CRAWLER EXCAVATOR

# SERVICE MANUAL

## *HX300LT3*

HYUNDAI

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# CONTENTS

## SECTION 1 GENERAL


Group 1 Safety Hints ..... 1-1
Group 2 Specifications ..... 1-10


## SECTION 2 STRUCTURE AND FUNCTION


Group 1 Pump Device ..... 2-1
Group 2 Main Control Valve ..... 2-22
Group 3 Swing Device ..... 2-58
Group 4 Travel Device ..... 2-69
Group 5 RCV Lever ..... 2-83
Group 6 RCV Pedal ..... 2-90


## SECTION 3 HYDRAULIC SYSTEM


Group 1 Hydraulic Circuit ..... 3-1
Group 2 Main Circuit ..... 3-3
Group 3 Pilot Circuit ..... 3-6
Group 4 Single Operation ..... 3-14
Group 5 Combined Operation ..... 3-24


## SECTION 4 ELECTRICAL SYSTEM


Group 1 Component Location ..... 4-1
Group 2 Electric Circuit ..... 4-3
Group 3 Electrical Component Specification ..... 4-22
Group 4 Connectors ..... 4-30


## SECTION 5 MECHATRONICS SYSTEM


Group 1 Outline ..... 5-1
Group 2 Mode selection System ..... 5-3
Group 3 Automatic Deceleration System ..... 5-6
Group 4 Power Boost System ..... 5-7
Group 5 Travel Speed Control System ..... 5-8
Group 6 Automatic Warming Up Function ..... 5-9
Group 7 Engine Overheat Prevention Function ..... 5-10
Group 8 Variable Power Control System ..... 5-11



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Group 9 Attachment Flow Control System ..... 5-12
Group 10 Intelligent Power Control System ..... 5-13
Group 11 Anti-Restart System ..... 5-15
Group 12 Self-Diagnostic System ..... 5-16
Group 13 Engine Control System ..... 5-49
Group 14 EPPR (Electro Proportional Pressure Reducing) Valve ..... 5-50
Group 15 Monitoring System ..... 5-55
Group 16 Fuel Warmer System ..... 5-89

## SECTION 6 TROUBLESHOOTING

Group 1 Before Troubleshooting ..... 6-1
Group 2 Hydraulic and Mechanical System ..... 6-4
Group 3 Electrical System ..... 6-25
Group 4 Mechatronics System ..... 6-43
Group 5 Air conditioner and Heater System ..... 6-71

## SECTION 7 MAINTENANCE STANDARD

Group 1 Operational Performance Test ..... 7-1
Group 2 Major Components ..... 7-21
Group 3 Track and Work Equipment ..... 7-30

## SECTION 8 DISASSEMBLY AND ASSEMBLY

Group 1 Precaution ..... 8-1
Group 2 Tightening Torque ..... 8-4
Group 3 Pump Device ..... 8-7
Group 4 Main Control Valve ..... 8-30
Group 5 Swing Device ..... 8-45
Group 6 Travel Device ..... 8-69
Group 7 RCV Lever ..... 8-102
Group 8 Turning Joint ..... 8-116
Group 9 Boom, Arm and Bucket Cylinder ..... 8-121
Group 10 Undercarriage ..... 8-143
Group 11 Work Equipment ..... 8-155

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### 3) GEAR PUMP

| Item | Specification |
|---|---|
| Type | Fixed displacement gear pump single stage |
| Capacity | 15 cc/rev |
| Maximum pressure | 40 kgf/cm² (570 psi) |
| Rated oil flow | 27 ℓ/min (7.1 U.S. gpm/5.9 U.K. gpm) |

### 4) MAIN CONTROL VALVE

| Item | | Specification |
|---|---|---|
| Type | | 10 spools |
| Operating method | | Hydraulic pilot system |
| Main relief valve pressure | | 350 kgf/cm² (4980 psi) [380 kgf/cm² (5400 psi)]<br>*1 350 kgf/cm² (4980 psi) [Not applied power boost] |
| Port relief valve pressure | Boom | 400 kgf/cm² (5690 psi) |
| | Arm | 400 kgf/cm² (5690 psi), *1 250 kgf/cm² (3560 psi) |
| | Bucket | 400 kgf/cm² (5690 psi), *1 270 kgf/cm² (3840 psi) |

[ ] : Power boost *1 : Long reach only

### 5) SWING MOTOR

| Item | Specification |
|---|---|
| Type | Axial piston motor |
| Capacity | 156.9 cc/rev |
| Relief pressure | 300 kgf/cm² (4270 psi) |
| Braking system | Automatic, spring applied hydraulic released |
| Braking torque | 84.4 kgf · m (610 lbf · ft) over |
| Brake release pressure | 36.6 kgf/cm² (519 psi) below |
| Reduction gear type | 2 - stage planetary |

### 6) TRAVEL MOTOR

| Item | Specification |
|---|---|
| Type | Variable displacement axial piston motor |
| Capacity | 282.6/156.9 cc/rev |
| Relief pressure | 350 kgf/cm² (4980 psi) |
| Braking system | Automatic, spring applied hydraulic released |
| Braking torque | 134 kgf · m (969 lbf · ft) |
| Brake release pressure | 17 kgf/cm² (242 psi) |
| Reduction gear type | 2-stage planetary |



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| DTC | | Diagnostic Criteria | Application | | |
|---|---|---|---|---|---|
| HCESPN | FMI | | G | C | W |
| 189 | 5 | (Detection)<br>(When Attachment Flow EPPR 2 current is equal or more than 300 mA)<br>10 seconds continuous, Attachment Flow EPPR drive current < 100 mA<br>(Cancellation)<br>(When Attachment Flow EPPR 2 current is equal or more than 300 mA)<br>3 seconds continuous, Attachment Flow EPPR drive current ≥ 100 mA | ● | | |
| | 6 | (Detection)<br>10 seconds continuous, Attachment Flow EPPR 2 drive current > 1.0 A<br>(Cancellation)<br>3 seconds continuous, Attachment Flow EPPR 2 drive current ≤ 1.0 A | ● | | |
| | | (Results / Symptoms)<br>1. Control Function – Option attachment flow control operation failure<br>(Checking list)<br>1. CN-242A (#2) – CN-52 (#40) Checking Open/Short<br>2. CN-242A (#1) – CN-52 (#16) Checking Open/Short | | | |
| 196<br>(NA) | 0 | HW145<br>10 seconds continuous,<br>Attachment flow control EPPR 1 press. Sensor Measurement Voltage > 5.2V | | | |
| | 1 | HW145<br>10 seconds continuous,<br>0.3V≤ Attachment flow control EPPR 1 press. Sensor Measurement Voltage < 0.8V | | | |
| | 4 | HW145<br>10 seconds continuous,<br>Attachment flow control EPPR 1 press. Sensor Measurement Voltage < 0.3V | | | |
| | | (Results / Symptoms)<br>1. Control Function – Driving second pump joining function operation failure<br>(Checking list)<br>1. CD-93 (#B) – CN-52 (#34) Checking Open/Short<br>2. CD-93 (#A) – CN-51 (#32) Checking Open/Short<br>3. CD-93 (#C) – CN-51 (#31) Checking Open/Short | | | |
| 200 | 0 | 10 seconds continuous, Pump EPPR Press. Sensor Measurement Voltage > 5.2V | ● | | |
| | 1 | 10 seconds continuous, 0.3V≤ Pump EPPR Press. Sensor Measurement Voltage < 0.8V | ● | | |
| | 4 | 10 seconds continuous, Pump EPPR Press. Sensor Measurement Voltage < 0.3V | ● | | |
| | | (Results / Symptoms)<br>1. Monitor – Pump EPPR Press. display failure<br>2. Control Function – Pump input horse power control failure, Overload at compensation control operation failure<br>(Fuel efficiency/speed performance failure)<br>(Checking list)<br>1. CD-44 (#B) – CN-52 (#32) Checking Open/Short<br>2. CD-44 (#A) – CN-51 (#3) Checking Open/Short<br>3. CD-44 (#C) – CN-51 (#13) Checking Open/Short | | | |

※ Some error codes are not applied to this machine.

G : General C : Crawler Type W : Wheel Type



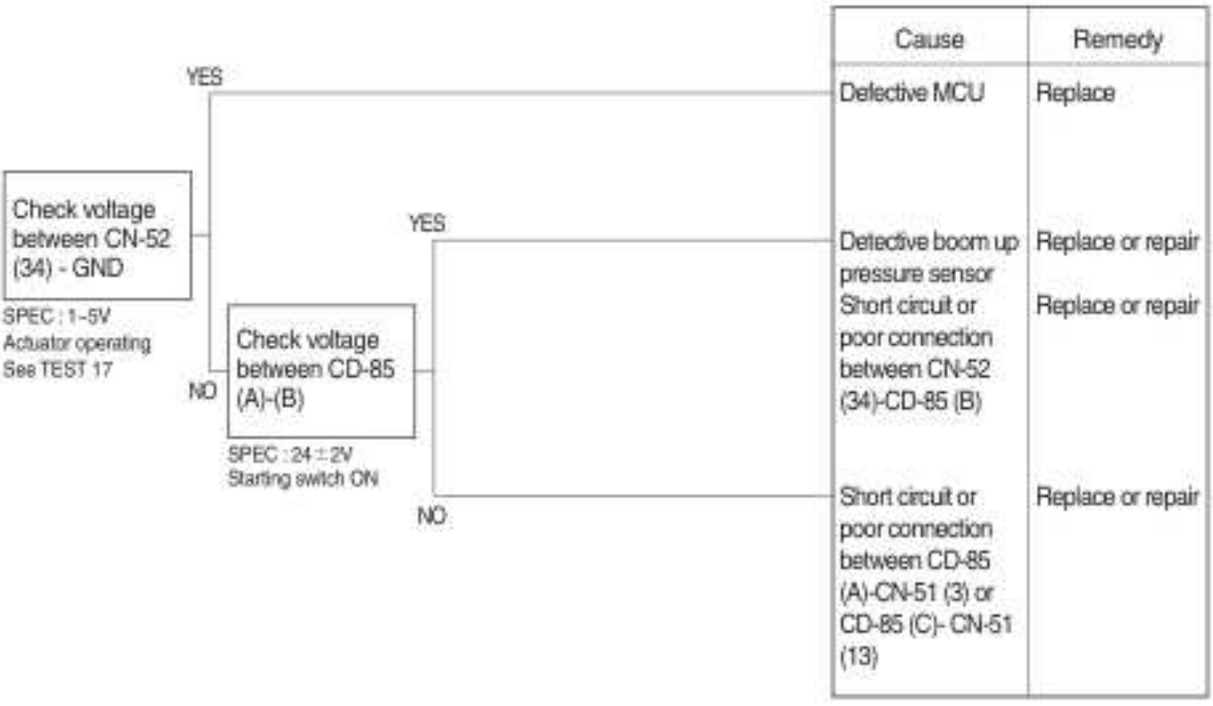
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## 13. MALFUNCTION OF BOOM DOWN PRESSURE SENSOR

· Fault code : HCESPN 128, FMI 0~4

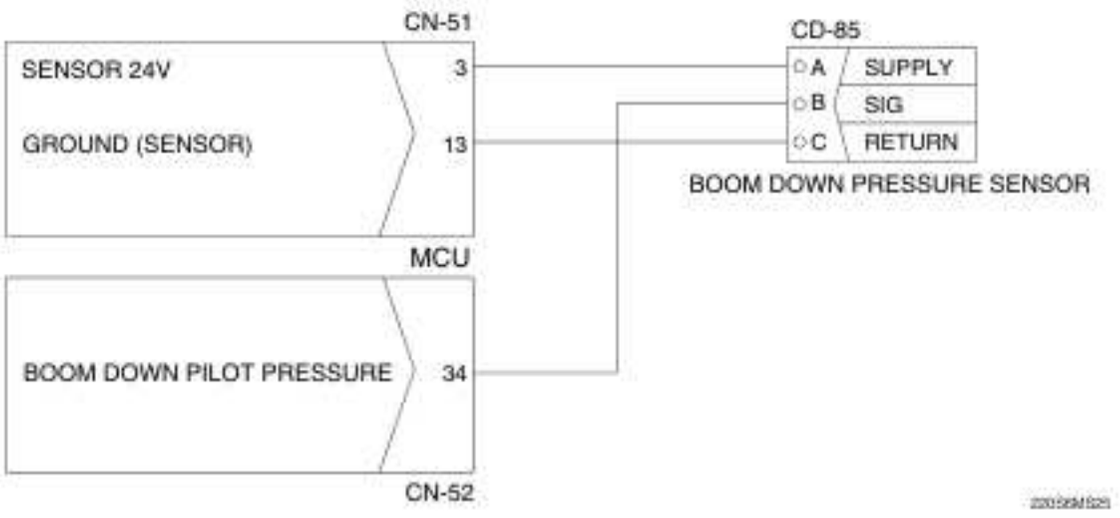
※ Before carrying out below procedure, check all the related connectors are properly inserted.

### 1) INSPECTION PROCEDURE




| Cause | Remedy |
|---|---|
| Defective MCU | Replace |
| Defective boom up pressure sensor | Replace or repair |
| Short circuit or poor connection between CN-52 (34)-CD-85 (B) | Replace or repair |
| Short circuit or poor connection between CD-85 (A)-CN-51 (3) or CD-85 (C)- CN-51 (13) | Replace or repair |

Wiring diagram





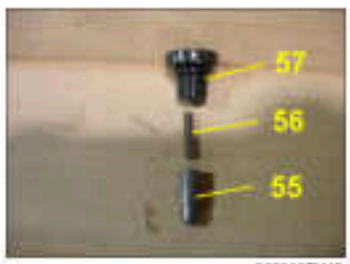

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## 4. REASSEMBLING

### 1) ASSEMBLING MOTOR

#### - REAR COVER ASSY

(1) Assemble check valve (55), spring (56) into rear cover (34) and then assemble plug (57) using L-wrench.



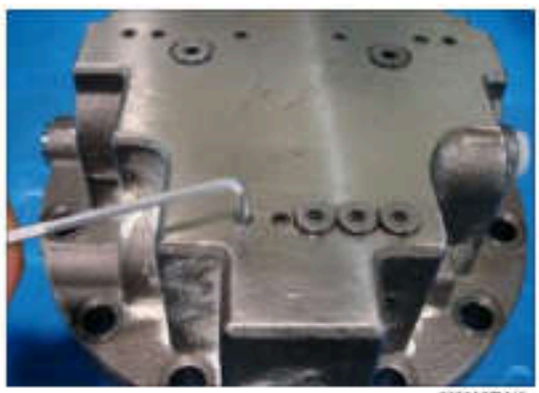
2609A8TM40


2609A8TM41

(2) Apply loctite #242 on the NPTF 1/16 plug (2) and then assemble 12-NPTF 1/16 Plug (2) into rear cover(34).



2609A8TM42


2609A8TM43

(3) Assemble spool (47), parallel pin (50), spring seat (49) and spring (51) into rear cover (34) in regular sequence and then assemble plug (48) and connector (52).



2609A8TM44


2609A8TM45


2609A8TM46

(4) Assemble relief valve (42, 2EA) into rear cover (34).



2609A8TM47


2609A8TM48


2609A8TM49



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③ Assemble 9 piston assy (12) into retainer plate (11).

- Piston assy × 9EA
- Retainer plate × 1EA



④ Assemble parts of procedure ② and ③.



(3) Assemble valve casing sub

① Assemble make up check valve sub

Assemble check valve (24), O-ring (27), plug (26) in that order and then screw it torque wrench.

- Make up check valve × 2EA
- Spring × 2EA
- Plug × 2EA
- O-ring × 2EA
- Tightening torque : 38 ± 3.8 kgf · m (275 ± 27.5 lbf · ft)



② Assemble reactionless valve assy

Assemble reactionless valve assy (31), plug (32), O-ring (33, 34) in that order and then screw it a torque wrench.

- Reactionless valve assy (31) × 2EA
- Plug (32) × 2EA
- O-ring (33, 34) × 2EA
- Tightening torque : 22 ± 1.5 kgf · m (159 ± 11 lbf · ft)

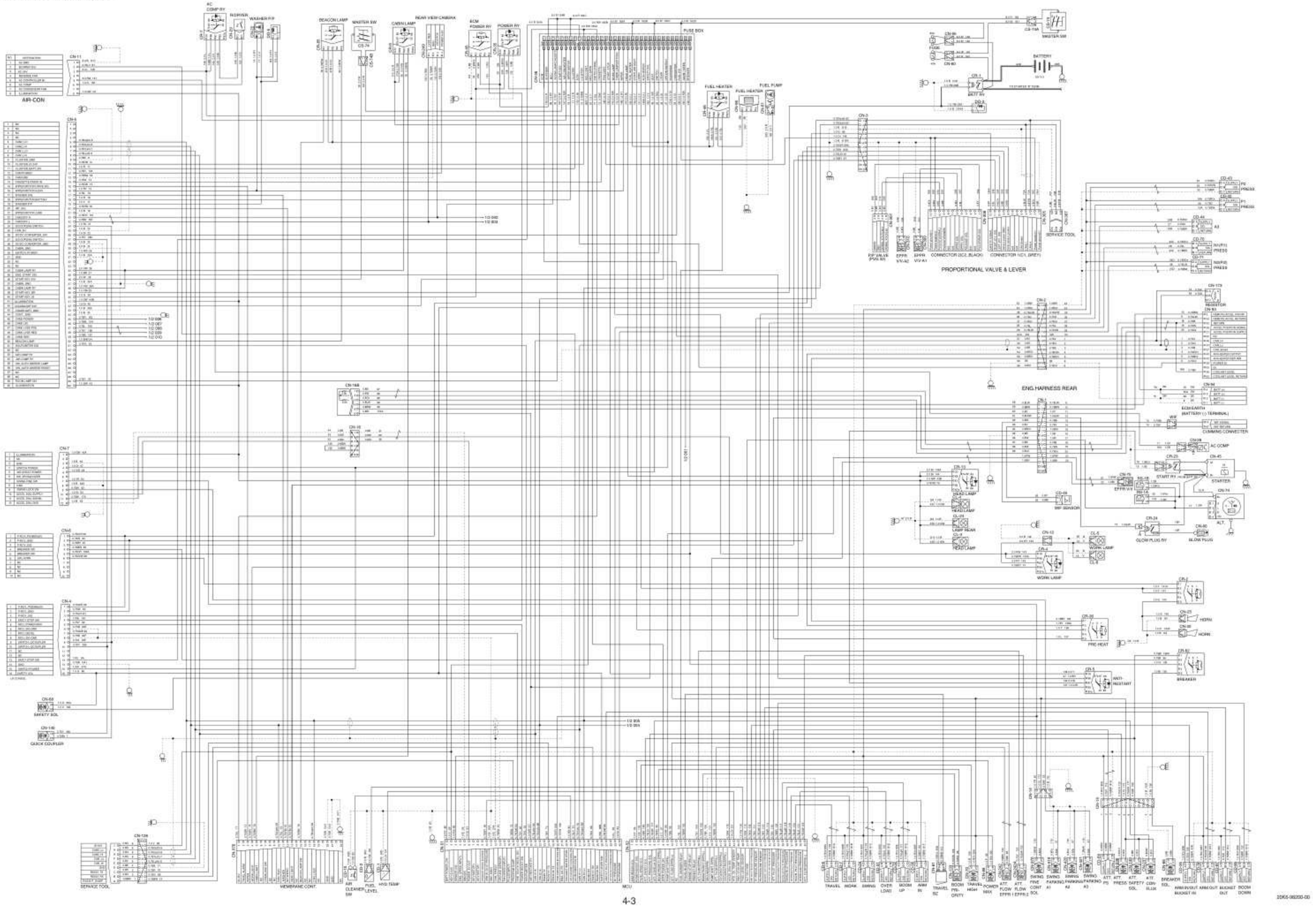




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· ELECTRICAL CIRCUIT (1/2)

- MACHINE SERIAL NO. : -#00169






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