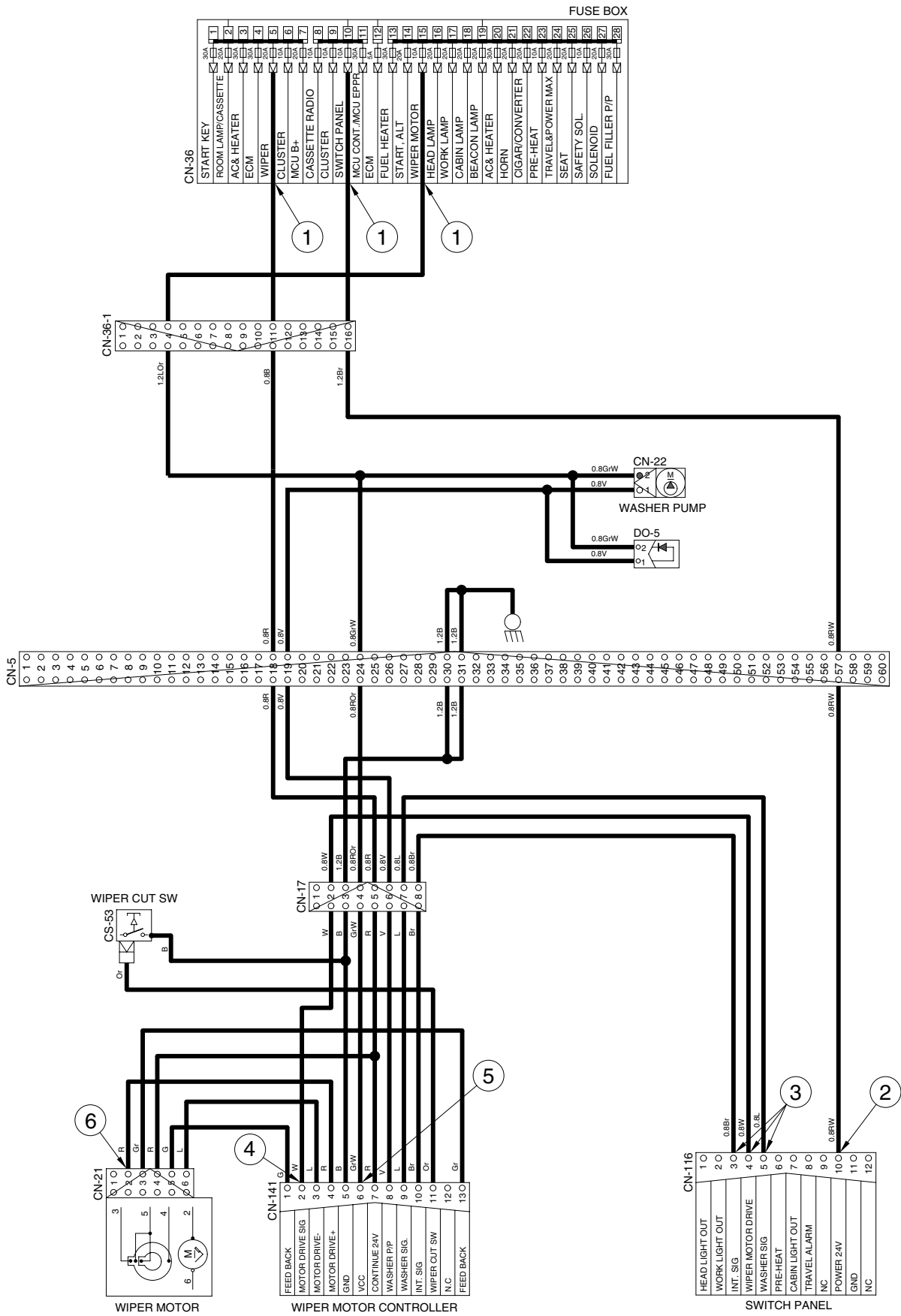
Switch OFF [CN-116 (4)] → Wiper motor parking position by wiper motor controller

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 |

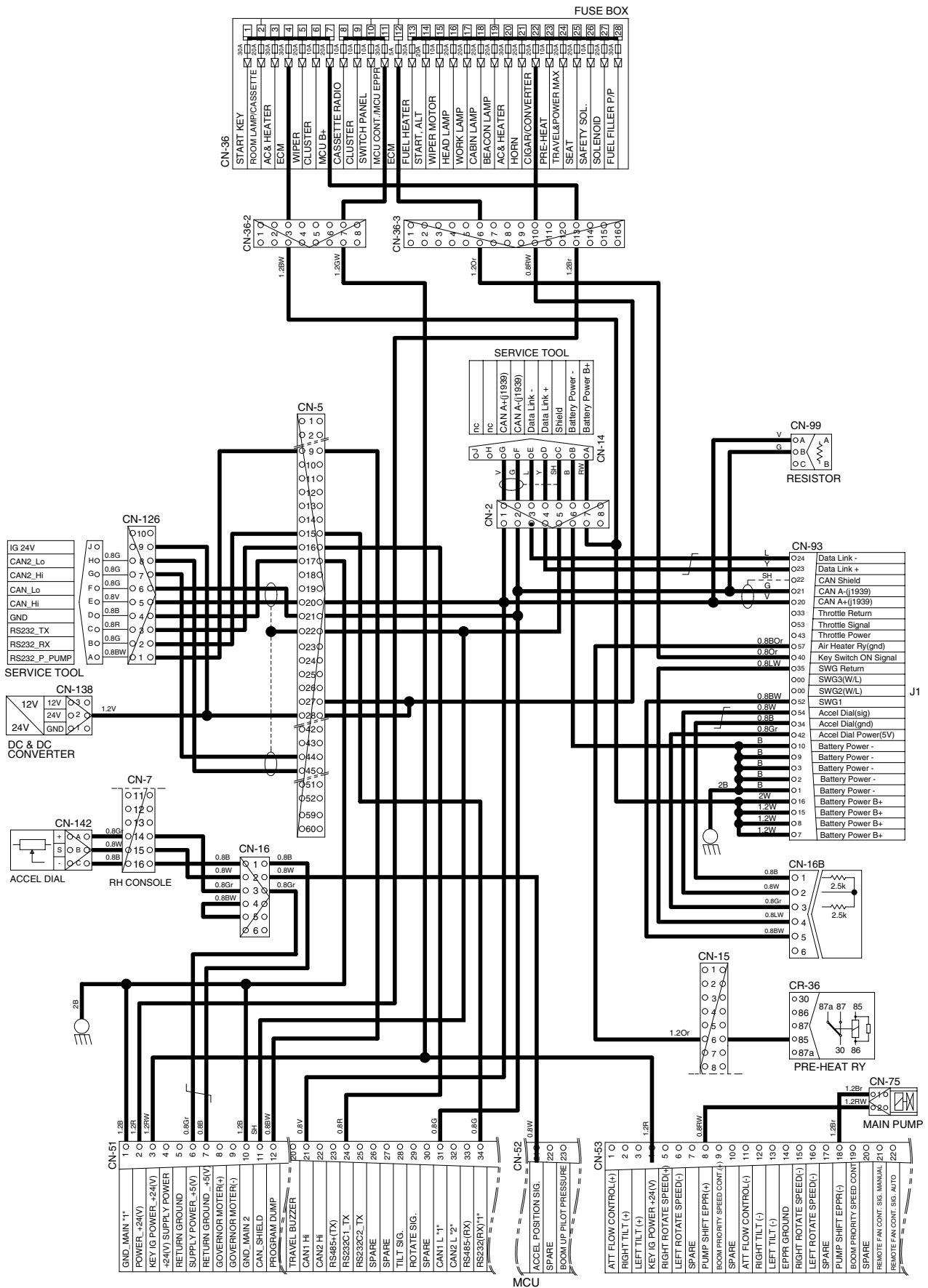
※ GND : Ground

WIPER AND WASHER CIRCUIT

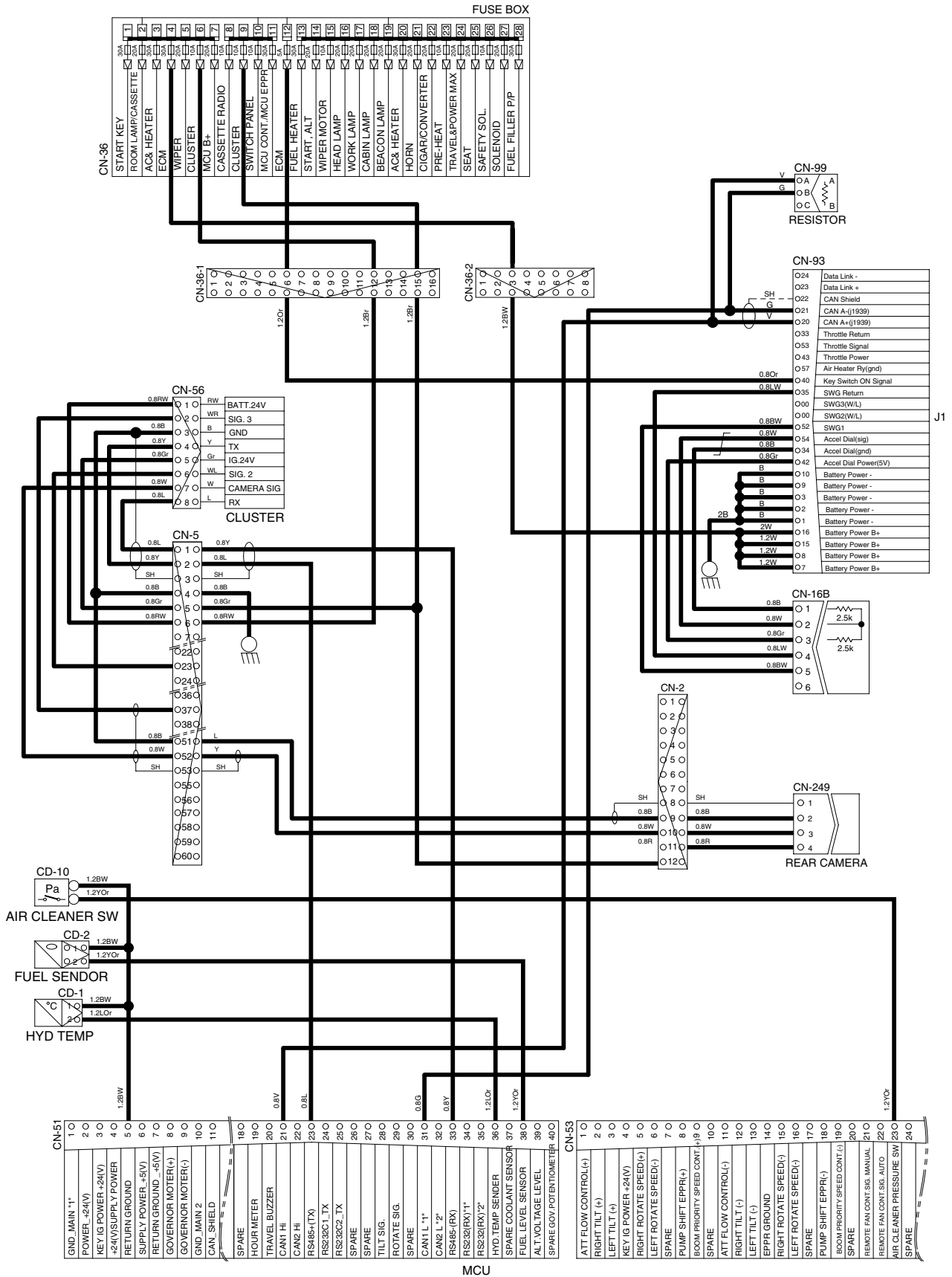


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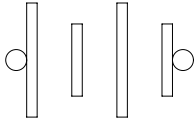
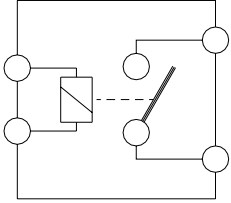
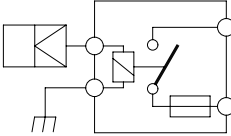
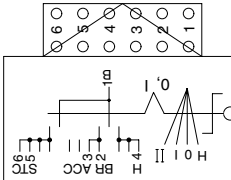
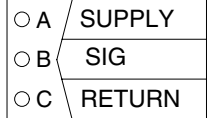
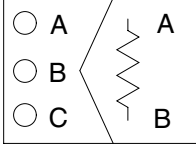
CONTROLLER CIRCUIT

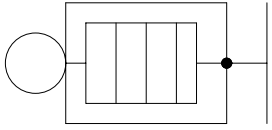
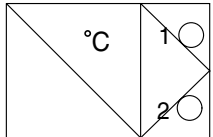
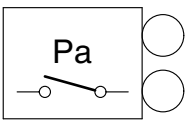
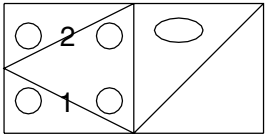
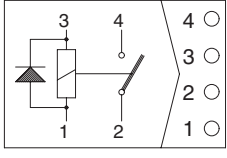
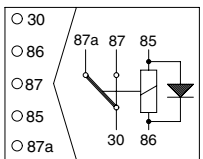


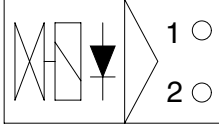
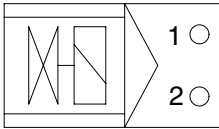
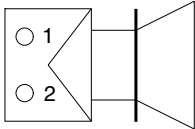
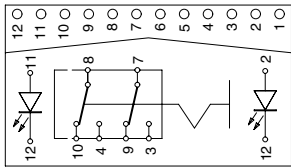
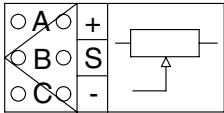
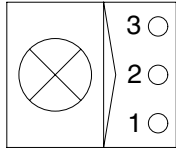
MONITORING CIRCUIT

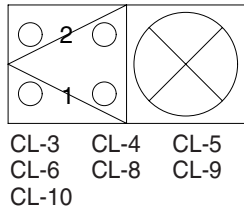
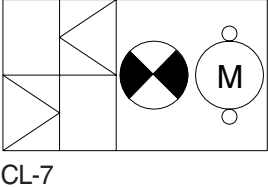
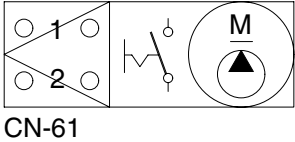
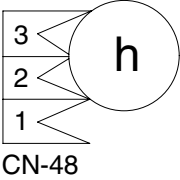
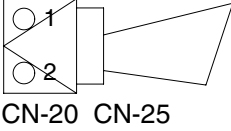
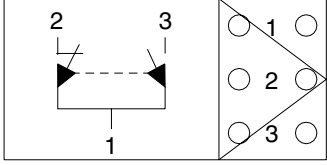


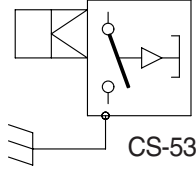
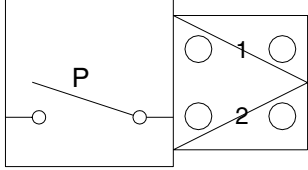
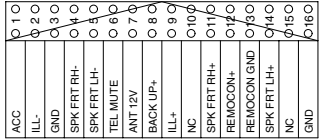
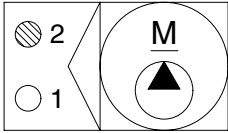
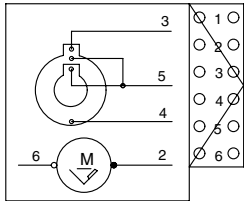
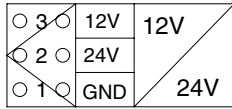
GROUP 3 ELECTRICAL COMPONENT SPECIFICATION

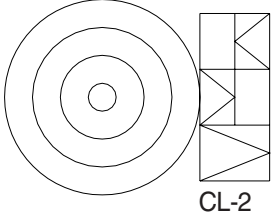
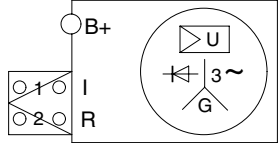
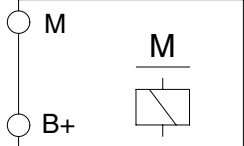
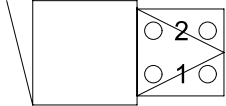
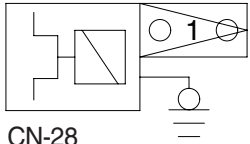
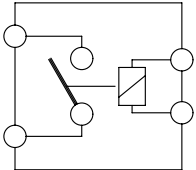
| Part name | Symbol | Specifications | Check |
|-----------------|---|--|---|
| Battery |  | 12V × 80Ah (2EA) | ※ Check specific gravity 1.280 over : Over charged 1.280 ~ 1.250 : Normal 1.250 below : Recharging |
| Battery relay |  <p style="text-align: center;">CR-1</p> | Rated load : 24V 100A (continuity) 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;"> CD-6 CD-7 CD-24 CD-31 CD-32 CD-35 CD-42 CD-43 CD-44 CD-69 CD-70 CD-71 </p> | 8~30V | ※ Check contact Normal : 0.1 Ω |
| Resistor |  <p style="text-align: center;">CN-99</p> | 4W | ※ Check resistance A-B : 120 Ω |

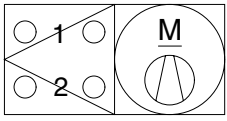
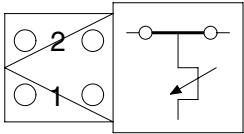
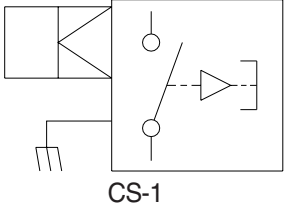
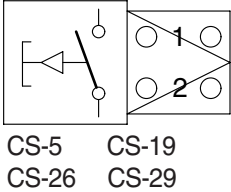
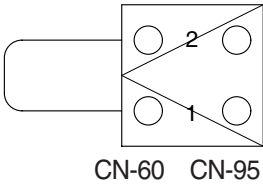
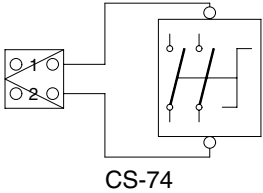
| Part name | Symbol | Specifications | Check |
|--------------------------------|---|----------------|--|
| Glow plug |  CN-80 | 24V 200A | ※ Check resistance 0.25~0.12 Ω |
| Temperature sensor (hydraulic) |  CD-1 | - | ※ Check resistance 50°C : 804 Ω 80°C : 310 Ω 100°C : 180 Ω |
| Air cleaner pressure 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-4 CR-5 CR-7 CR-9 CR-13 CR-35 CR-36 CR-45 CR-46 | 24V 16A | ※ Check resistance Normal : About 160 Ω (for terminal 85-86) 0 Ω (for terminal 30-87a) ∞ Ω (for terminal 30-87) |

| Part name | Symbol | Specifications | Check |
|--------------------------|--|----------------|--|
| Solenoid valve |  <p>CN-66 CN-68 CN-70 CN-88 CN-135 CN-140 CN-149 CN-236 CN-237 CN-262</p> | 24V 1A | ※ Check resistance Normal : 15~25 Ω (for terminal 1-2) |
| EPPR valve |  <p>CN-75 CN-133 CN-238 CN-239 CN-240 CN-241 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-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) |
| 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) |

| Part name | Symbol | Specifications | Check |
|--------------------------------------|---|-----------------------|--|
| Head lamp, Work lamp, Cab lamp |  | 24V 65W (H3 Type) | ※ Check disconnection Normal : 1.2 Ω |
| Beacon lamp |  | 21V 70W (H1 Type) | ※ Check disconnection Normal : A few Ω |
| Fuel filler pump |  | 24V 10A 35 l /min | ※ Check resistance Normal : 1.0 Ω |
| Service meter |  | 16~32V | ※ Check operation Supply power(24V) to terminal No.2 and connect terminal No.1 and ground |
| Horn |  | DC22~28V 2A | ※ Check operation Supply power(24V) to each terminal and connect ground. |
| Safety switch |  | 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) |

| Part name | Symbol | Specifications | Check |
|-----------------------|---|-------------------|--|
| 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 & CD/MP3 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) |
| DC/DC Converter |  <p>CN-138</p> | 12V 3A | 24V (1-2) 12V (1-3) |

| Part name | Symbol | Specifications | Check |
|-------------------|--|--------------------|---|
| 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 55A | ※ Check contact Normal : 0 Ω (for terminal B ⁺ -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 |
| Start relay |  <p>CR-23</p> | 24V 300A | ※ Check contact Normal : 0.94 Ω (for terminal 1-2) |

| Part name | Symbol | Specifications | Check |
|---|---|-------------------|---|
| 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 |  | 24V 2W | ※ Check resistance Normal : About 5M Ω |
| Switch (power max, one touch decal, horn, breaker) |  | 24V 6A | ※ Check resistance Normal : ∞ Ω |
| Fusible link |  | 60A | ※ Check disconnection normal : 0 Ω (connect ring terminal and check resist between terminal 1 and 2) |
| Master switch |  | 6-36V | ※ Check disconnection Normal : 0.1 Ω |

GROUP 4 CONNECTORS

1. CONNECTOR DESTINATION

| Connector number | Type | No. of pin | Destination | Connector part No. | |
|------------------|-----------|------------|---|--------------------|------------------|
| | | | | Female | Male |
| CN-1 | AMP | 6 | I/conn (Frame harness-Pump PS harness) | S816-006002 | S816-106002 |
| CN-2 | AMP | 12 | I/conn (Frame harness-Engine harness) | S816-012002 | S816-112002 |
| CN-4 | AMP | 16 | I/conn (Console harness LH-Frame harness) | S816-016002 | S816-116002 |
| 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-9 | AMP | 12 | I/conn (Console harness LH) | 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 |
| CN-14 | AMP | 8 | I/conn (Frame harness) | S816-008002 | - |
| CN-15 | AMP | 12 | I/conn (Frame harness) | S816-012002 | S816-112002 |
| CN-16 | AMP | 6 | Emergency engine start & speed control | S816-006002 | S816-106002 |
| CN-17 | DEUTSCH | 8 | I/conn (Wiper harness) | DT06-8S-EP06 | DT04-8P |
| 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 & CD/MP3 player | PK145-16017 | - |
| CN-28 | KUM | 1 | Aircon compressor | NMWP01F-B | - |
| CN-29 | KET | 2 | Receiver dryer | MG640795 | - |
| CN-36 | - | - | Fuse box | 21Q7-10910 | - |
| CN-36-1 | AMP | 16 | I/conn (Fuse box-Frame harness) | 368047-1 | 368050-1 |
| CN-36-2 | AMP | 8 | I/conn (Fuse box-Frame harness) | S816-008002 | - |
| CN-36-3 | AMP | 15 | I/conn (Fuse box-Frame harness) | - | 368301-1 |
| CN-45 | RING-TERM | - | Starter motor B ⁺ | S820-308000 | DT04-4P-E005 |
| CN-48 | KET | 1 | Service meter | GP890469 | - |
| CN-51 | DEUTSCH | 40 | MCU | DRC26-40SA | - |
| CN-52 | DEUTSCH | 40 | MCU | DRC26-40SB | - |
| CN-53 | DEUTSCH | 40 | MCU | DRC26-40SC | - |
| CN-56 | AMP | 8 | Cluster | - | S816-108002 |
| CN-60 | AMP | 2 | Fusible link | 21N4-01320 | S813-130201 |
| CN-61 | DEUTSCH | 2 | Fuel filler pump | DT06-2S-EP06 | - |

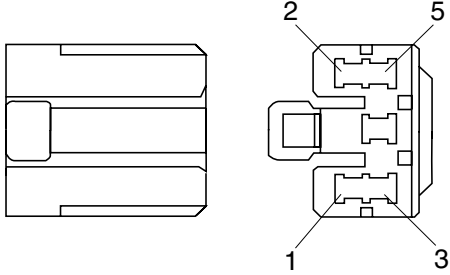
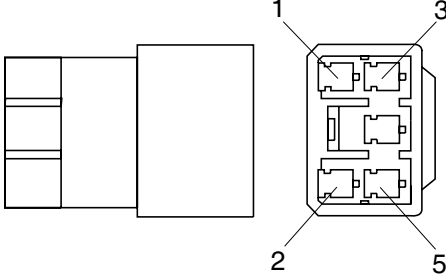
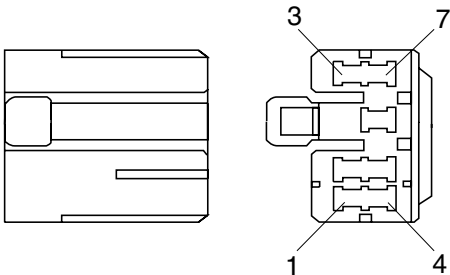
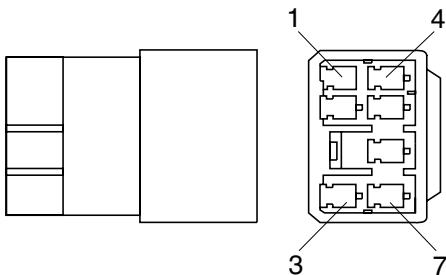
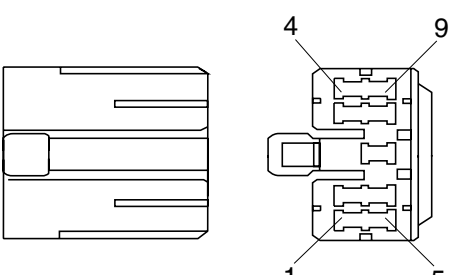
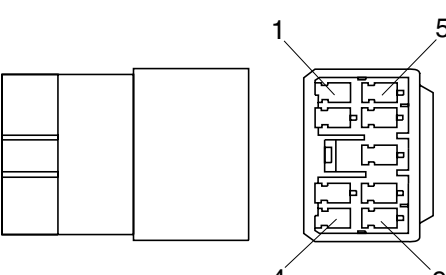
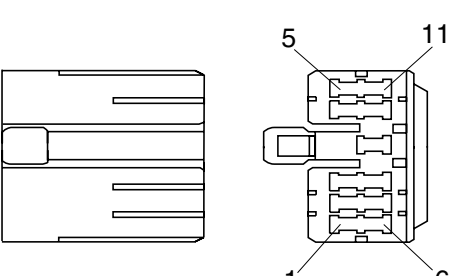
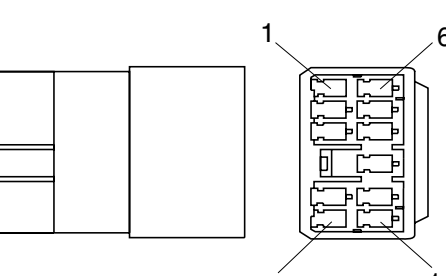
| Connector number | Type | No. of pin | Destination | Connector part No. | |
|------------------|-------------|------------|---------------------------------|--------------------|--------------|
| | | | | Female | Male |
| CN-66 | DEUTSCH | 2 | Breaker solenoid | DT06-2S-EP06 | - |
| CN-68 | DEUTSCH | 2 | Safety solenoid | DT06-2S-EP06 | - |
| CN-70 | DEUTSCH | 2 | Travel high solenoid | DT06-2S-EP06 | - |
| CN-74 | KET | 2 | Alternator "I" terminal | MG640-188-4 | - |
| CN-75 | AMP | 2 | Pump EPPR | S816-002002 | - |
| 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-93 | DEUTSCH | 64 | Engine ECM | 15488667 | - |
| CN-94 | DEUTSCH | 64 | Engine ECM | 15488668 | - |
| CN-95 | YAZAKI | 2 | Fusible link | 21N4-01311 | 7122-4125-50 |
| CN-96 | AMP | 4 | Fuel warmer | 2-967325-3 | - |
| CN-99 | DEUTSCH | 3 | Resister | DT06-3S-P012 | - |
| 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-135 | DEUTSCH | 2 | Arm regeneration solenoid | DT06-2S-EP06 | - |
| CN-138 | FASTEN | 3 | DC/DC Converter | S810-003202 | - |
| CN-139 | FASTEN | 2 | 12V socket | S810-002202 | - |
| 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-144 | KET | 20 | Handsfree | MG610240 | - |
| 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-231 | DEUTSCH | 2 | I/conn (Master switch-Fuse box) | DT06-2S-EP06 | |
| 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-245 | AMP | 12 | Remote controller assy | 368542-1 | - |
| CN-246 | AMP | 12 | USB & Socket assy | 174045-2 | - |
| CN-247 | DEUTSCH | 8 | Proportional | DT06-08SA-EP06 | DT04-8P |
| CN-249 | DEUTSCH | 4 | Rear view camera | DT06-4S-EP06 | DT04-4P-E005 |
| CN-256 | AMP | 8 | PWM convert | - | S816-108002 |
| CN-262 | DEUTSCH | 2 | Straight travel solenoid | DT06-2S-EP06 | - |

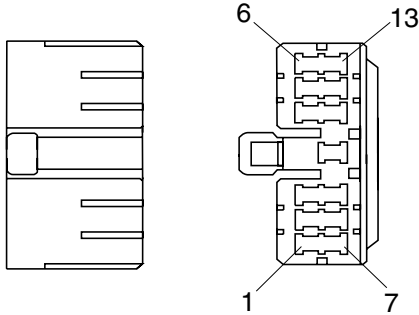
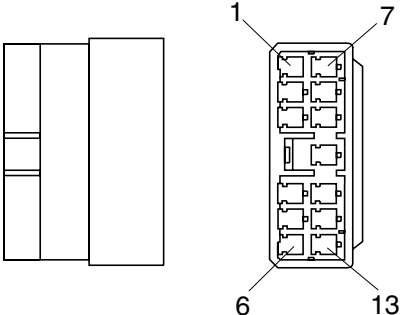
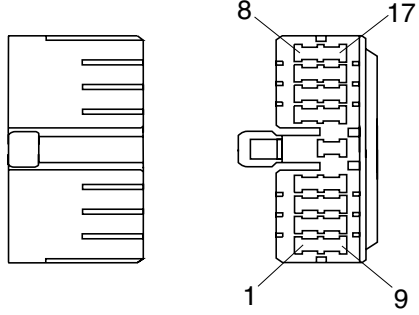
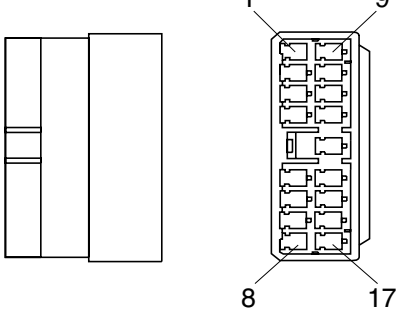
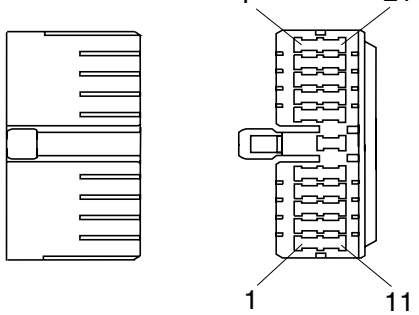
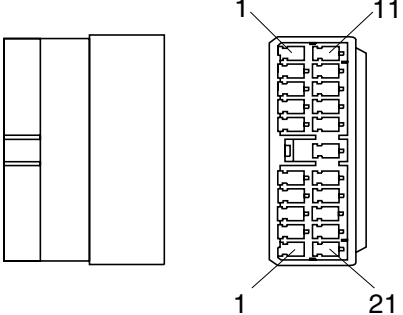
| Connector number | Type | No. of pin | Destination | Connector part No. | |
|------------------|-----------|------------|-------------------------|--------------------|--------------|
| | | | | Female | Male |
| · Relay | | | | | |
| CR-1 | RING-TERM | - | Battery relay | ST730135-2 | - |
| CR-2 | - | 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 | RING TERM | - | Start relay | - | S820-105000 |
| CR-24 | RING TERM | - | Preheat relay | S822-014000 | - |
| CR-35 | - | 5 | Power relay | - | - |
| CR-36 | - | 5 | Preheat relay | - | - |
| CR-45 | AMP | 5 | ECM power relay | BJA003526-001 | 24L1-05100 |
| 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 | S816-006000 | - |
| 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-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-74 | AMP | 2 | Master switch | S813-030201 | - |
| CS-82 | SWF | 12 | Heated seat switch | SWF 589790 | - |
| CS-83 | SWF | 12 | Spare switch | SWF589790 | - |
| CS-99 | SWF | 12 | Air compressor 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 | - | DT04-2P-E005 |
| CL-4 | DEUTSCH | 2 | Head lamp-RH | - | DT04-2P-E005 |

| Connector number | Type | No. of pin | Destination | Connector part No. | |
|------------------|-----------|------------|-----------------------------|--------------------|--------------|
| | | | | Female | Male |
| CL-5 | DEUTSCH | 2 | Work lamp-LH | - | DT04-2P |
| CL-6 | DEUTSCH | 2 | Work lamp-RH | - | DT04-2P |
| CL-7 | SHUR | 1 | Beacon lamp | S822-014002 | S822-114002 |
| CL-8 | DEUTSCH | 2 | Front cab light-LH | DT04-2S | DT04-2P-E005 |
| CL-9 | DEUTSCH | 2 | Front cab light-RH | DT04-2S | DT04-2P-E005 |
| CL-10 | DEUTSCH | 2 | Rear cab light-LH | DT04-2S | DT04-2P-E005 |
| · Sensor, sendor | | | | | |
| 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-10 | RING TERM | - | Air cleaner switch | ST730135-2 | - |
| CD-24 | DEUTSCH | 3 | Swing sensor | DT06-3S-EP06 | - |
| CD-31 | DEUTSCH | 3 | Overload sensor | DT06-3S-EP06 | - |
| CD-32 | DEUTSCH | 3 | Boom up sensor | DT06-3S-EP06 | - |
| CD-35 | DEUTSCH | 3 | Arm & bucket in sensor | DT06-3S-EP06 | - |
| CD-37 | DEUTSCH | 2 | Adjust boom pressure switch | DT06-2S-EP06 | DT04-2P-E005 |
| 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-45 | DEUTSCH | 2 | WIF sensor | DT06-2S-EP06 | - |
| CD-50 | DEUTSCH | 2 | Dozer pressure switch | DT06-2S-EP06 | DT04-2P-E005 |
| CD-69 | DEUTSCH | 3 | Attach pressure sensor | DT06-3S-EP06 | - |
| CD-70 | DEUTSCH | 3 | N1 pressure sensor | DT06-3S-EP06 | - |
| CD-71 | DEUTSCH | 3 | N2 pressure sensor | DT06-3S-EP06 | - |

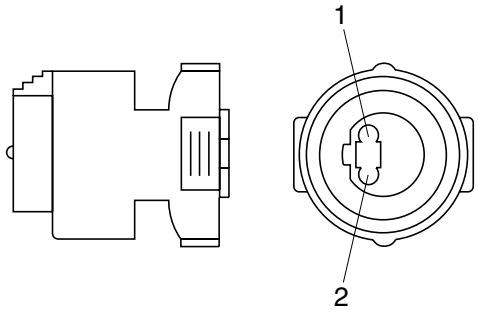
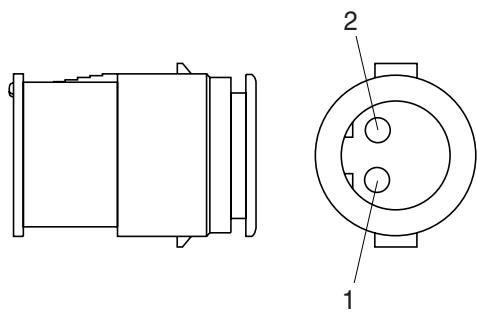
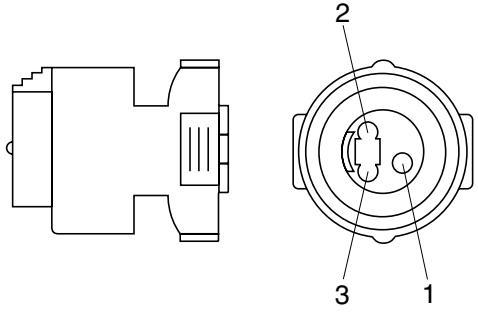
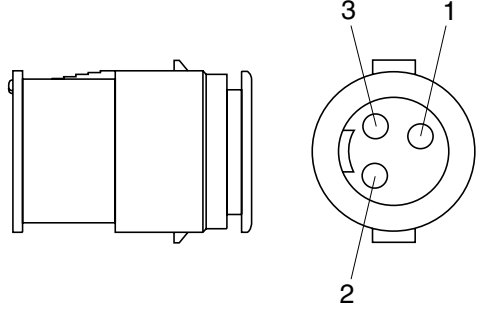
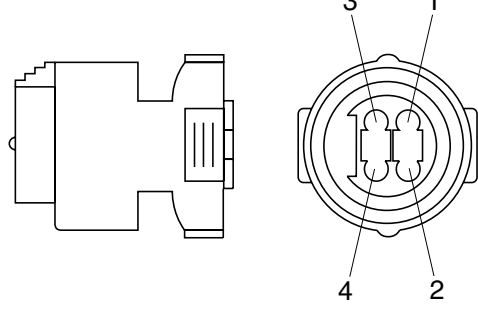
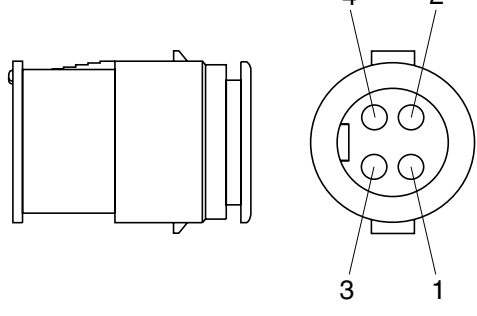
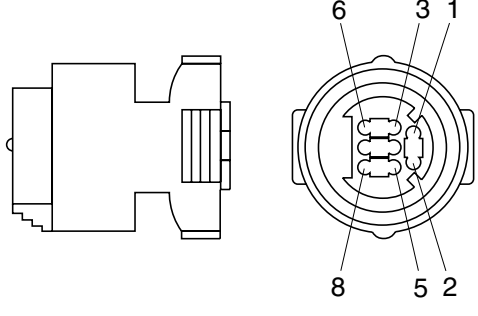
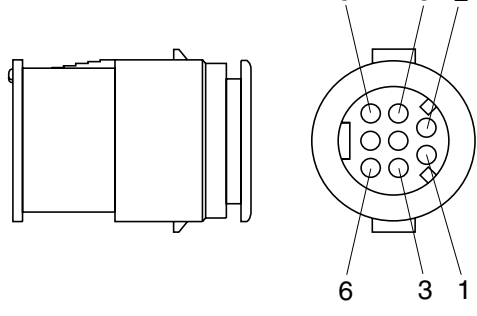
2. CONNECTION TABLE FOR CONNECTORS

1) PA TYPE CONNECTOR

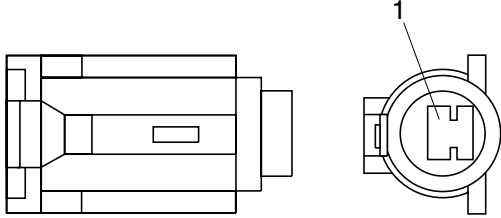
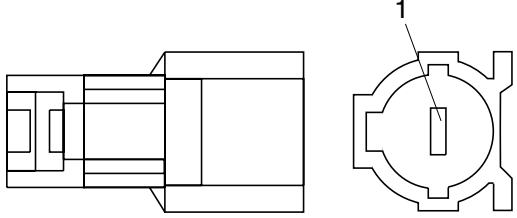
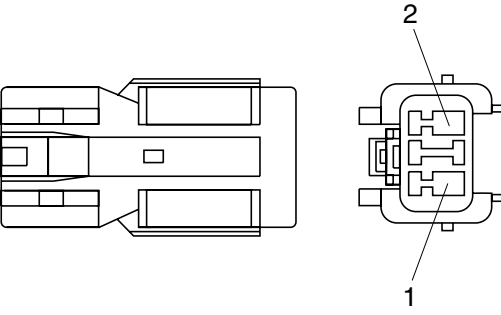
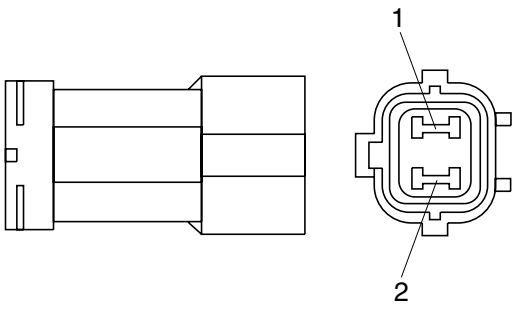
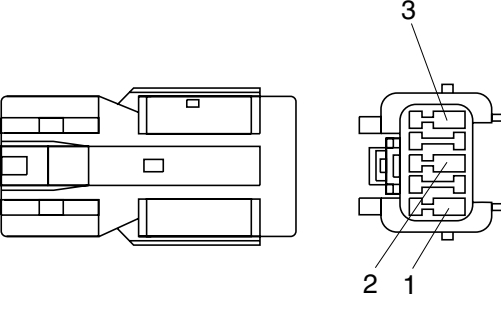
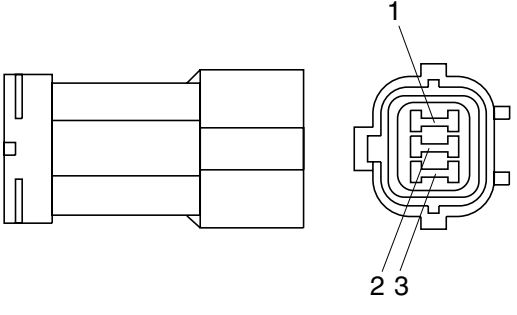
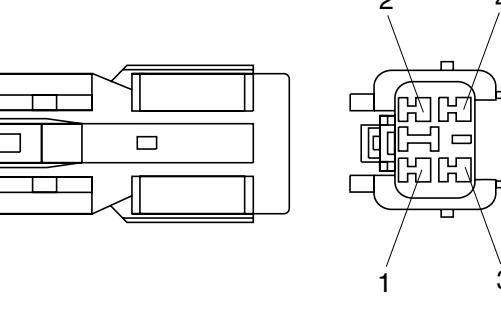
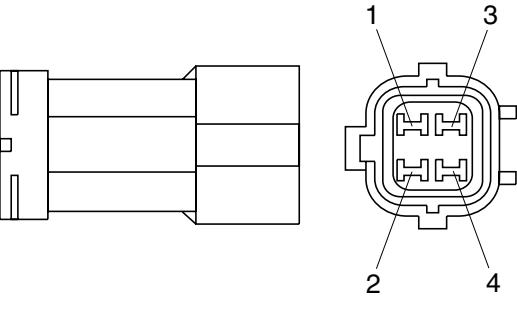
| No. of pin | Receptacle connector (female) | Plug connector (male) |
|------------|--|--|
| 5 |  <p style="text-align: center;">S811-005002</p> |  <p style="text-align: center;">S811-105002</p> |
| 7 |  <p style="text-align: center;">S811-007002</p> |  <p style="text-align: center;">S811-107002</p> |
| 9 |  <p style="text-align: center;">S811-009002</p> |  <p style="text-align: center;">3S811-109002</p> |
| 11 |  <p style="text-align: center;">S811-011002</p> |  <p style="text-align: center;">S811-111002</p> |

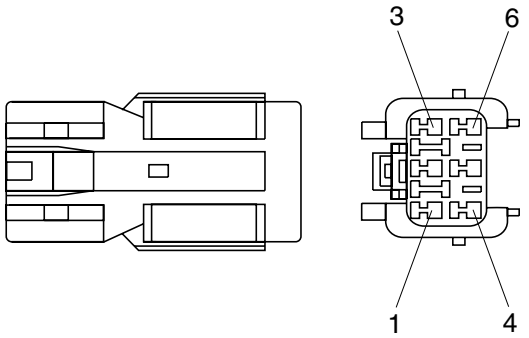
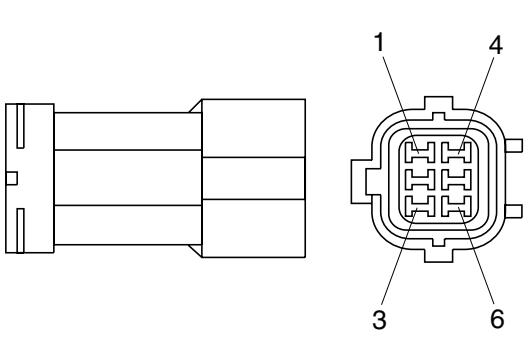
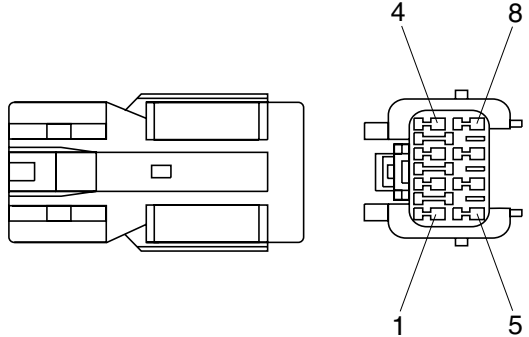
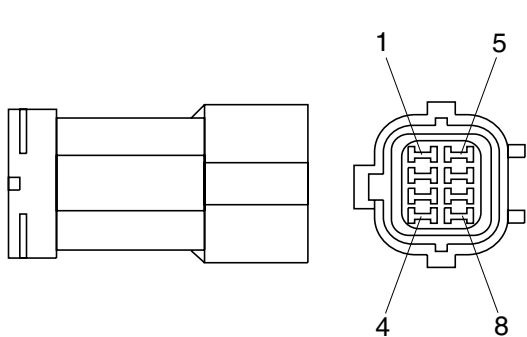
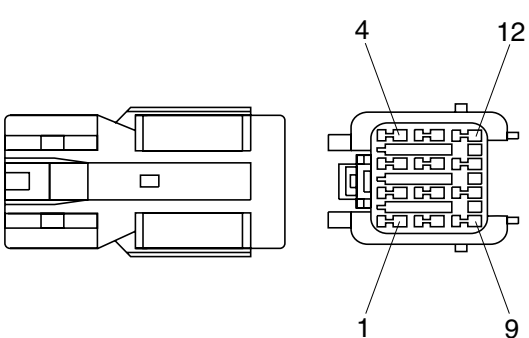
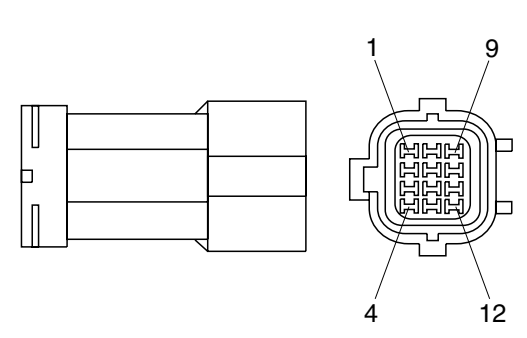
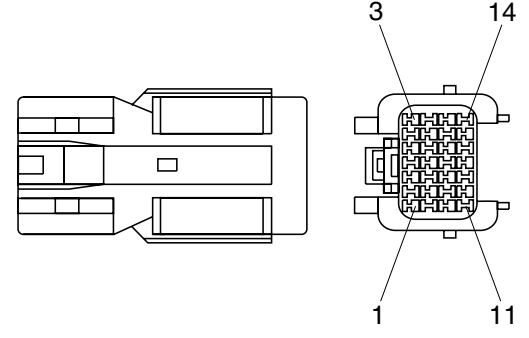
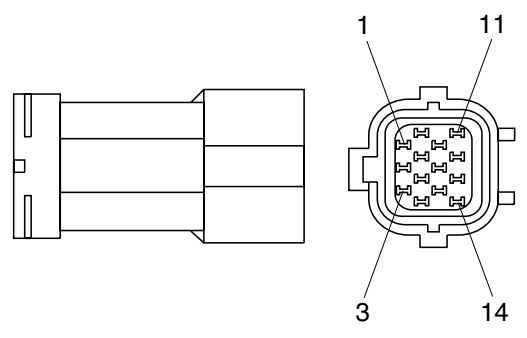
| No. of pin | Receptacle connector (female) | Plug connector (male) |
|------------|--|---|
| 13 |  <p style="text-align: center;">S811-013002</p> |  <p style="text-align: center;">S811-113002</p> |
| 17 |  <p style="text-align: center;">S811-017002</p> |  <p style="text-align: center;">S811-117002</p> |
| 21 |  <p style="text-align: center;">S811-021002</p> |  <p style="text-align: center;">S811-121002</p> |

2) J TYPE CONNECTOR

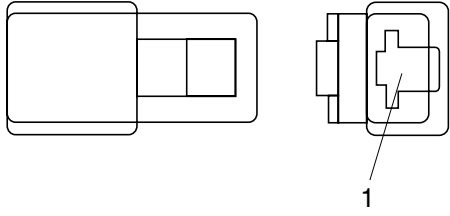
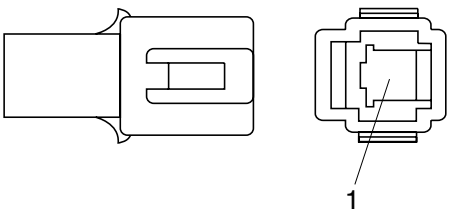
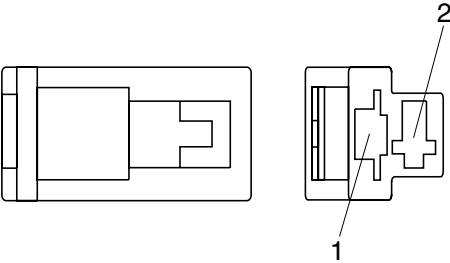
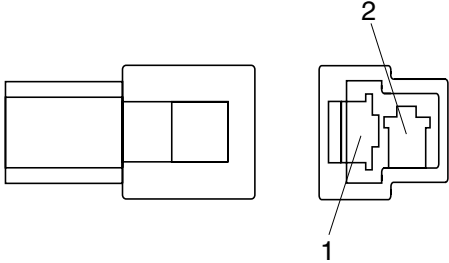
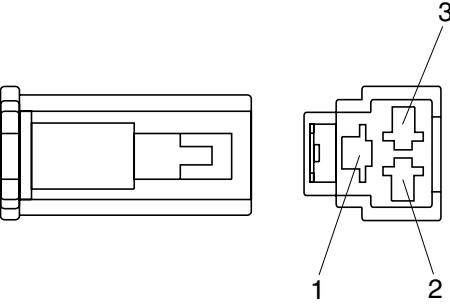
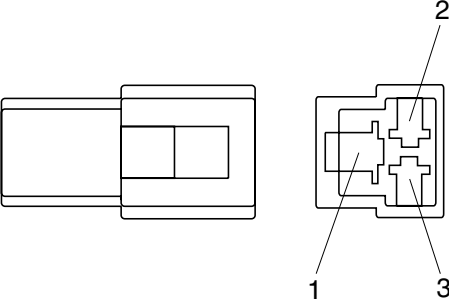
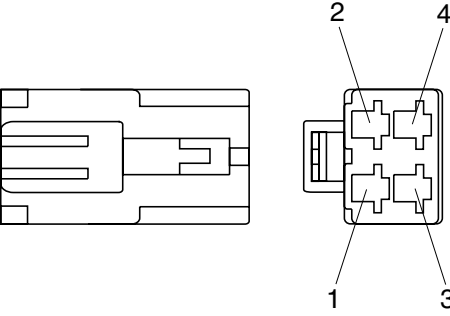
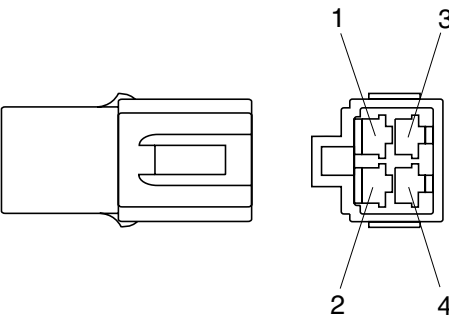
| No. of pin | Receptacle connector (female) | Plug connector (male) |
|------------|--|---|
| 2 |  <p style="text-align: center;">S816-002001</p> |  <p style="text-align: center;">S816-102001</p> |
| 3 |  <p style="text-align: center;">S816-003001</p> |  <p style="text-align: center;">S816-103001</p>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

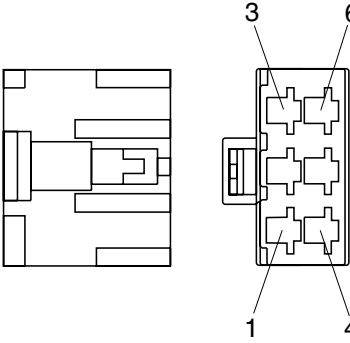
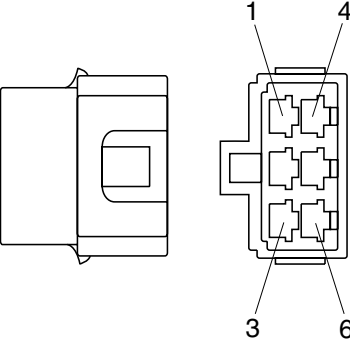
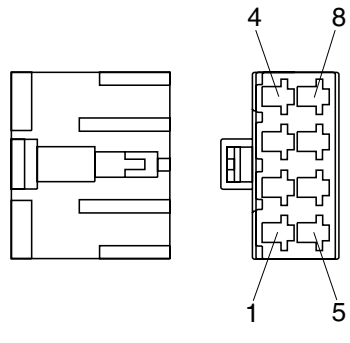
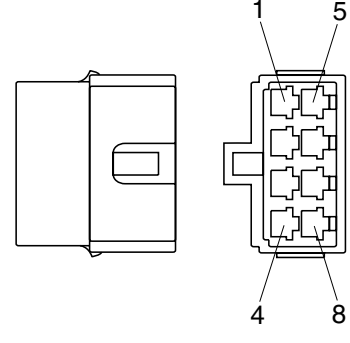
3) SWP TYPE CONNECTOR

| No. of pin | Receptacle connector (female) | Plug connector (male) |
|------------|--|---|
| 1 |  <p data-bbox="687 685 839 712">S814-001000</p> |  <p data-bbox="1241 685 1393 712">S814-101000</p> |
| 2 |  <p data-bbox="687 1088 839 1115">S814-002000</p> |  <p data-bbox="1241 1088 1393 1115">S814-102000</p> |
| 3 |  <p data-bbox="687 1498 839 1525">S814-003000</p> |  <p data-bbox="1241 1498 1393 1525">S814-103000</p> |
| 4 |  <p data-bbox="687 1908 839 1935">S814-004000</p> |  <p data-bbox="1241 1908 1393 1935">S814-104000</p> |

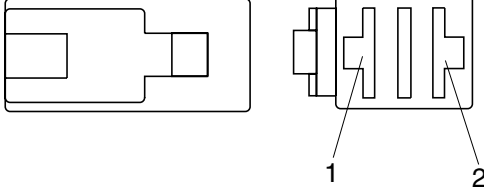
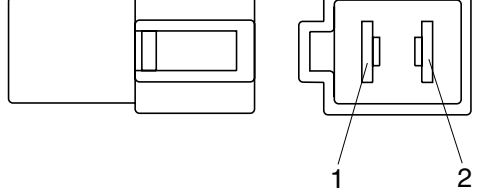
| No. of pin | Receptacle connector (female) | Plug connector (male) |
|------------|--|---|
| 6 |  <p data-bbox="686 638 837 672">S814-006000</p> |  <p data-bbox="1236 638 1388 672">S814-106000</p> |
| 8 |  <p data-bbox="686 1048 837 1081">S814-008000</p> |  <p data-bbox="1236 1048 1388 1081">S814-108000</p> |
| 12 |  <p data-bbox="686 1458 837 1491">S814-012000</p> |  <p data-bbox="1236 1458 1388 1491">S814-112000</p> |
| 14 |  <p data-bbox="686 1868 837 1901">S814-014000</p> |  <p data-bbox="1236 1868 1388 1901">S814-114000</p> |

4) CN TYPE CONNECTOR

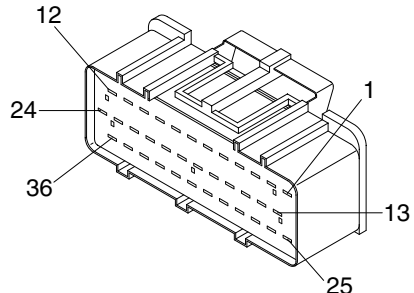
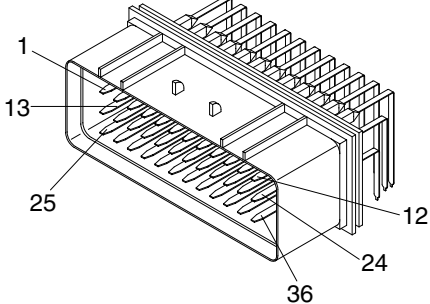
| No. of pin | Receptacle connector (female) | Plug connector (male) |
|------------|--|---|
| 1 |  <p style="text-align: center;">S810-001202</p> |  <p style="text-align: center;">S810-101202</p> |
| 2 |  <p style="text-align: center;">S810-002202</p> |  <p style="text-align: center;">S810-102202</p>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

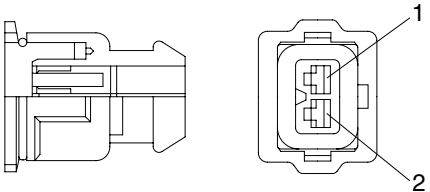
5) 375 FASTEN TYPE CONNECTOR

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

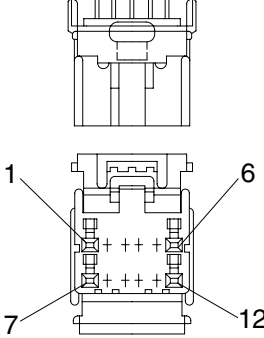
6) AMP ECONOSEAL CONNECTOR

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

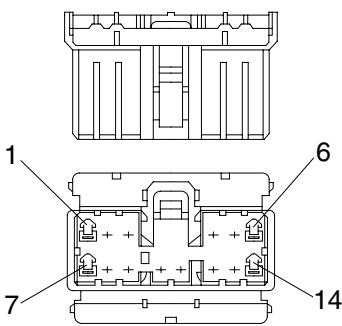
7) AMP TIMER CONNECTOR

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

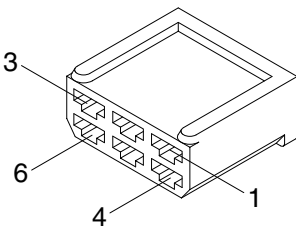
8) AMP 040 MULTILOCK CONNECTOR

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

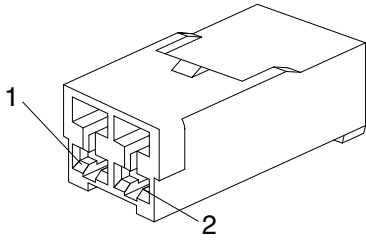
9) AMP 070 MULTILOCK CONNECTOR

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

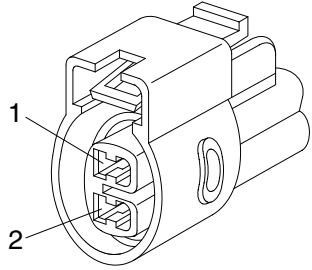
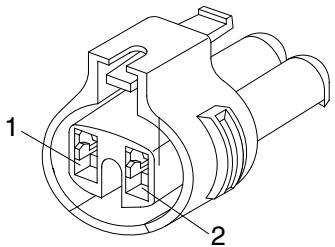
10) AMP FASTIN - FASTON CONNECTOR

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

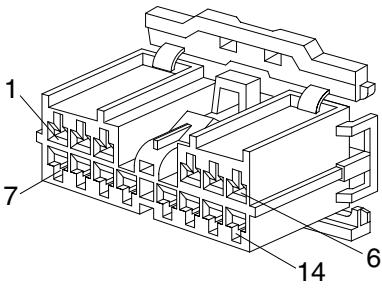
11) KET 090 CONNECTOR

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

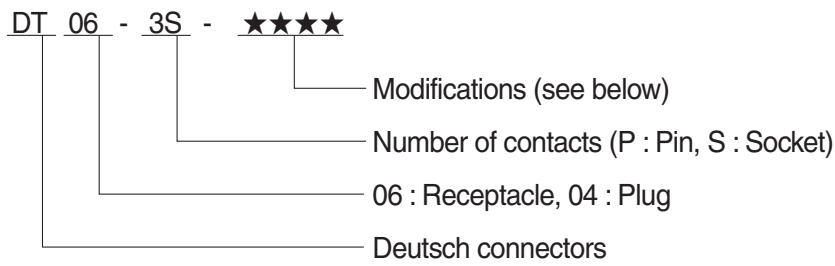
12) KET 090 WP CONNECTORS

| 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



※ Modification

E003 : Standard end cap - gray

E004 : Color of connector to be black

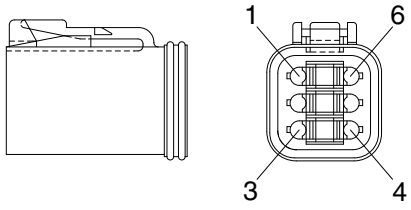
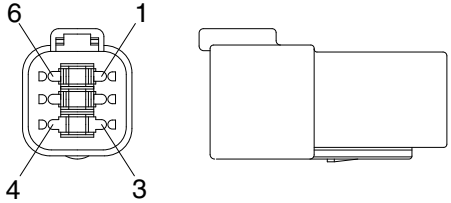
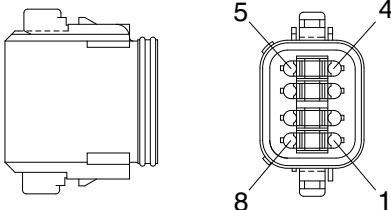
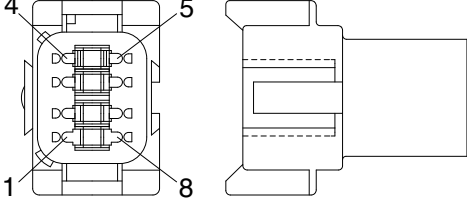
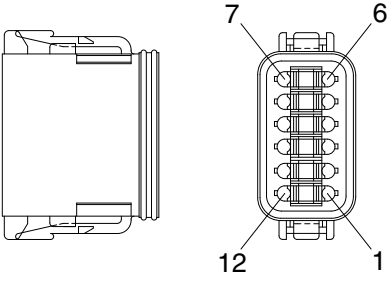
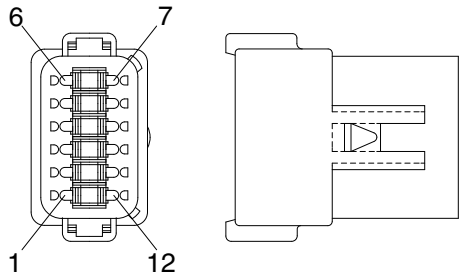
E005 : Combination - E004 & E003

EP04 : End cap

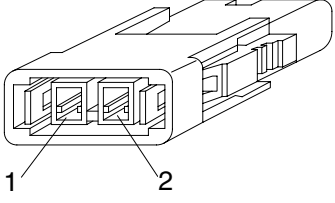
EP06 : Combination P012 & EP04

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

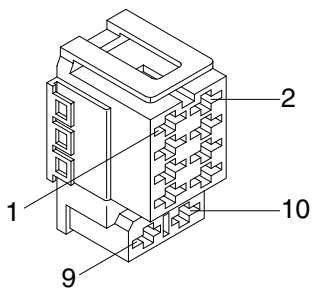
| No. of pin | Receptacle connector (female) | Plug connector (male) |
|------------|-------------------------------|-----------------------|
| 2 | <p>DT06-2S</p> | <p>DT04-2P</p> |
| 3 | <p>DT06-3S</p> | <p>DT04-3P</p> |
| 4 | <p>DT06-4S</p> | <p>DT04-4P</p> |

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

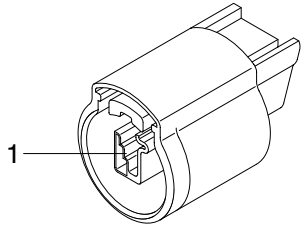
15) MOLEX 2CKTS CONNECTOR

| No. of pin | Receptacle connector (female) | Plug connector (male) |
|------------|---|-----------------------|
| 2 |  <p data-bbox="702 683 837 716">35215-0200</p> | |

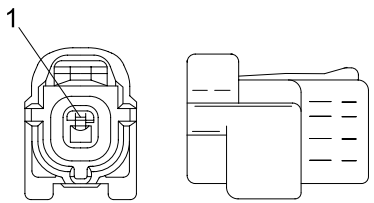
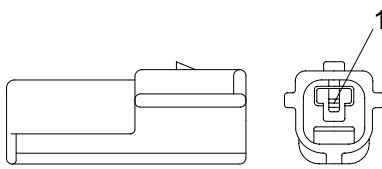
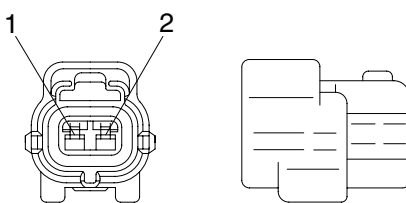
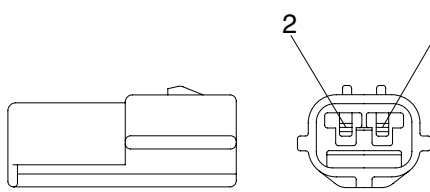
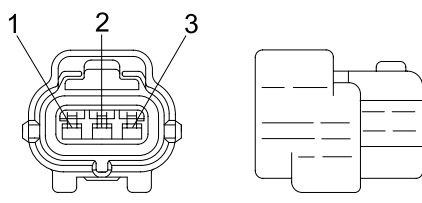
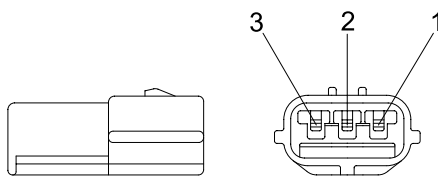
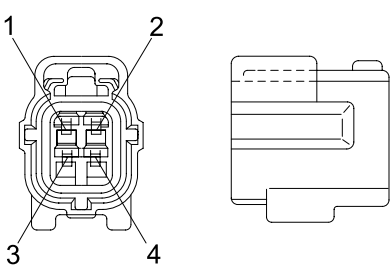
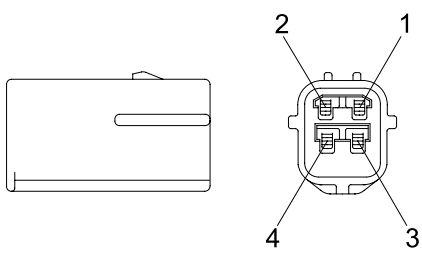
16) ITT SWF CONNECTOR

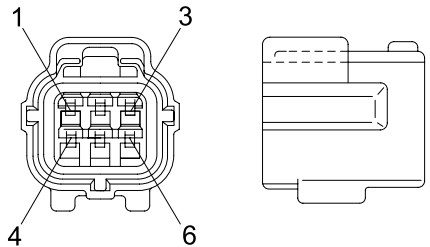
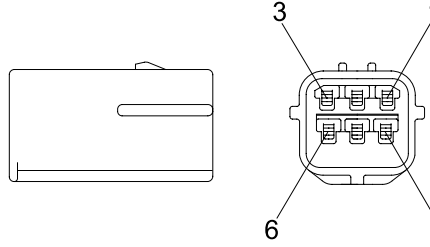
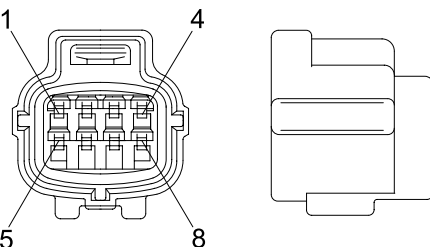
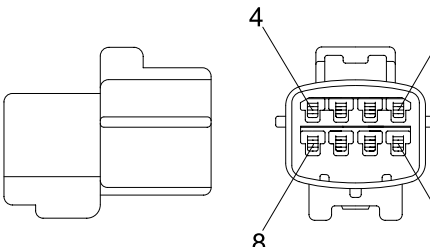
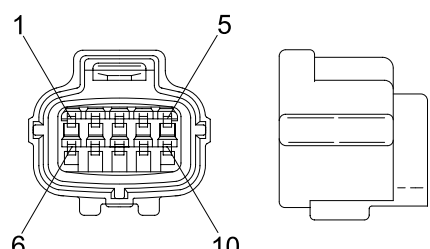
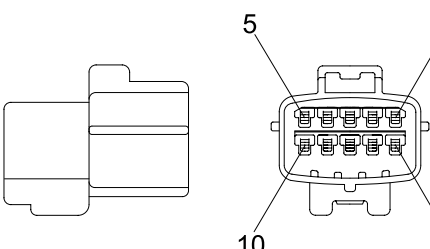
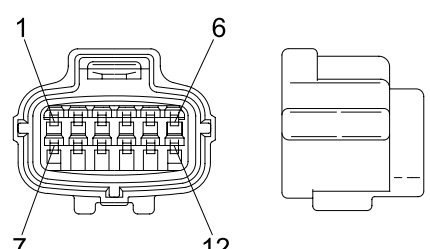
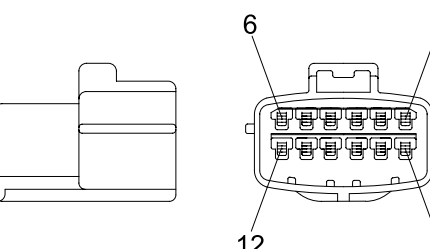
| No. of pin | Receptacle connector (female) | Plug connector (male) |
|------------|---|-----------------------|
| 10 |  <p data-bbox="694 1288 837 1321">SWF593757</p> | |

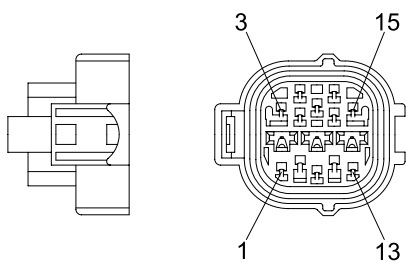
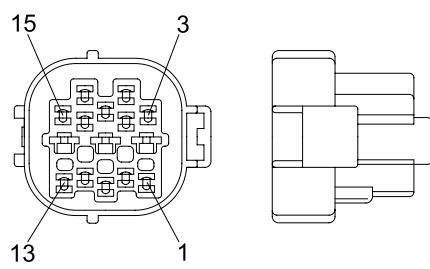
17) MWP NMWP CONNECTOR

| No. of pin | Receptacle connector (female) | Plug connector (male) |
|------------|--|-----------------------|
| 1 |  <p data-bbox="686 1892 837 1926">NMWP01F-B</p> | |

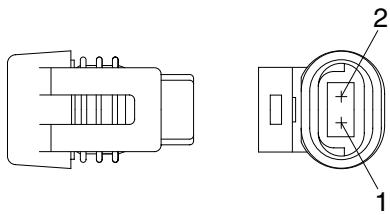
18) ECONOSEAL J TYPE CONNECTORS

| 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> |

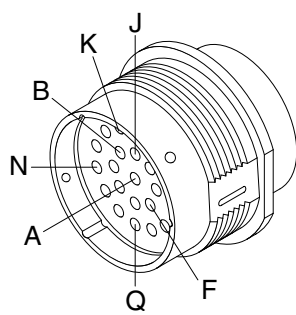
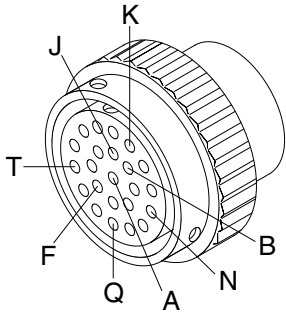
| No. of pin | Receptacle connector (female) | Plug connector (male) |
|------------|--|---|
| 6 |  <p data-bbox="694 638 837 672">S816-006002</p> |  <p data-bbox="1236 638 1380 672">S816-106002</p> |
| 8 |  <p data-bbox="694 1041 837 1075">S816-008002</p> |  <p data-bbox="1236 1041 1380 1075">S816-108002</p> |
| 10 |  <p data-bbox="694 1444 837 1478">S816-010002</p> |  <p data-bbox="1236 1444 1380 1478">S816-110002</p> |
| 12 |  <p data-bbox="694 1848 837 1881">S816-012002</p> |  <p data-bbox="1236 1848 1380 1881">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> |

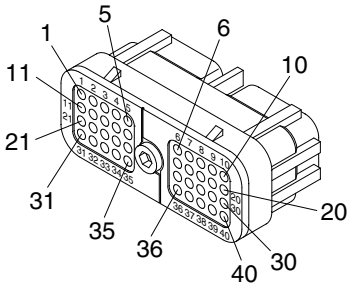
19) METRI-PACK TYPE CONNECTOR

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

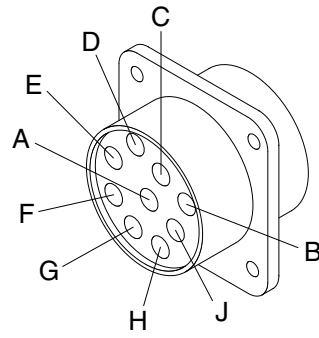
20) DEUTSCH HD30 CONNECTOR

| 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> |

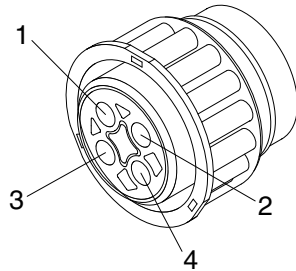
21) DEUTSCH MCU CONNECTOR

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

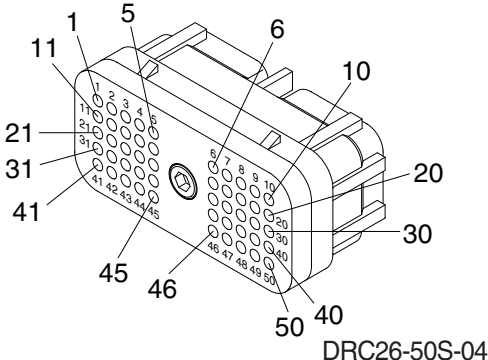
22) DEUTSCH SERVICE TOOL CONNECTOR

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

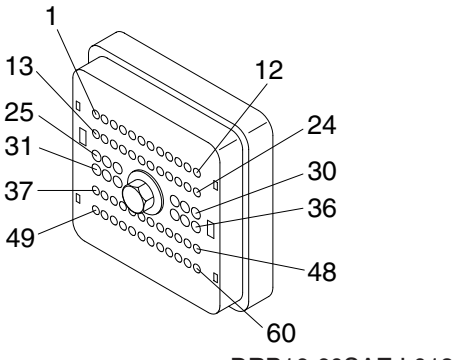
23) AMP FUEL WARMER CONNECTOR

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

24) DEUTSCH ENGINE ECM CONNECTOR

| No. of pin | Receptacle connector (female) | Plug connector (male) |
|------------|--|-----------------------|
| 50 |  <p style="text-align: right;">DRC26-50S-04</p> | |

25) DEUTSCH INTERMEDIATE CONNECTOR

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